

DRAFT EIA / EMP REPORT

FOR

ROUGHSTONE AND GRAVEL QUARRY

Extent	1.105 Ha
Land Type	Patta Land
Production	Roughstone – 56,890 m³ Gravel – 45,468 m³
Depth	21m bgl
Lease Period	5 years

SURVEY NO - 293/1A (P) & 293/2B(P)

VILLAGE – MELUR-DURASAMPURAM TALUK – RAJAPALAYAM

DISTRICT – VIRUDHUNAGAR, STATE – TAMILNADU.

- Terms of Reference issued by SEIAA, Tamil Nadu vide SEIAA-TN/F.No.8743/SEAC/ToR 1052/2022 dated 31.01.2022.
- Baseline Monitoring Period – Winter Season (December 2021 to February 2022)

PROJECT PROPONENT

THIRU K.A.RAJAGOPAL

24E, Gundoomurthy Street, Rajapalayam Town, Rajapalayam Taluk,
Virudhunagar District- 626117.

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,



DECEMBER 2022

REVISIONS OF EIA/EMP REPORT

Revision number	Report Status	Date of submission
00/DEC/22	Draft EIA /EMP Report	22.12.2022

Environmental Impact Assessment & Environmental Management Plan Report for Rough stone and Gravel Quarry of Thiru K.A.Rajagopal at 293/1A(P) and 293/2B(P) of Melur-Duraisampuram Village, Rajapalayam Taluk, Virudhunagar District, Tamil Nadu was prepared by Creative Engineers & Consultants and authorized for submission by Mr. P.Giri, EIA Coordinator, CEO, of Creative Engineers & Consultants on 22.12.2022 after due review by the personnel and consultation with Thiru K.A.Rajagopal. Current Revision number of the EIA/EMP report is 00/DEC/22, signifying as per the revision mentioned in the above table that this is a draft EIA/EMP report.

PROJECT PROPONENT DECLARATION

I, Thiru K.A.Rajagopal received ToR under EIA Notification 2006 from SEIAA, Tamil Nadu vide their SEIAA-TN/F.No.8743/SEAC/ToR 1052/2022 dated 31.01.2022 for Rough stone and Gravel Quarry at at 293/1A(P) and 293/2B(P) of Melur-Duraisampuram Village, Rajapalayam Taluk, Virudhunagar District, Tamil Nadu.

I 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 23.03.2023.

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.

Thiru K.A.Rajagopal



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. The Certificate of Reaccreditation vide No – NABET/EIA/2023/RA 0187 dated 18.12.2020 is issued with validity up to 23.03.2023.

Thiru K.A.Rajagopal received ToR under EIA Notification 2006 from SEIAA, Tamil Nadu vide their SEIAA-TN/F.No.8743/SEAC/ToR 1052/2022 dated 31.01.2022 for Rough stone and Gravel Quarry at 293/1A(P) and 293/2B(P) of Melur-Duraisampuram Village, Rajapalayam Taluk, Virudhunagar District, Tamil Nadu.

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

(P. Giri)

Chief Executive & EIA Coordinator

Creative Engineers & Consultants

Annexure – VII


Declaration by Experts contributing to the EIA Report for

Rough stone and Gravel Quarry of Thiru K.A.Rajagopal at 293/1A(P) and 293/2B(P) of Melur-Duraisampuram Village, Rajapalayam Taluk, Virudhunagar District, Tamil Nadu

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

EIA coordinator:

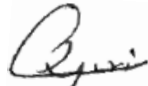
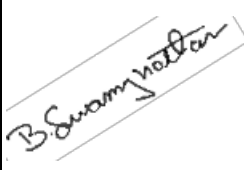
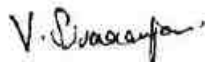
Name: **P.Giri**

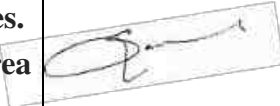




Signature and Date: 



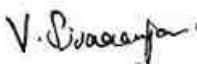


Period of involvement: **August 2021 onwards**


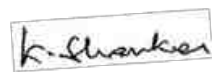
Contact information: **09444133619**

Functional area experts:

S. No.	Functional areas	Name of the expert/s	Involvement (period and task**)	Signature and date
1	AP*	P.Giri	<ul style="list-style-type: none"> • 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: August 2021 onwards	
		B.Swamynathan	<ul style="list-style-type: none"> • Data interpretation of Micro meteorological data for wind rose. • Identification of polluting source and suggestion of suitable mitigation measures. Period: December 2021 onwards	
2	WP*	V.Sivaranjani	<ul style="list-style-type: none"> • 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 	

			<ul style="list-style-type: none"> • Suggestion of Mitigation measures to control water pollution <p>Period: June 2022 onwards</p>	
		G.Sandhya	<ul style="list-style-type: none"> • Identification of impact of the project on the water quality and suggestion of suitable mitigation measures. • Preparation of sections relevant to WP functional area in the EIA/EMP report. <p>Period: June 2022 onwards</p>	
3	SHW*	P.Giri	<ul style="list-style-type: none"> • 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 <p>Period: August 2021 onwards</p>	
4	SE*	R.Baburaj	<ul style="list-style-type: none"> • 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 <p>Period: December 2021 onwards</p>	
5	EB*	B.Swamynathan	<ul style="list-style-type: none"> • 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 <p>Period: December 2021 onwards</p>	
6	HG*	K.Shankar	<ul style="list-style-type: none"> • 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. 	

			<ul style="list-style-type: none"> 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 <p>Period: December 2021 onwards</p>	
7	GEO*	K.Shankar	<ul style="list-style-type: none"> Study of geology of the ML area and the surrounding areas. Provide details about Mineral composition <p>Period: December 2021 onwards</p>	
8	SC*	B.Swamynathan	<ul style="list-style-type: none"> Study of soil profile Assessment of Impact on soil and suggesting plantation scheme. <p>Period: December 2021 onwards</p>	
9	AQ*	V.Sivaranjani	<ul style="list-style-type: none"> 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 <p>Period: June 2022 onwards</p>	
		G.Sandhya	<ul style="list-style-type: none"> Calculation of the emission rates 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. <p>Period: June 2022 onwards</p>	
10	NV*	P.Giri	<ul style="list-style-type: none"> 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 	

			<p>control ground vibration Period: August 2021 onwards</p>	
11	LU	B.Swamynathan	<ul style="list-style-type: none"> • 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. <p>Period: December 2021 onwards</p>	
12	RH*	K.Shankar	<ul style="list-style-type: none"> • Identified Major risks involved in the project Mitigation measures suggested to avoid risk. • Preparation of onsite and offsite emergency management plan <p>Period: December 2021 onwards</p>	

*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 **Rough stone and Gravel Quarry of Thiru K.A.Rajagopal at 293/1A(P) and 293/2B(P) of Mellur-Duraisampuram Village, Rajapalayam Taluk, Virudhunagar District, Tamil Nadu.**

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

Signature:



Name: **P.Giri**

Designation: **Chief Executive**

Name of the EIA consultant organization: **Creative Engineers & Consultants, Chennai – 59**

NABET Certificate No. & Issue Date: **No- NABET/EIA/2023/RA 0187 & date Dec 18th, 2020**



Quality Council of India

National Accreditation Board for Education & Training



CERTIFICATE OF ACCREDITATION

Creative Engineers and Consultants, Chennai

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

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

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

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Nov 20, 2020 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/20/1575 dated Dec 18, 2020. The accreditation needs to be renewed before the expiry date Creative Engineers and Consultants, Chennai following due process of assessment.

Sr. Director, NABET
Dated: Dec 18, 2020

Certificate No.
NABET/EIA/2023/RA 0187

Valid till
March 23, 2023

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

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DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU K.A.RAJAGOPAL AT 293/1A(P) AND 293/2B(P) OVER AN AREA OF 1.10.5Ha IN MELUR-DURASAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

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

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU

3rd Floor, Panagal Maaligai,
No.1 Jeenis Road, Saidapet,
Chennai-15.
Phone No.044-24359973

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.8743/SEAC/ToR- 1052/2022 Dated: 31.01.2022

To

Thiru.K.A.Rajagopal
24E, Gundoomurthy Street,
Rajapalayam Town Rajapalayam Taluk,
Virudhunagar District.
Pin Code : 626 117


Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the proposed Rough Stone and Gravel Quarry Project at over an Extent of 1.10.5 Ha of Patta land in S.F.Nos.293/1A(P) & 293/2B(P) of Mellur- Duraisampuram Village, Rajapalayam Taluk, Virudhunagar District, Tamil Nadu by Thiru.K.A.Rajagopal - 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/ 66578/2021, dated: 18.08.2021
2. Your application submitted for Terms of Reference dated: 26.08.2021
3. Minutes of the 237th meeting of SEAC held on 08.10.2021
4. Minutes of the 481st Authority meeting held on 24.01.2022 & 25.01.2022.

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

The proponent, Thiru.K.A.Rajagopal has submitted application for ToR with public Hearing on 18.08.2021, in Form-I, Pre- Feasibility report for the proposed rough stone and gravel Quarry

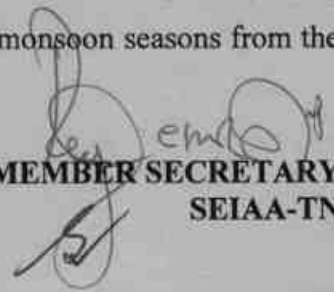

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Project at over an Extent of 1.10.5 Ha of Patta land in S.F.Nos.293/1A(P) & 293/2B(P) of Mellur-Duraisampuram Village, Rajapalayam Taluk, Virudhunagar District, Tamil Nadu, Tamil Nadu.

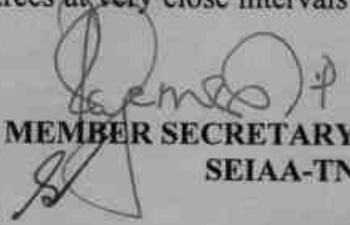
Discussion by SEAC and the Remarks:-

The proposal was placed for appraisal in the 237th meeting of SEAC held on 08.10.2021. Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the **grant of Terms of Reference (ToR) with Public Hearing**, subject to the following ToR in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MoEF&CC to be included in EIA/EMP report.

1. Restricting the depth of mining to 21m ultimate depth and quantity of 62390 cu.m of Rough stone & 45,468 cu.m of Gravel for five years with a bench height of 5m as per the approved mining plan considering the hydrogeological regime of the surrounding area as well as to ensure sustainable and safe mining.
2. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
 - a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 - b) Quantity of minerals mined out.
 - c) Detail of approved depth of mining.
 - d) Actual depth of the mining achieved earlier.
 - e) Name of the person already mined in that leases area.
 - f) If EC and CTO already obtained, the copy of the same shall be submitted.
 - g) whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
3. A detailed study of the lithology of the mining lease area shall be furnished.
4. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
5. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the


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- PWD / TWAD so as to assess the impacts on the wells due to mining activity.
6. 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.
 7. The Proponent shall carry out the Cumulative impact study due to mining from all the mines on the environment in terms of air pollution, water pollution, & health impacts, accordingly the Environment Management plan should be prepared.
 8. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity.
 9. 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.
 10. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report.
 11. All the queries raised during public hearing by the local habitants need to be addressed and the protective measures or management plan may be revised accordingly and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
 12. The project proponent shall submit revised CER activities for governments schools only.
 13. The recommendation for the issue of "Terms of Reference" is subjected to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A. No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No. 981/2016, M.A.No.982/2016 & M.A.No.384/2017).
 14. The purpose of Green belt around the project is to capture the fugitive emissions and to attenuate the noise generated, in addition to the improvement in the aesthetics. A wide range of indigenous plants species should be planted in and around the premise in consultation with the DFO, District / State Agriculture University. The plants species should have thick canopy cover, perennial green nature, native origin and large leaf areas. Medium size trees and small trees alternating with shrubs shall be planted. Miyawaki method of planting i.e. planting different types of trees at very close intervals


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may be tried which will give a good green cover. Greenbelt needs to be developed in the periphery of the mines area so that at the closure time the trees would have grown well.

15. The project proponent shall furnish the details of the existing/proposed Green belt area earmarked with GPS coordinates and list of trees that are proposed to be planted surrounding the mining area atleast to a width of 3m along with a copy of photos/documents, and the same shall be included in the EIA Report.

Discussion by SEIAA and the Remarks:-

The subject was placed in the 481st Authority meeting held on 24.01.2022 & 25.01.2022. After detailed discussions, the Authority accepted the recommendation of SEAC and decided to grant Terms of Reference (ToR) with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal condition in addition to the following conditions:

1. As per the recommendation of SEAC and as accepted by the proponent, restricting the depth of mining to 21m and quantity of 62390 cu.m of Rough stone & 45,468 cu.m of Gravel for five years with a bench height of 5m as per the approved mining plan considering the hydro geological regime of the surrounding area as well as to ensure sustainable and safe mining.
2. 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.
3. 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.
4. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
5. Action should be specifically suggested for sustainable management of the area and restoration of ecosystem for flow of goods and services.


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


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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.


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- 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,


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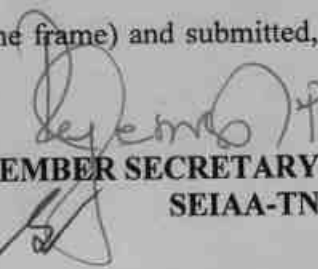
endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for 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.


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There should be at least one monitoring station within 500 m of the mine lease in the predominant 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,


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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.


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- 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:-
- Executive Summary of the EIA/EMP Report
 - All documents to be properly referenced with index and continuous page numbering.
 - Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - 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.
 - Where the documents provided are in a language other than English, an English translation should be provided.
 - The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - 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.
 - 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.
 - As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the


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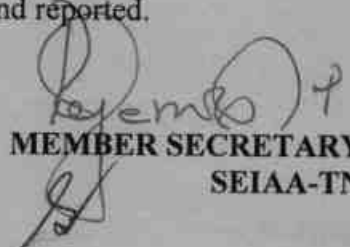
status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

- 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.


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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.


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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 OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.


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Copy to:

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



MEMBER SECRETARY
SEIAA-TN

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU K.A.RAJAGOPAL AT 293/1A(P) AND 293/2B(P) OVER AN AREA OF 1.10.5Ha IN MELUR-DURASAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

TOR COMPLIANCE

S.No	ToR Points	Reply	Pg.No
A. ToR in Addition to Standard ToR			
1.	Restricting the depth of mining to 21m ultimate depth and quantity of 62390 cu.m of Rough stone & 45,468 cu.m of Gravel for five years with a bench height of 5m as per the approved mining plan considering the hydrogeological regime of the surrounding area as well as to ensure sustainable and safe mining.	The proposed depth of mining as per the approved mining plan was 26m. However, based on SEAC recommendation the mining depth has been reduced to 21m. It is proposed to mine a quantity of 56,890m ³ of Roughstone and 45,468m ³ of Gravel.	2-11
2	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? b) Quantity of minerals mined out. c) Detail of approved depth of mining. d) Actual depth of the mining achieved earlier. e) Name of the person already mined in that leases area. f) If EC and CTO already obtained, the copy of the same shall be submitted. g) Whether mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	This is a proposed project. No mining has been carried out in this lease area so far by the proponent.	2-11
3	A detailed study of the lithology of the mining lease area shall be furnished.	Details of hydrogeological scenario of this project is provided under section 3.6, Chapter-III.	3-41
4	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as	In the lease area, safety barrier 7.5m around the periphery. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. About 550 trees will be planted in and around the	4-21



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	per the approved mining plan.	lease area. Details of proposed plantation is given in Table No.4.16, Chapter-IV.	
5	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity.	Details of hydrogeological scenario of this project is provided under section 3.6, Chapter-III.	3-41
6	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 Winter Season (December 2021 to February 2022) and detailed in Section 3.3 to 3.5 of Chapter-III. The details of Traffic Study is provided under Section 4.9, Chapter-IV.	3-10 & 3-34 4-25
7	The Proponent shall carry out the Cumulative impact study due to mining from all the mines on the environment in terms of air pollution, water pollution, & health impacts, accordingly the Environment Management plan should be prepared.	<ul style="list-style-type: none"> The details of other quarries located in 500m radius of the project is provided in Annexure-2. The baseline monitoring carried out for this project reflects the cumulative impact of this existing quarry. The identification of impact due to air, water, health impacts etc. has been carried out in Chapter-IV. The environmental management plan has been provided elaborately in Chapter-X.	4-1 10-1
8	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity.	Details of the socio economic survey conducted in the buffer zone has been provided in Para 3.2.4, Chapter-III.	3-9
9	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.	The details of flora in the core zone and the buffer zone are provided from Table No.3.24-3.25, Chapter-III.	3-37



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10	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report.	Details of Mine Closure Plan is provided under section 7.5, Chapter-VII.	7-4
11	All the queries raised during public hearing by the local habitants need to be addressed and the protective measures or management plan may be revised accordingly and to be submitted to SEIAA/SEAC with regard to the office Memorandum of MoEF&CC accordingly.	Agreed	--
12	The project proponent shall submit revised CER activities for governments schools only.	Will be discussed with locals and provided accordingly.	--
13	The recommendation for the issue of "Terms of Reference" is subjected to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No .920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A. No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No. 981/2016, M.A.No.982/2016 & M.A.No.384/2017).	Agreed.	--
14	The purpose of Green belt around the project is to capture the fugitive emissions and to attenuate the noise generated, in addition to the improvement in the aesthetics. A wide range of indigenous plants species should be planted in and around the premise in consultation with the DFO, District / State Agriculture University. The plants species should have thick canopy cover, perennial green nature, native origin and large leaf areas. Medium size trees and small trees alternating with shrubs shall be planted. Miyawaki method of planting i.e. planting different types of trees close at very intervals may be tried which will give a good green cover. Greenbelt needs to be developed in the periphery of the mines area	In the lease area, safety barrier 7.5m around the periphery. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. About 550 trees will be planted in and around the lease area. Details of proposed plantation is given in Table No.4.16, Chapter-IV.	4-21



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	so that at the closure time the trees would have grown well.		
15	The project proponent shall furnish the details of the existing/proposed Green belt area earmarked with GPS coordinates and list of trees that are proposed to be planted surrounding the mining area atleast to a width of 3m along with a copy of photos/documents, and the same shall be included in the EIA Report.	In the lease area, safety barrier 7.5m around the periphery. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. About 550 trees will be planted in and around the lease area. Details of proposed plantation is given in Table No.4.16, Chapter-IV.	4-21
B. Additional Condition			
1	As per the recommendation of SEAC and as accepted by the proponent, restricting the depth of mining to 21m and quantity of 62390 cum of Rough stone & 45,468 cum of Gravel for five years with a bench height of 5m as per the approved mining plan considering the hydro geological regime of the surrounding area as well as to ensure sustainable and safe mining.	The proposed depth of mining as per the approved mining plan was 26m. However, based on SEAC recommendation the mining depth has been reduced to 21m. It is proposed to mine a quantity of 56,890m ³ of Roughstone and 45,468m ³ of Gravel.	2-11
2	As per the MoEF& CC office memorandum F.No.22-6512017-IA.III dated: :O.O9.ZOZO 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.	Agreed	--
3	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.	Considering that the quantum of production is less, only 1 excavator, 4 tippers will be engaged. These equipments will be properly and regularly maintained. Besides, as mentioned earlier, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 560 number of plants will be planted in and around the lease area.	4-3



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4	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	The details of flora in the core zone and the buffer zone are provided from Table No.3.24–3.25, Chapter-III.	3-37
5	Action should be specifically suggested for sustainable management of the area and restoration of ecosystem for flow of goods and services.	The post mining land use has been provided in Table No. 4.14. The post mining land use plan showing afforestation and water body is shown in Figure No- 4.7.	4-16

C. Standard ToR

1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	This is a proposed project. No mining has been carried out in this lease area so far by the proponent.	2-11
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 Vide Rc.No: KV1/932/2018, dated 01.06.2019	A-1
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	The production capacity, quantity of waste, its management and mining technology in mine plan and EIA, etc., are compatible with one another.	--
4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the	<ul style="list-style-type: none"> • 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.3.20, 3.21, Chapter-III. The Lithology map and Soil map are 	<p>2-6</p> <p>3-43</p> <p>3-44</p>



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	study area (core and buffer zone).	provided under Figure No. 3.22, 3.23, Chapter-III. The 10km Radius Index plan showing buffer zone is given in Figure No.3.1 in Chapter – III.	3-45 3-46 3-2
5	Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Replied in Standard ToR point no.4	--
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	Not Applicable	--
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	<ul style="list-style-type: none"> • The proponent will frame a well-planned environmental policy. Its details are provided under Section 10.2.1, Chapter-X. • The Mines Manager will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programme, social development schemes, etc in the mine. The organizational chart for the same has been provided in Figure No.10.1, Chapter-X. 	10-1 10-3



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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 4.4.2, Chapter-IV.	7-4 4-15
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.	The study area chosen for collecting existing environmental status covers 10 km radial distance from the project periphery (Figure No - 3.1). Data given in the report is for the life of the mine.	3-2
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	<ul style="list-style-type: none"> • 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. 4.14. .The post mining land use plan showing afforestation and water body is shown in Figure No- 4.5. 	3-28 4-16
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Hence, there is no external overburden dump involved. Besides, there is no proposal for overburden dump outside the lease area.	2-11
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	There is no forest land in the lease area.	--



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	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.	There is no forest land in the lease area.	--
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable	--
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	There is no forest land in the lease area.	--
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	Nellai Wildlife Sanctuary is located at a distance of 4.6Km on the eastern side of the lease area. Based on MoEF&CC Notification S.O.2794(E) dated 02.08.2019, the eco sensitive zone is at a distance of 3.5Km. Hence, NBWL clearance is not applicable. Srivilliputthur-Meghamalai Tiger Reserve (SMTR) is located at a distance of 6.3Km from the lease area. As final notification is awaited, application for NBWL clearance has been made.	4-17
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant	Replied in Standard ToR point No.16	--



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	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.	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.	3-34
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	--



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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 shifting 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.	7-4
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	<ul style="list-style-type: none"> • The baseline data on micro- meteorology, ambient air quality, Water quality, noise level, soil and flora & fauna are collected during Winter Season (December 2021 to February 2022) 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. 	3-10 & 3-34



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	<p>meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.</p>	<p>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.</p>	
<p align="center">23</p>	<p>Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.</p>	<ul style="list-style-type: none"> • Air quality modeling details are furnished in para 4.2.2 and its continuous sub paras in Chapter-IV of EIA report. • The impact on air quality due to the proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model developed by Lakes Environmental Software which is based on steady state Gaussian plume dispersion. • The model simulations are done for the air pollutant arising from the mining operations, namely, PM10, PM2.5. Ground Level Concentration (GLC) have been computed using hourly meteorological data. • The Isopleths of PM10, PM2.5 concentrations for with control measures scenario have also been drawn and these are given in Figure No.4.1 and 4.2. • It can be seen that the resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM10 are within the statutory limits in each case. 	<p align="center">4-3 4-5 & 4-6</p>



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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 6.0 KLD comprising 1.0 KLD for drinking water and domestic use, 4.0 KLD for dust suppression and 1.0 KLD for greenbelt. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. The water balance diagram for the same is shown in Figure No 4.3.	4-8
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable.	--
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	<ul style="list-style-type: none"> • The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc. • Towards surface runoff management, a garland drain will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users. The surface runoff management structures diagram is given in Figure No 4.3, Chapter-IV. • The methods for reducing water consumption and rainwater harvesting is provided in section 4.3.4, Chapter-IV. 	4-9 4-11
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.	<ul style="list-style-type: none"> • There is a tank located at a distance of 230m on the southern side of the lease area. Besides, Devi Ar is located at a distance of 1.9Km on the eastern side of the lease area. There is no proposal to discharge any effluent into these water bodies. No major impact is envisaged on the nearby water bodies due to project 	4-10



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		operations. There is no proposal to discharge any effluent into this water body. No major impact is envisaged on the nearby water bodies due to project operations.	
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.	<ul style="list-style-type: none"> • 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 21m. 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. 	<p>4-10</p> <p>3-43</p>
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.	Replied above in Standard ToR point No.27.	--
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.	<ul style="list-style-type: none"> • The area applied for mining lease is a gentle plain terrain. • The ultimate pit depth of mining is 21 m. The ground water table in this area is below this level. 	<p>2-2</p> <p>4-16</p>
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a	In the lease area, safety barrier 7.5m is left as safety zone. Greenbelt / Plantation will be	4-21



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU K.A.RAJAGOPAL AT 293/1A(P) AND 293/2B(P) OVER AN AREA OF 1.10.5Ha IN MELUR-DURASAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

	<p>tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the. Project. Phasc-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.</p>	<p>carried out in and around the lease area to enhance the vegetative growth and aesthetic in the area. Details are given in Table No.4.16, Chapter-IV.</p>	
32	<p>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.</p>	<p>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 study is provided under section 4.9, Chapter-IV.</p>	4-25
33	<p>Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.</p>	<p>This is a proposed project. Site services like mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.</p>	2-14
34	<p>Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate</p>	<p>The post mining land use has been provided in Table No. 4.13. The post mining land use</p>	4-16



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU K.A.RAJAGOPAL AT 293/1A(P) AND 293/2B(P) OVER AN AREA OF 1.10.5Ha IN MELUR-DURASAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

	number of sections) should be given in the EIA report.	plan showing afforestation and water body is shown in Figure No- 4.4.	
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.	4-24
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	<ul style="list-style-type: none"> • Details of the socio economic survey conducted in the buffer zone has been provided in Para 3.2.4, Chapter-III. • Public health facilities will be further aimed to be developed through CER activities wherein periodic health checkups, medical camps for the locals will be conducted. 	3-9
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.	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.	3-9
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 is provided in Chapter-X.	10-1
39	Public Hearing points raised and	• This draft EIA/EMP report will be	7-1



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU K.A.RAJAGOPAL AT 293/1A(P) AND 293/2B(P) OVER AN AREA OF 1.10.5Ha IN MELUR-DURASAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

	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.	submitted for 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.	
40	Details of litigation pending against the project, if any, with direction /order paced by any Court of Law against the Project should be given.	• There is no litigation pending against the project.	--
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	• The cost of the project is Rs. 47,12,380/- • Towards EMP measures, Rs.6.5 Lakhs is allocated under capital cost. Besides, Rs.7.8 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.	11-16
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.	7-3
43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic,	• The proposed Roughstone and Gravel Quarry will benefit this region in the fields of employment opportunities, improved	8-1



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU K.A.RAJAGOPAL AT 293/1A(P) AND 293/2B(P) OVER AN AREA OF 1.10.5Ha IN MELUR-DURASAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

	<p>employment potential, etc.</p>	<p>per capita income for local people, improved social welfare facilities in respect of education, health, infrastructural etc.</p> <ul style="list-style-type: none"> • Direct employment to about 10 people and indirect employment to scores of people. • By means of carrying out the socio-economic development activities, local community development is expected. Towards the same, the proponent has planned to allocate Rs.5 Lakhs for various activities under CER for all the three projects together. From the CER activities allocated for various social welfare activities, the villages near the lease area will be benefited. 	
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CHAPTER 1

INTRODUCTION

1.1 PURPOSE OF THE REPORT:

Thiru. K.A.Rajagopal proposes to operate a **Rough Stone and Gravel Quarry** Survey No. at 293/1A(P) and 293/2B(P) over an area of 1.10.5Ha in Mellur-Duraisampuram village, Rajapalayam Taluk, Virudhunagar District, Tamil Nadu and has initiated action towards obtaining environmental clearance.

It is proposed to mine 56,890 m³ of Rough stone and 45,468 m³ of Gravel for a period of five years upto a depth of 21m as per approved ToR as against the mining plan approved quantity of 64,390 m³ of Roughstone and 45,468 m³ of Gravel for a period of five years upto a depth of 26m.

Although the individual lease area of this project is less than 5 Ha, the other existing 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. The details of the quarries located within the 500m radius of the project is given vide **Annexure-2**. A cumulative impact study has been carried out and furnished in **Para 7.3, Chapter-VII**.

This EIA/EMP report is prepared based on standard and additional Terms of Reference issued by SEIAA, Tamil Nadu vide letter no. SEIAA-TN/F.No.8743/SEAC/ToR-1052/2022 dated 31.01.2022 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. K.A.Rajagopal
2	Extent	1.105Ha
3	Production	Roughstone – 56,890m ³ Gravel – 45,468 m ³
4	Ultimate Depth	21m
5	Land	Patta land in the name of applicant.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU K.A.RAJAGOPAL AT 293/1A(P) AND 293/2B(P) OVER AN AREA OF 1.10.5Ha IN MELUR-DURASAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Classification		
6	Location	Survey Number: 293/1A(P) and 293/2B(P)
		Village: Melur-Duraisampuram
		Taluk: Rajapalayam
		District: Virudhunagar
		State: Tamil Nadu

Table 1.2: Identification of Project Proponent

1	Proponent Name	Thiru. K.A.Rajagopal
2	Address	24E, Gundoomurthy Street, Rajapalayam Town, Rajapalayam Taluk. Virudhunagar District, Pin Code : 626 117.
3	Contact Number	9442210207
4	Email-ID	rajagopalka@yandex.com

The Proponent can meet the requirement 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	District Collector Virudhunagar	Rc.No: KV1/932/2018, dated 01.06.2019	Annexure-1
2.	Mining Plan Approval	Assistant Director (i/c), Geology & Mining, Virudhunagar	Rc.No: KV1/932/2018, dated 15.10.2019	Annexure-2

Based on the conditions of Precise Area Communication letter, a safety distance of 7.5m for periphery and 10m safety distance for nearby Government poromboke lands.

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

Table 1.4: Brief Description of Nature of project

1.	Sector	1(a), Non-Coal Mining
2.	Type	Fresh Project
3.	Category	B1 (Cluster Situation)
4.	Mineral Mined	Rough stone and Gravel
5.	Major/Minor Mineral	Minor
6.	Mining method	Opencast Semi mechanized Mining
7.	End use	The top gravel will be supplied to customers. The mined out rough stone will despatched to crushers/other buyers.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU K.A.RAJAGOPAL AT 293/1A(P) AND 293/2B(P) OVER AN AREA OF 1.10.5Ha IN MELUR-DURASAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

Table 1.5: Location of the project

S.No	Particulars	Details
1.	Location	Melur- Duraisampuram Village, Rajapalayam Taluk, Virudhunagar District, Tamil Nadu
2.	Corner Coordinates	Latitude: 9°21'50.40"N to 9°21'53.70"N Longitude: 77°26'26.00"E TO 77°26'31.33"E
3.	Toposheet Number	58 G/7

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.

1.4 SCOPE OF THE STUDY:

Particulars	Details
Proposal no	SIA/TN/MIN/66578/2021
File no	8743/2022
SEAC meeting for issue of TOR	237 th SEAC meeting held on 08.10.2021
SEIAA meeting for issue of TOR	481 st SEIAA meeting held on 24.01.2022 and 25.01.2022.
Terms of Reference	Received from SEIAA, Tamil Nadu vide their Lr No.SEIAA-TN/F.No.8743/SEAC/ToR-1052/2022. Dated:31.01.2022
Baseline Data Collection	Carried out by Creative Engineers & Consultants , Chennai for Winter Season (Dec 2021 to Feb 2022)



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU K.A.RAJAGOPAL AT 293/1A(P) AND 293/2B(P) OVER AN AREA OF 1.10.5Ha IN MELUR-DURASAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

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

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

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

* * * * *



CHAPTER 2

PROJECT DESCRIPTION

2.1 TYPE OF PROJECT:

This proposal involves quarrying of rough stone and gravel by Thiru K.A.Rajagopal using mechanized opencast method for the lease period of 5 years.

2.2 NEED & JUSTIFICATION FOR THE PROJECT:

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

- Availability of good quality proved reserves
- Techno economic viability of the scheme
- Better approachability to the project and 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	Melur-Duraisampuram village, Rajapalayam Taluk, Virudhunagar District, Tamil Nadu
Survey No.	293/1A(P) and 293/2B(P)
Coordinates	Latitude: 9°21'50.40"N to 9°21'53.70"N Longitude: 77°26'26.00"E to 77°26'31.33"E
Nearest Village	Devipattanam – 1.3Km (NW)
Nearest Town	Rajapalayam – 14.0km (NE)
Nearest Highway	NH-744 (Sivagiri-Rajapalayam)– 0.48 Km (SE)
Nearest Railway	Rajapalayam – 16Km (NE)

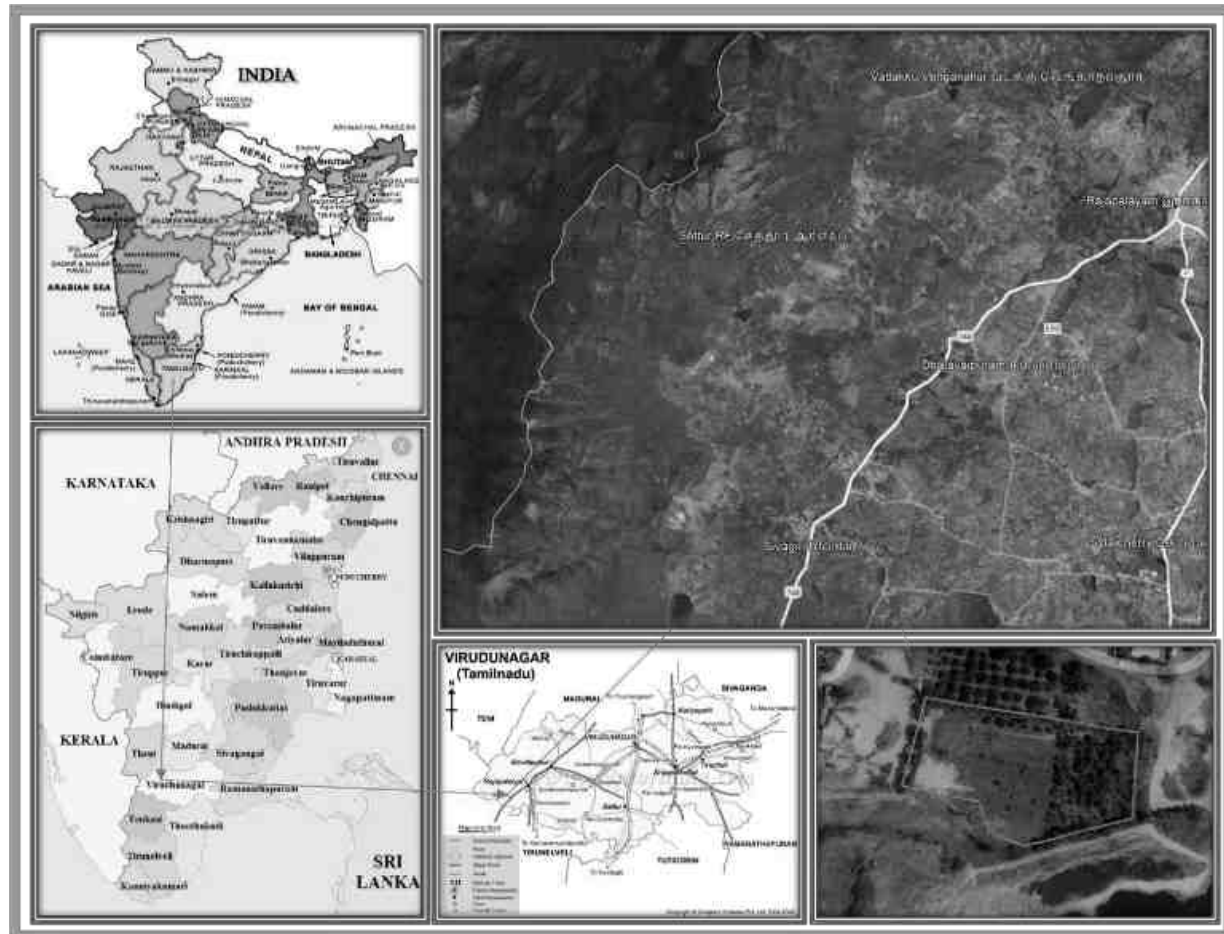


DRAFT EIA/EMP REPORT FOR ROUGHSTONE AND GRAVEL QUARRY THIRU.K.A.RAJAGOPAL OVER AN AREA OF 1.10.5Ha IN SURVEY NOS. 293/1A (P) & 293/2B(P) IN MELUR - DURAISAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Station	
Nearest Airport	Madurai – 100Km - NE
Accessibility	The lease area can be approached from Devipattanam Road which joins Tenkasi – Madurai Road on the eastern side of the lease area at a distance of 0.5Km which ultimately connects to Rajapalayam on the northern side and Puliyangudi on the southern side.
Topography	Plain terrain, dry lands with scarce vegetation.
Drainage	There is a tank located at a distance of 230m on the southern side of the lease area. Besides, Devi Ar is located at a distance of 1.9Km on the eastern side of the lease area.

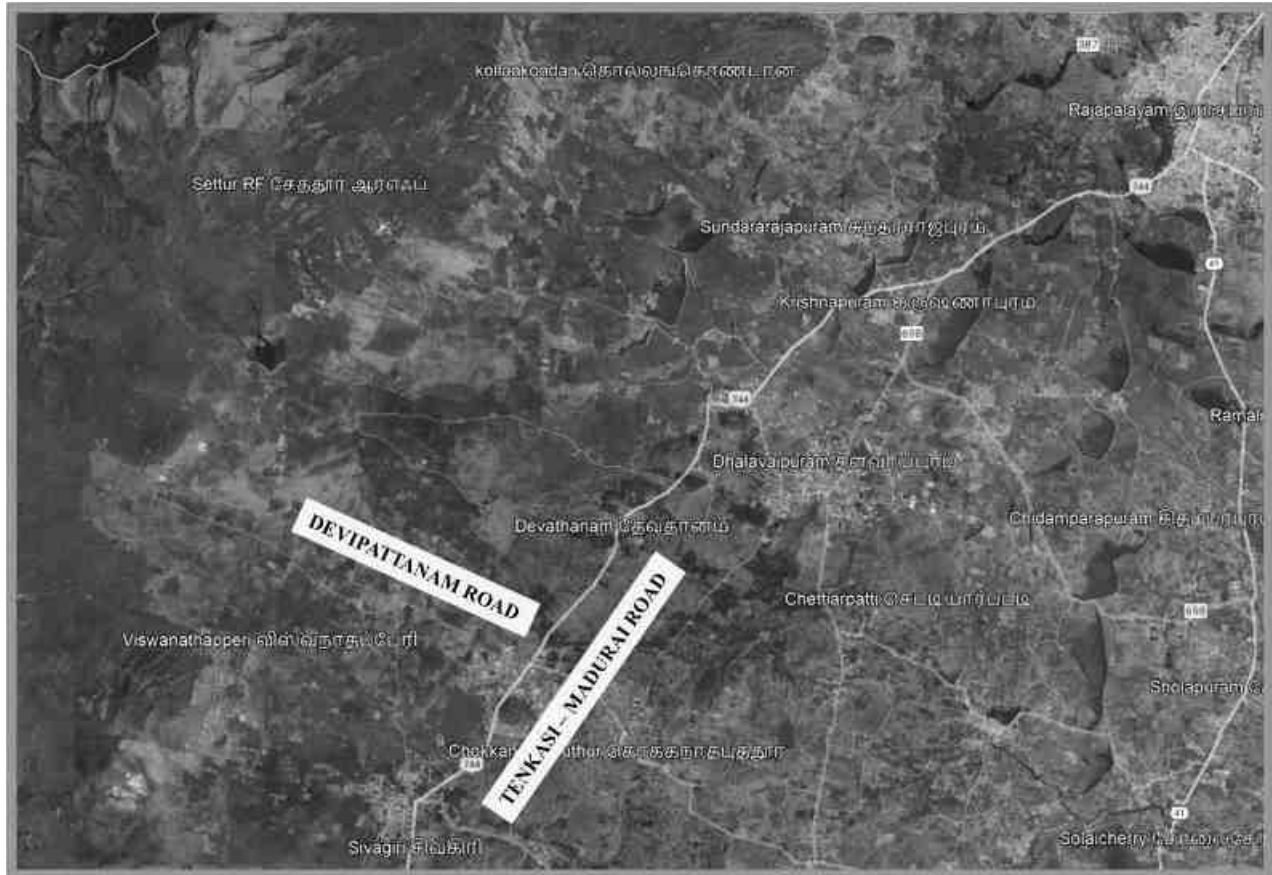
Location map is provided in **Figure No.2.1**. The approachability map is provided in **Figure No.2.2**. Corner co-ordinates of the lease area and satellite imagery are shown in **Figure No. 2.3 & 2.4** respectively. Village map for 500m radius from the lease is shown in **Figure No. 2.5**.

Figure 2.1: Location Map



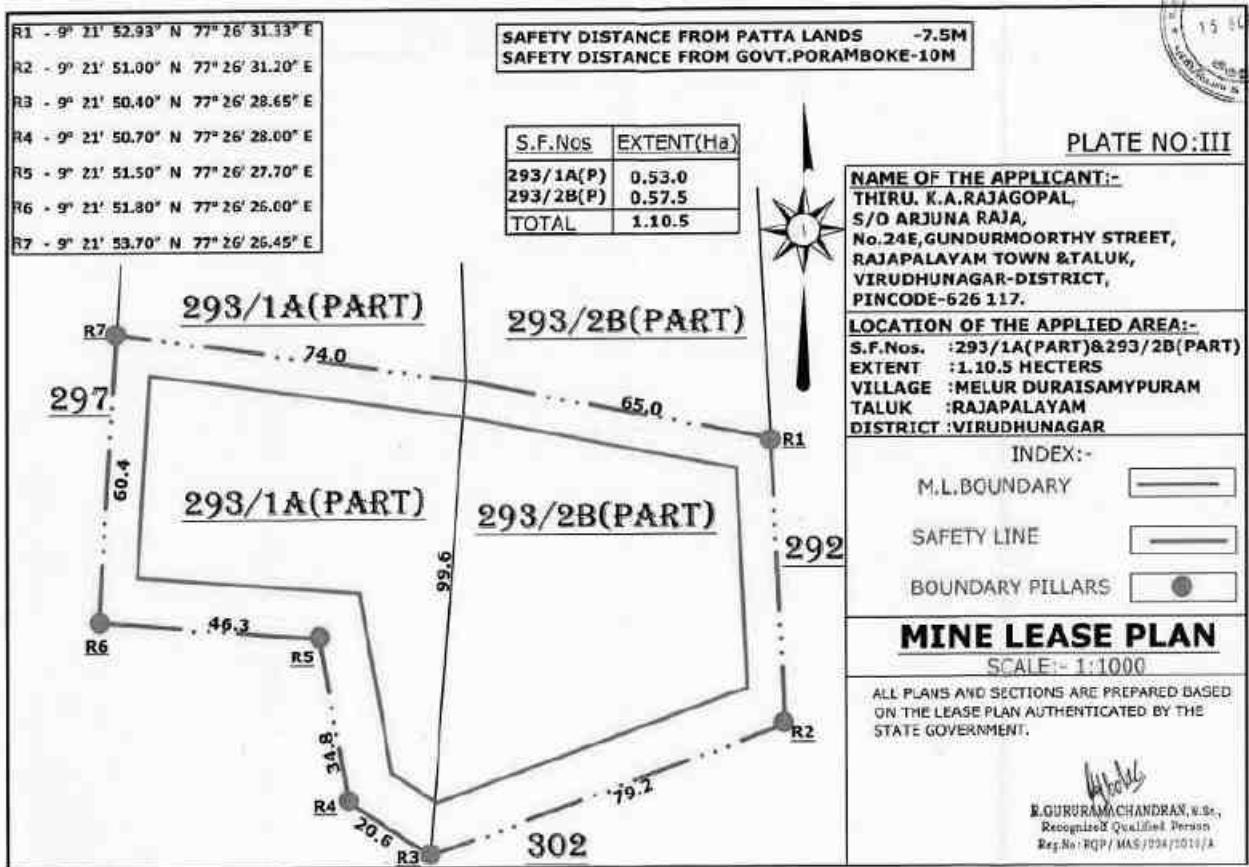
DRAFT EIA/EMP REPORT FOR ROUGHSTONE AND GRAVEL QUARRY THIRU.K.A.RAJAGOPAL OVER AN AREA OF 1.10.5Ha IN SURVEY NOS. 293/1A (P) & 293/2B(P) IN MELUR - DURAISAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 2.2: Approachability Map



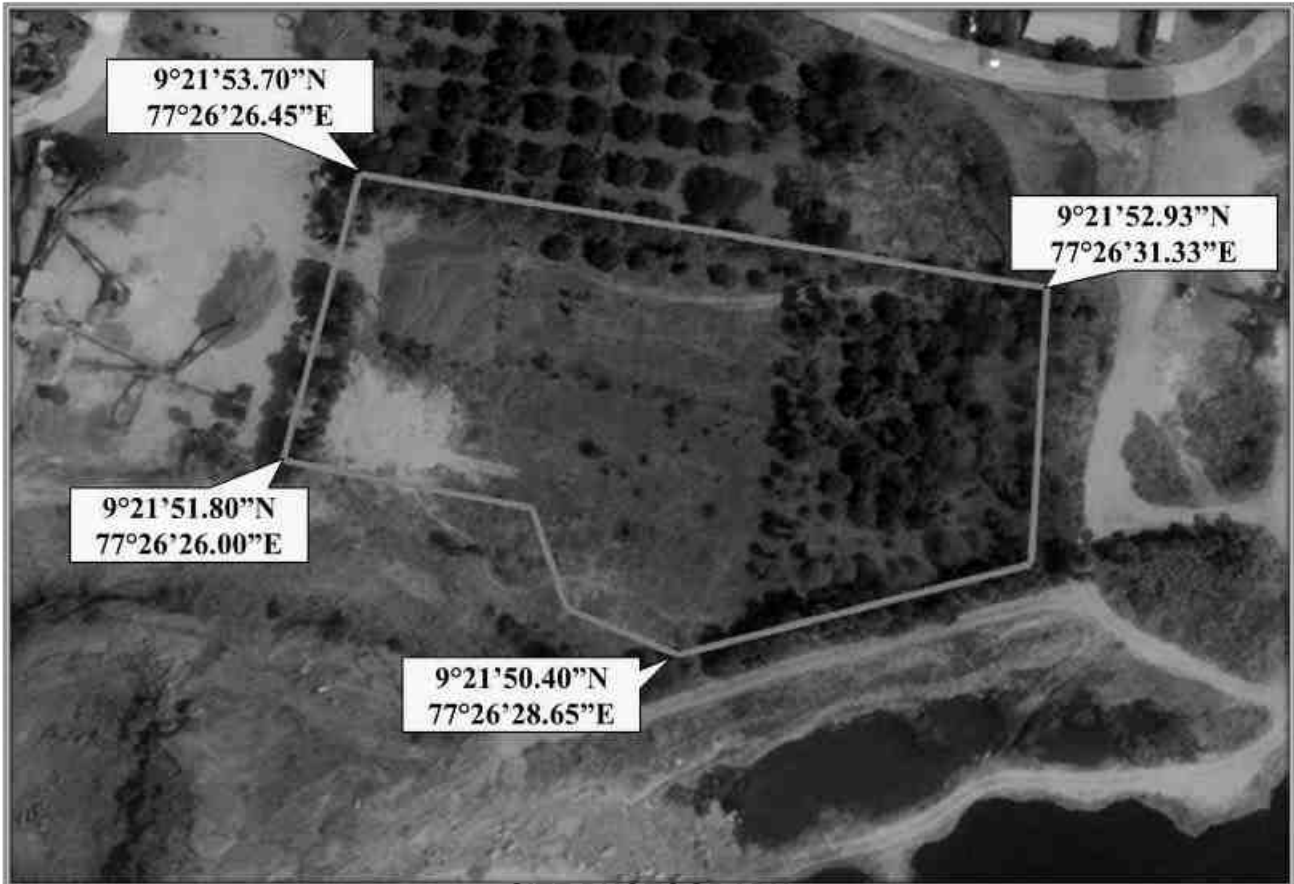
DRAFT EIA/EMP REPORT FOR ROUGHSTONE AND GRAVEL QUARRY THIRU.K.A.RAJAGOPAL OVER AN AREA OF 1.10.5Ha IN SURVEY NOS. 293/1A (P) & 293/2B(P) IN MELUR - DURAISAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 2.3: Lease Plan



DRAFT EIA/EMP REPORT FOR ROUGHSTONE AND GRAVEL QUARRY THIRU.K.A.RAJAGOPAL OVER AN AREA OF 1.10.5Ha IN SURVEY NOS. 293/1A (P) & 293/2B(P) IN MELUR - DURAISAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

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

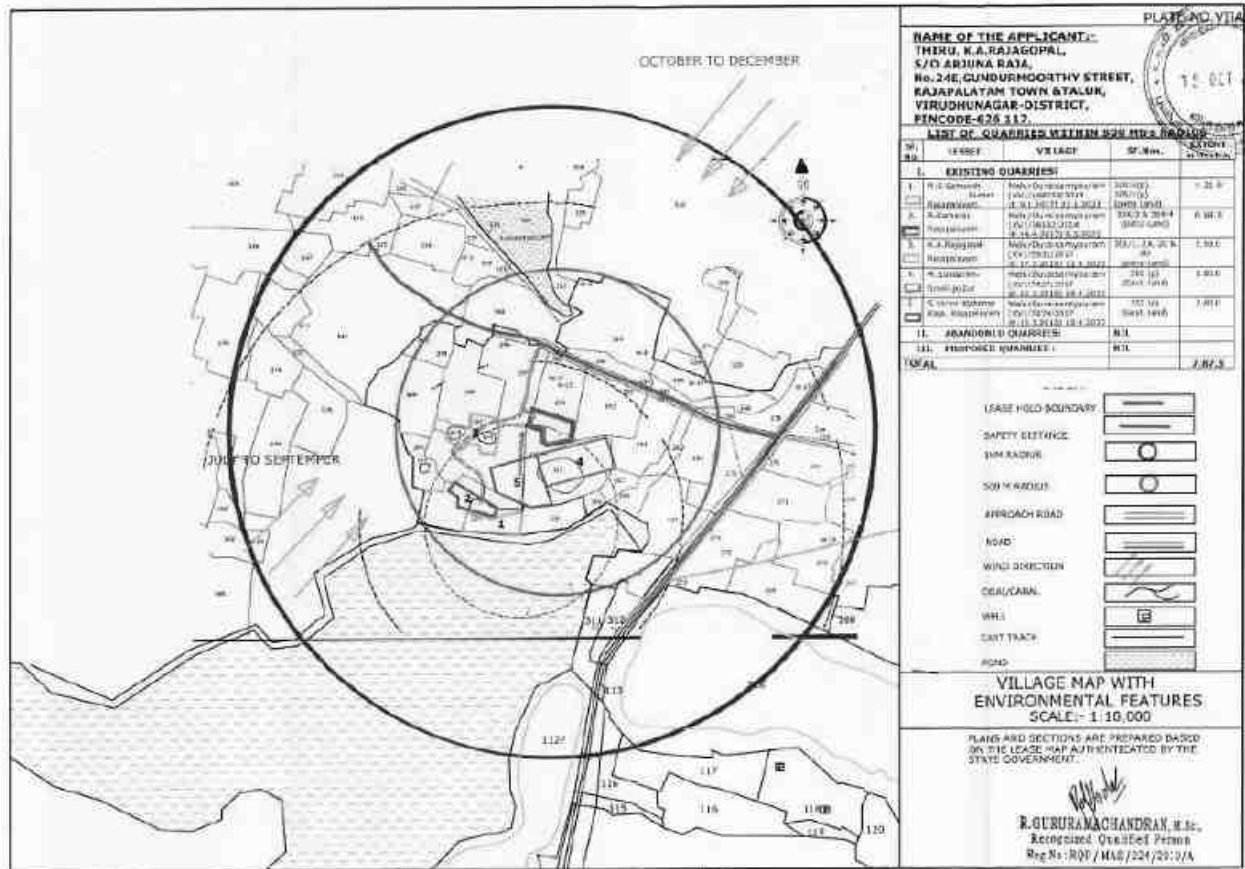


SITE PHOTOGRAPH



DRAFT EIA/EMP REPORT FOR ROUGHSTONE AND GRAVEL QUARRY THIRU.K.A.RAJAGOPAL OVER AN AREA OF 1.10.5Ha IN SURVEY NOS. 293/1A (P) & 293/2B(P) IN MELUR - DURAISAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 2.5: Village Map



2.4 LAND CLASSIFICATION:

The lease area of 1.105 Ha is a patta land in the name of the applicant Thiru K.A.Rajagopal vide Patta No. 443 (Annexure-VI of Mining Plan). The survey no. wise area breakup has been provided below:

Table 2.2: Survey Number wise Area Breakup

S.F. No	Area (Hectare)
293/1A (P)	0.530
293/2B(P)	0.575
Total	1.105



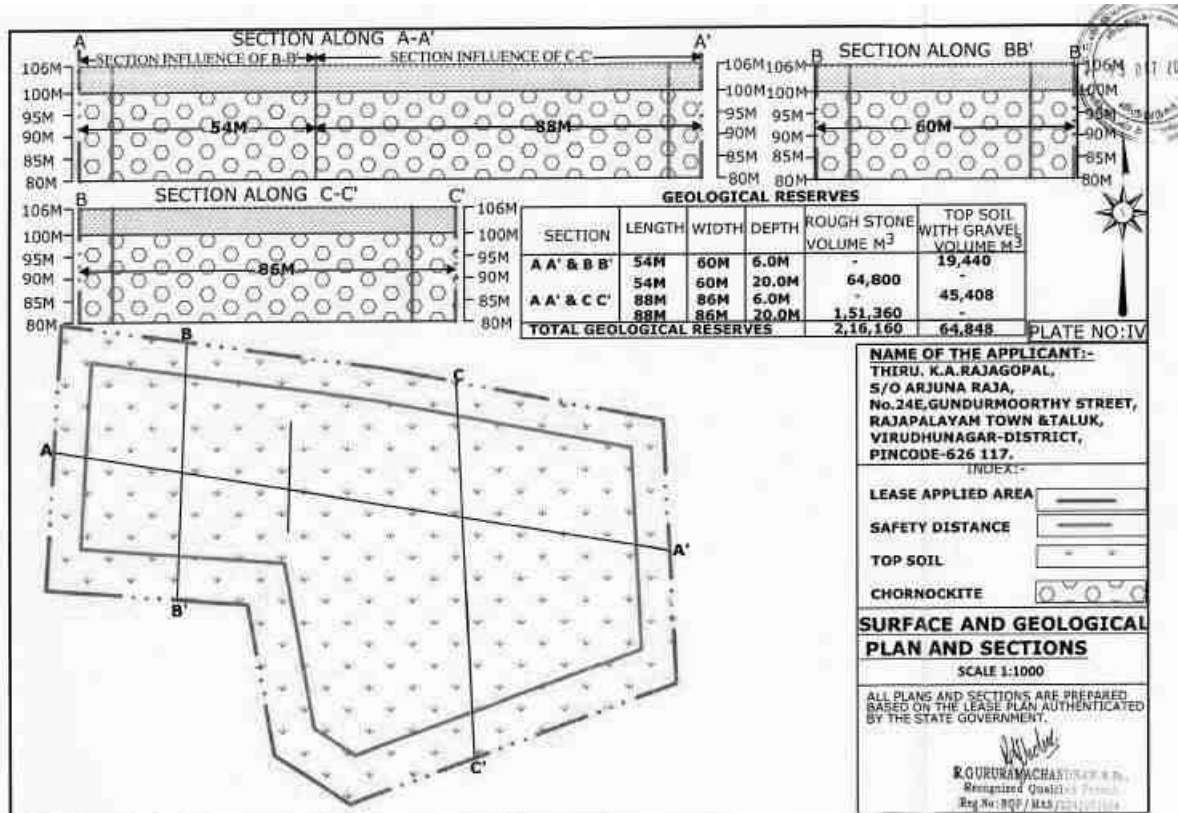
DRAFT EIA/EMP REPORT FOR ROUGHSTONE AND GRAVEL QUARRY THIRU.K.A.RAJAGOPAL OVER AN AREA OF 1.10.5Ha IN SURVEY NOS. 293/1A (P) & 293/2B(P) IN MELUR - DURAISAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

2.5 GEOLOGY:

The massive charnockite occur below the weathered zone is hard, medium to coarse grained with intrusions. The charnockite is played a vital role in construction and road formation civil works. Peninsular gneiss forms the oldest rock formations of Archean age, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite formations trends along NE-SW with a dip of 70° towards SE. The general geological sequences of the rocks in this area are given below.

Age	Formation
Recent	Quaternary Weathered Rock Formation
	--Unconformity--
Archean	Charnokite Peninsular Gneiss Complex

Figure 2.6: Geological Plan & Cross Section



NAME OF THE APPLICANT:-
 THIRU. K.A.RAJAGOPAL,
 S/O ARJUNA RAJA,
 No.24E,GUNDURMOORTHY STREET,
 RAJAPALAYAM TOWN & TALUK,
 VIRUDHUNAGAR-DISTRICT,
 PINCODE-626 117.

INDEX:-

LEASE APPLIED AREA	
SAFETY DISTANCE	
TOP SOIL	
CHORNOCKITE	

SURFACE AND GEOLOGICAL PLAN AND SECTIONS

SCALE 1:1000
 ALL PLANS AND SECTIONS ARE PREPARED BASED ON THE LEASE PLAN AUTHENTICATED BY THE STATE GOVERNMENT.

[Signature]
 R.OURUMACHARI, S.P.E.,
 Registered Geologist, Tamil Nadu
 Reg. No: RGP / MAS / 021 / 01104



DRAFT EIA/EMP REPORT FOR ROUGHSTONE AND GRAVEL QUARRY THIRU.K.A.RAJAGOPAL OVER AN AREA OF 1.10.5Ha IN SURVEY NOS. 293/1A (P) & 293/2B(P) IN MELUR - DURAISAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

2.6 SIZE AND MAGNITUDE OF THE OPERATION:

- The mining will be done by open cast semi mechanized mining method.
- Life of mine will be 5 years.
- It is proposed to mine 56,890 m³ of Roughstone and 45,468 m³ of Gravel for a period of five years upto a depth of 21m
- 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 2.3: Geological and Mineable Reserves

S. No	Type of reserves	Rough stone in m ³	Gravel in m ³
1	Geological Resources	2,16,160	64,848
2	Mineable reserves upto a depth of 26m	64,390	45,468
3	Mineable Reserves upto a depth of 21m	56,890	45,468

The mineable reserves is arrived after considering the safety distance of 7.5m peripheral safety distance and 10m safety distance for nearby government poromboke lands.

2.6.2 MINING METHOD:

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

Table 2.4: Details of Equipments

S.NO	NAME OF THE EQUIPMENT	CAPACITY	REQUIRED
1	Excavator with Rock breaker attachment	0.90m ³ bucket capacity	1
2	Tipper	10/20 tonnes	1
3	Tractor mounted compressor with jack hammer	175 CFM	2



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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.

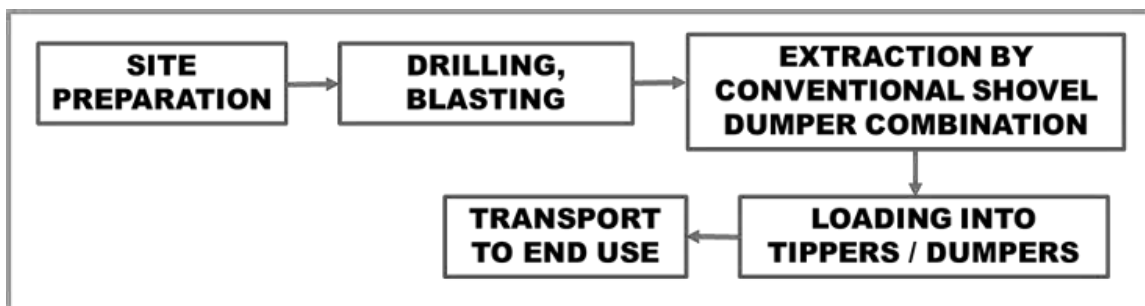
Table 2.5: Proposed Schedule of Implementation

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 shallow jack hammer drilling, blasting, excavation, loading and transportation of Roughstone to buyers. The production of Roughstone 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 semi mechanized method of mining. The process flow diagram of this project is provided below.

Figure 2.7: Process Flow Diagram



DRAFT EIA/EMP REPORT FOR ROUGHSTONE AND GRAVEL QUARRY THIRU.K.A.RAJAGOPAL OVER AN AREA OF 1.10.5Ha IN SURVEY NOS. 293/1A (P) & 293/2B(P) IN MELUR - DURAISAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

2.9 PROJECT DESCRIPTION:

2.9.1 PAST PRODUCTION:

This is a proposed project. No mining has been carried out in this lease area so far by the proponent.

2.9.2 PLAN PERIOD-PRODUCTION & WASTE DISPOSAL:

The proposed depth of mining as per the approved mining plan was 26m. However, based on SEAC recommendation the mining depth has been reduced to 21m. The revised production as per approved ToR is provided below:

Table 2.6: Production Schedule During Plan Period

YEAR	ROUGHSTONE (m3)	Gravel (m3)
I	13,015	18,558
II	11,475	7,038
III	10,800	6,624
IV	10,800	6,624
V	10,800	6,624
Total	56,890	45,468

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.



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Figure 2.8: Year wise Plan & Cross Section

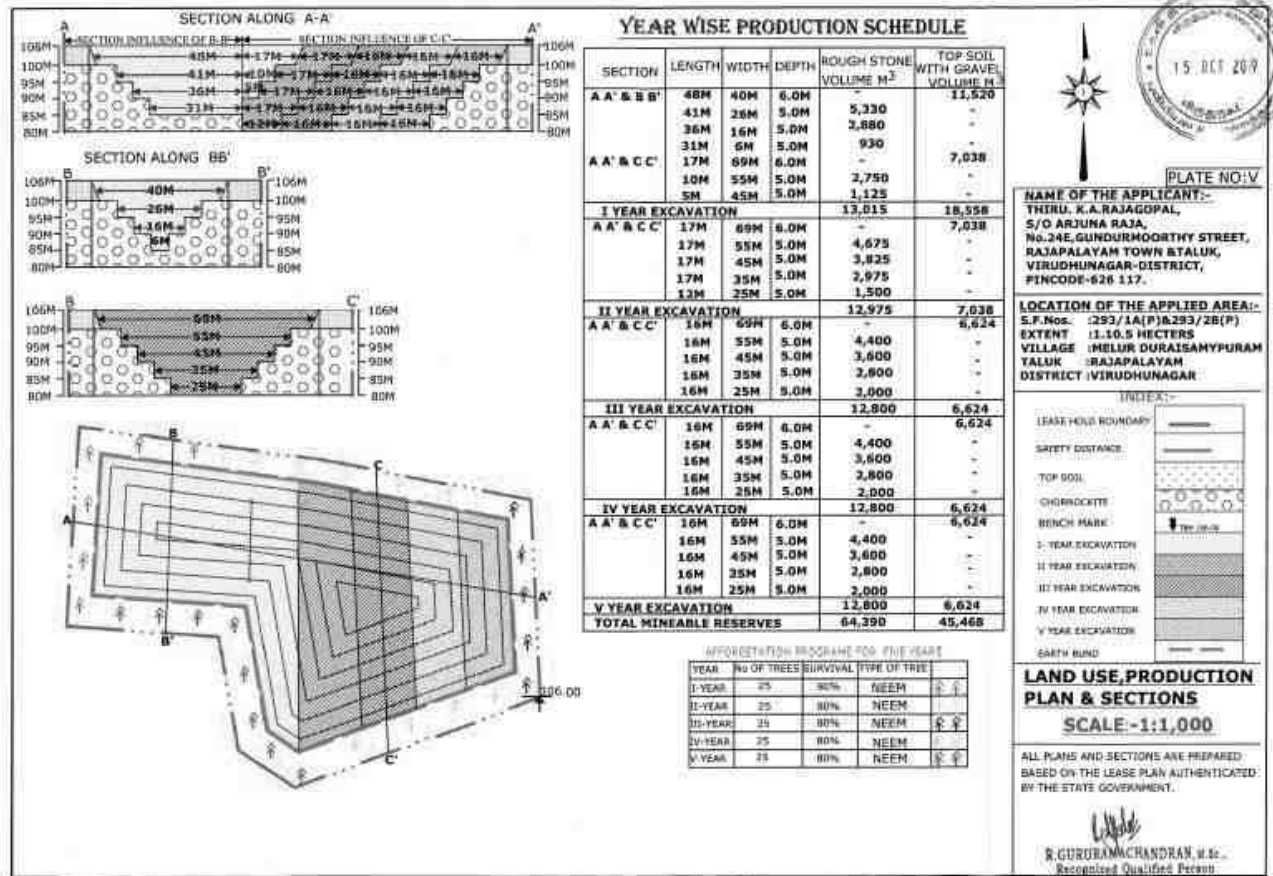


Table 2.7: Ultimate Pit Dimensions

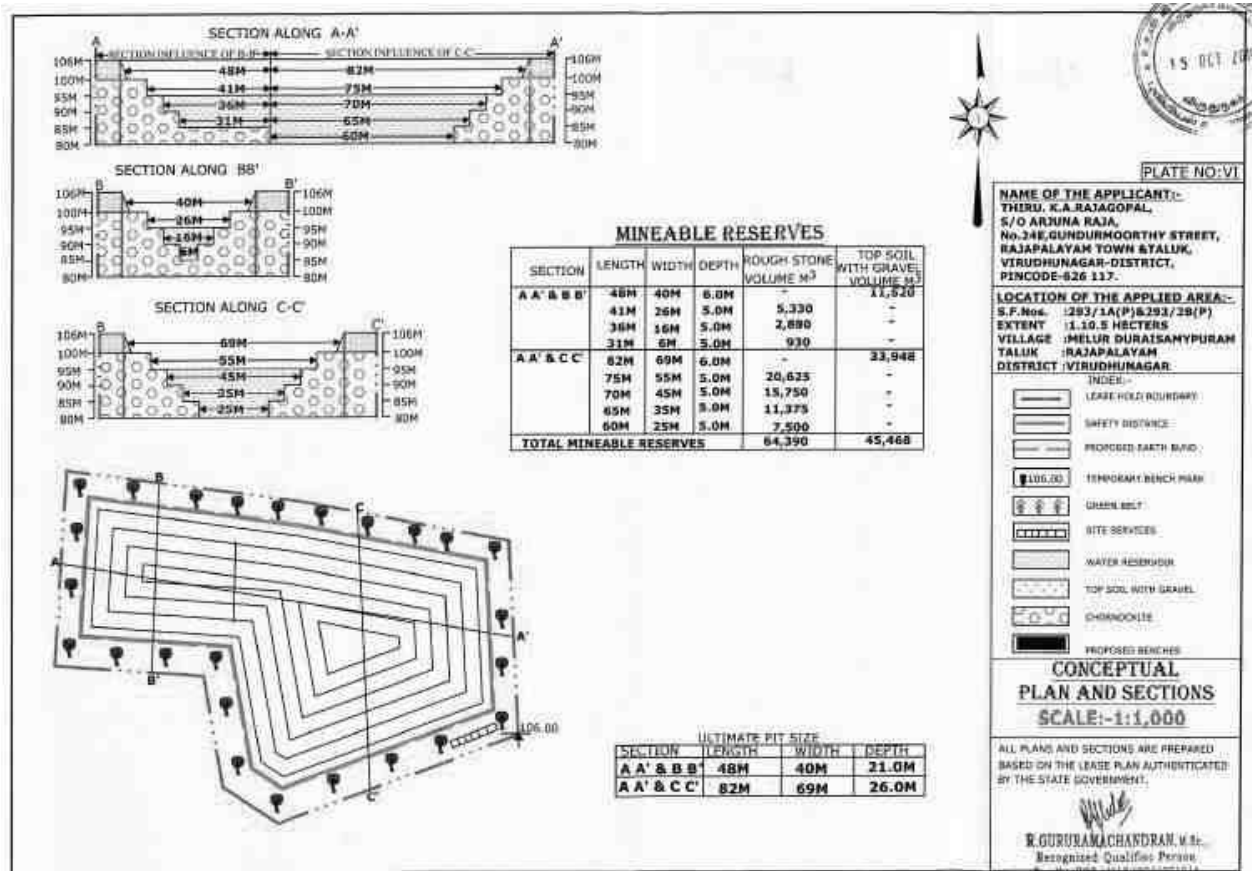
Section	LENGTH(m)	WIDTH(m)	DEPTH(m)
AA'-BB'	48	40	21
AA'-CC'	82	69	21

The ground water table on the surface in this area is quite deeper. Hence, ground water intersection in not envisaged. The Conceptual Plan & Cross section are shown in **Figure No. 2.11**.



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Figure 2.9: Conceptual Plan & Cross Section



LAND DEGRADATION/UTILIZATION:

The land use pattern at present and at the end of the quarrying period has been provided below.

Table 2.8: Land Use

S.No	Land Use	Present Area (Ha)	Area during quarrying period(Ha)
1	Mining \Excavation	-	0.700
2	Infrastructure	-	0.010
3	Greenbelt and Plantation	-	0.365
4	Road	-	0.030
5	Undisturbed	1.105	-
	Total	1.105	1.105



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At the end of the quarrying period, mining will be carried out upto a depth of 21m over an area of 0.700Ha. Ultimately the entire mined out area will be left as water body. 0.010Ha will be plantation, 0.030Ha will be road and 0.365Ha will be greenbelt and plantation.

2.9.3 PROJECT REQUIREMENTS:

Table 2.9: Project Requirements

Manpower	10 People directly and more than 50 people indirectly	
Water Requirement and Source	Water Requirement: 6 KLD	
	Details	Quantity (KLD)
	Drinking water and Domestic Use	1.0
	Dust Suppression	4.0
	Green belt	1.0
	Total	6.0
	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. 47,12,380/-	
Funds allocated for socio-economic development	Rs.5.0 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.



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TAMIL NADU.**

2.12 CONCLUSION:

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

* * * * *



CHAPTER 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 **Winter Season (December 2021 to February 2022)** 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**

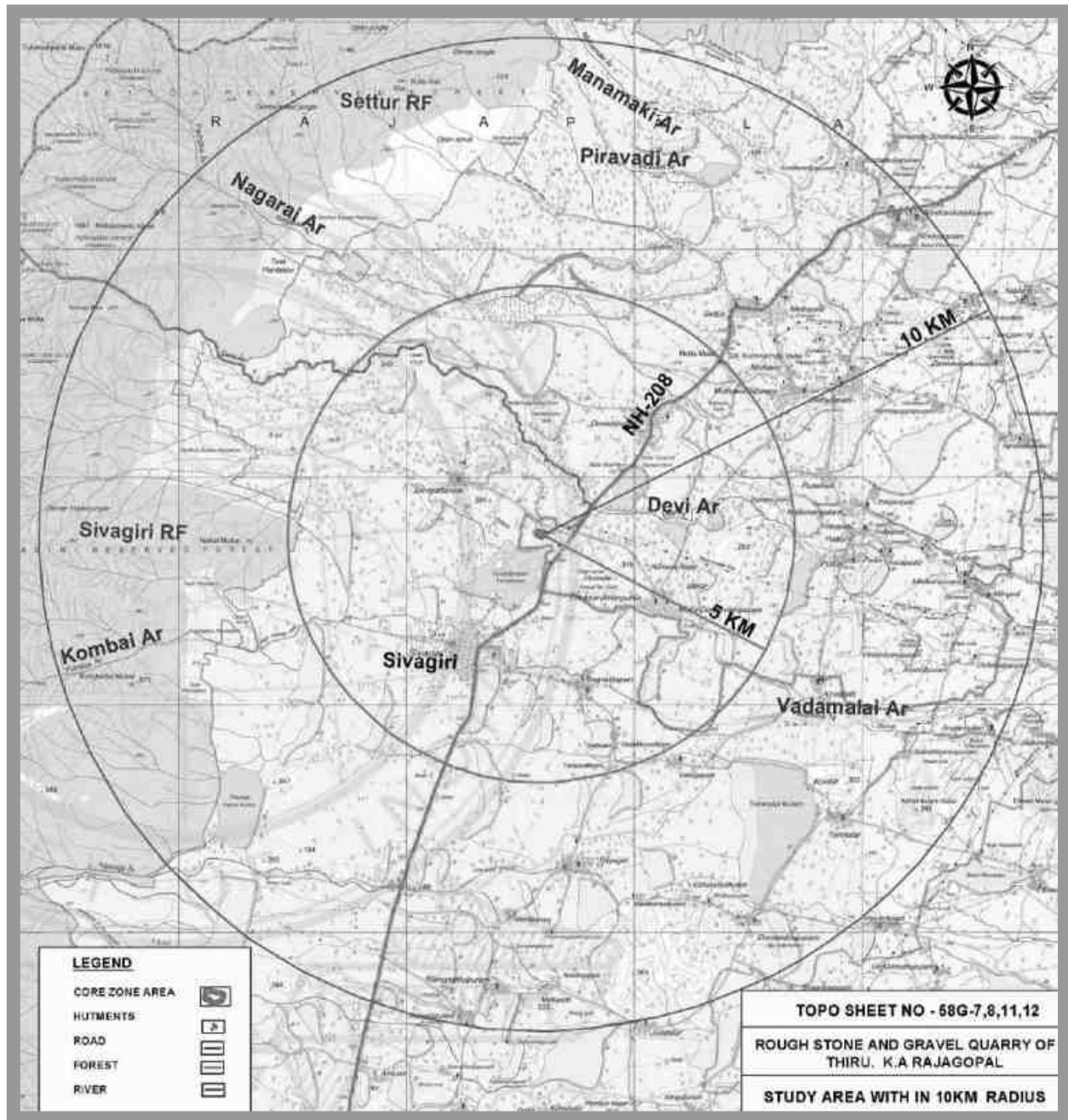
The primary data collection was done by means of field monitoring and the secondary data collection was obtained from published sources and Government documents. The details of the baseline data collection which has been elaborated through the course of this chapter has been concised below:

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

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Figure 3.1: Study Area Map



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Table 3.2: Environmental Setting of the Study Area

S.No	Particulars	Details	Distance(Km)	Direction
1	Nearest Villages	Devipattanam	1.3	NW
		Sivagiri	2.1	S
		Chokkanathaputtur	2.4	SE
		Terku Devadanam	2.8	NE
2	Nearest Town	Rajapalayam	16	NE
3	Nearest Highway	NH-744 (Sivagiri-Rajapalayam)	0.48	SE
4	Nearest Railway station	Rajapalayam	16	NE
5	Nearest Airport	Madurai	100	NE
6	Major waterbody	Devi Ar	1.9	E
		Nagarai Ar	4.7	NW
		Vadamalai Ar	6.0	E
		Kombai Ar	7.1	SW
		Piravadi Ar	7.6	NE
		Manamaki Ar	8.8	NE
7	Reserve/Protected Forest	Sivagiri RF	4.7	W
		Settur R.F	6.6	NW
8	Notified archeological place	Nil within 10km radius	--	--
9	Local Places of Historical and Tourism Interest	Nil within 10km radius	--	--
10	Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972	Nellai Wildlife Sanctuary	4.6	W
		Srivilliputthur-Meghamalai Tiger Reserve (SMTR)	6.3	NW
11	Seismic Zone	Zone-II		
12	Other Industries in the area	Other than rough stone quarry & crushers there are no other major industries in the 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, and discussion.



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- 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 Mellur-Duraisampuram village, Rajapalayam Taluk, Virudhunagar District. Based on 2011 census data, in the 10km radius there are 23 Rural villages and 4 urban areas as shown below:

Table 3.3: Summary of Villages in the Buffer Zone

S.No	No. of Villages	No. of Urban areas	Taluk	District
1	12	2	Rajapalayam	Virudhunagar
2	1	-	Virudhunagar	
3	1	-	Sivakasi	
4	8	2	Sivagiri	Tirunelveli
5	1	-	Sankarankoil	
Total	23	4		

Table 3.4: Social, Economic and Demographic Profile of the Study Area

Details	Population	Percentage
A. Gender-wise distribution		
Male Population	90635	49.60
Female Population	92101	50.40
Total	182736	100
B. Caste-wise population distribution		
Scheduled Caste	45970	25.16
Scheduled Tribes	835	0.46
Other	135931	74.39
Total	182736	100
C. Literate and Illiterate population		
Literate Males	68646	37.57
Literate Females	55261	30.24
Total Literate Population	123907	67.81
Others Males	21989	12.03



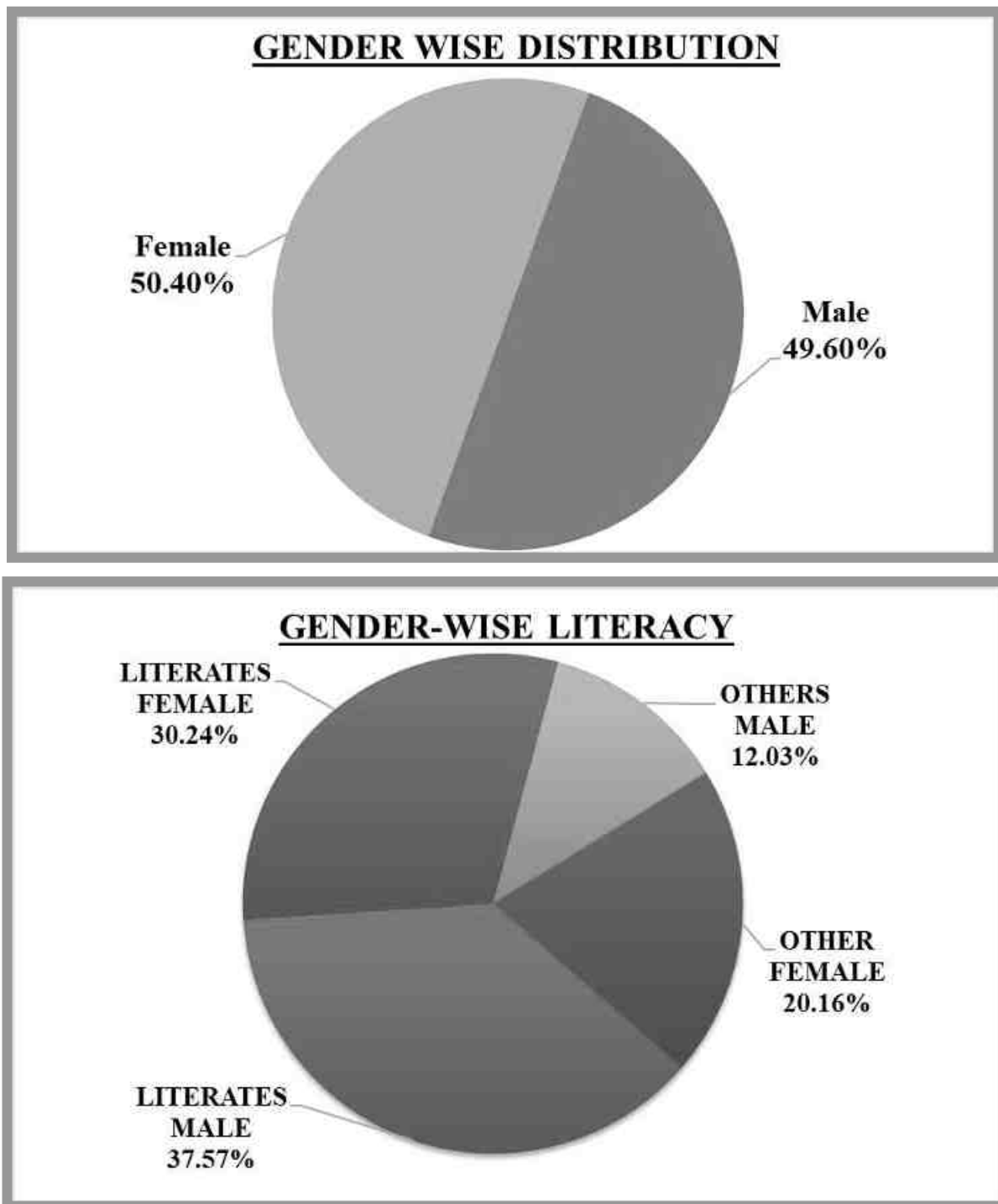
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Details	Population	Percentage
Others Females	36840	20.16
Others Population	58829	32.19
Total	182736	100
D. Occupational structure		
Main workers	85219	46.60
Marginal workers	11817	6.50
Total Workers	97,036	53.1
Total Non-workers	85700	46.90
Total	182736	100

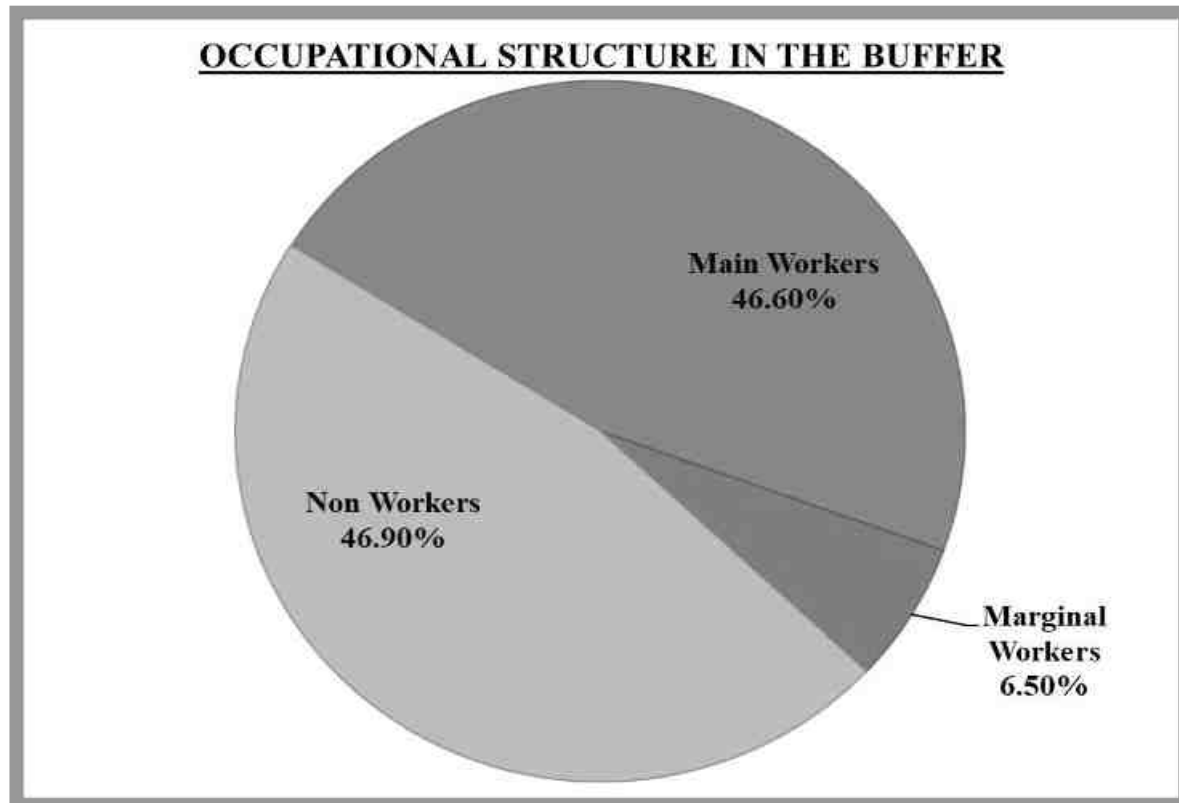
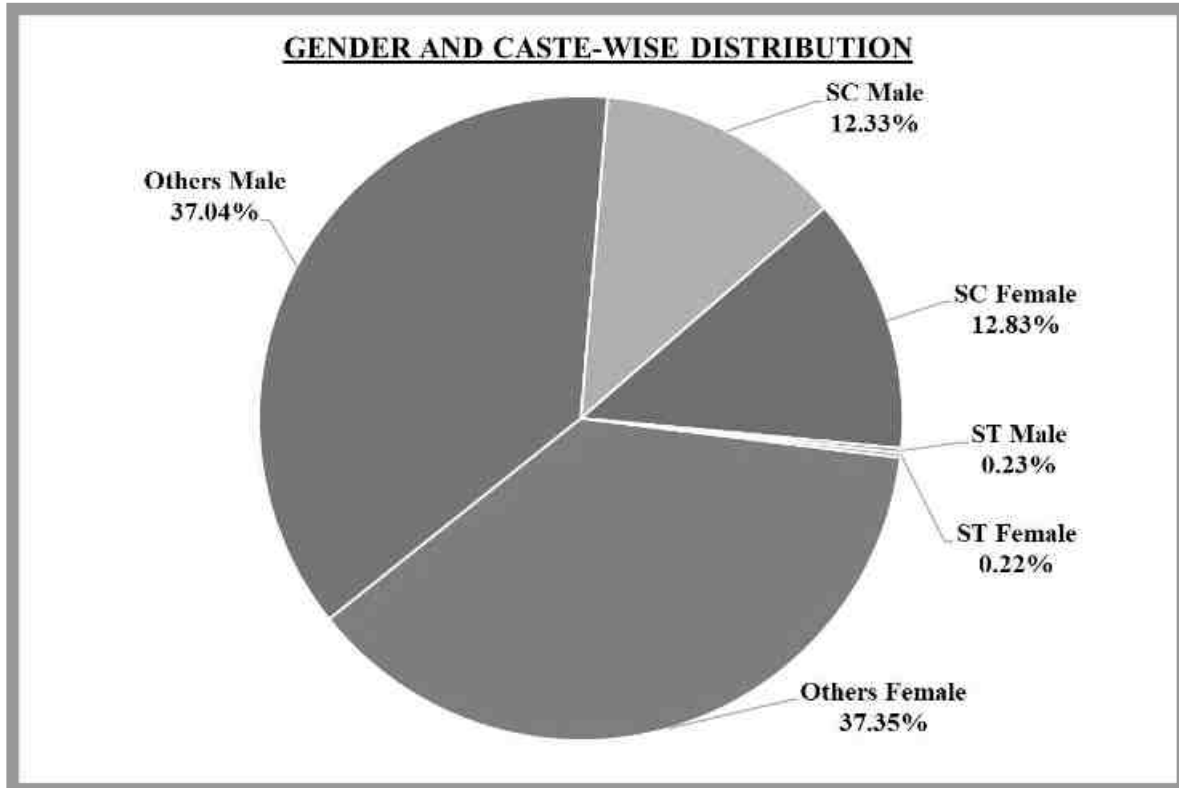
The total population of these 23 rural villages and 4 urban areas is 182736 of which the male population is 90635 (49.60%) and the female population is 92101 (50.40%). This shows that the male and female population ratio is almost equal. Among the total population 0.46% is Scheduled Tribes, 25.16% is Scheduled Caste and 74.39% people belong to other castes. Among the total population, 67.81% of the people are literate. The literates males are 55.40% and females are 44.60% in total population.

The village wise population, literacy levels and occupational structure details are given in **Annexures 3 and 4**. The demographic structure within the buffer zone is shown diagrammatically in **Figure No – 3.2**.

Figure 3.2: Demographic Structure in Buffer Zone



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3.2.3 DETAILS OF AMENITIES:

Based on 2011 census data, regarding the educational facilities, there are totally 50 Primary Schools functioning in these 19 rural villages. Among them 4 villages have no primary school, 9 villages have 1 primary schools, 3 villages have 2 primary schools, 3 villages have 3 primary schools, 1 villages has 5 primary schools ,1 villages have 6 primary schools, 1 villages have 7 primary schools, 1 villages have 8 primary schools.

Table 3.5: Primary Schools in the Buffer Zone Rural Villages

S.No	No of Rural Villages	Number of primary schools	Totals
1	9	1	9
2	3	2	6
3	3	3	9
4	1	5	5
5	1	6	6
6	1	7	7
7	1	8	8
	19		50

Table 3.6: Education Facility Availability

PARTICULARS	Available in village
Govt Primary School	19
Govt Middle School	11
Govt Secondary School	7
Govt Senior Secondary School	5
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

Better and higher education facilities are available in nearby Seithur (TP), Chettiarpatti (TP), Sivagiri (TP),Rayagiri (TP).

Table 3.7: Healthcare Amenities Availability

PARTICULARS	Available in village
Community Health Centre	1
Primary Health Centre	5
Primary Health Sub Centre	18
Maternity And Child Welfare Centre	7
TB Clinic	5
Hospital Allopathic	0



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Hospital Alternative Medicine	0
Dispensary	8
Veterinary Hospital	4
Mobile Health Clinic	0
Family Welfare Centre	5

Better Healthcare facilities are available in nearby town & City Corporation.

Table 3.8: Infrastructure Facilities

Particulars	Available in village
Tap Water-Treated	23
Covered Well	9
Hand Pump	12
Tube Wells/Borehole	21
Post office	3
bus services	20
Commercial Bank	2
Cooperative bank	4

The details of the educational, medical and infrastructural facilities available in the buffer zone is provided in **Annexures- 5-7**.

3.2.4 SAMPLE SURVEY:

Study of the nearby villages to know about socio-economic conditions, including aspirations and requirements of the people show the following:

- Since agriculture is predominantly rainfed and the water is available only for four months, during the rest of the time they have less employment opportunities. Other occupations include construction workers, vendors, etc.
- Majority of the people are small farmers and others are working in the nearby industries
- Predominantly the study area is seasonal dry, barren land.
- Patches of plantation and agriculture are observed during the Winter season.
- Reasonably better amenities like approach road bus facility, electricity, mobile phone connectivity, Public Distribution System, banks etc are available.
- Bore well is the main source for drinking water. There are OHT's, Ground level tanks, public taps are available.



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.

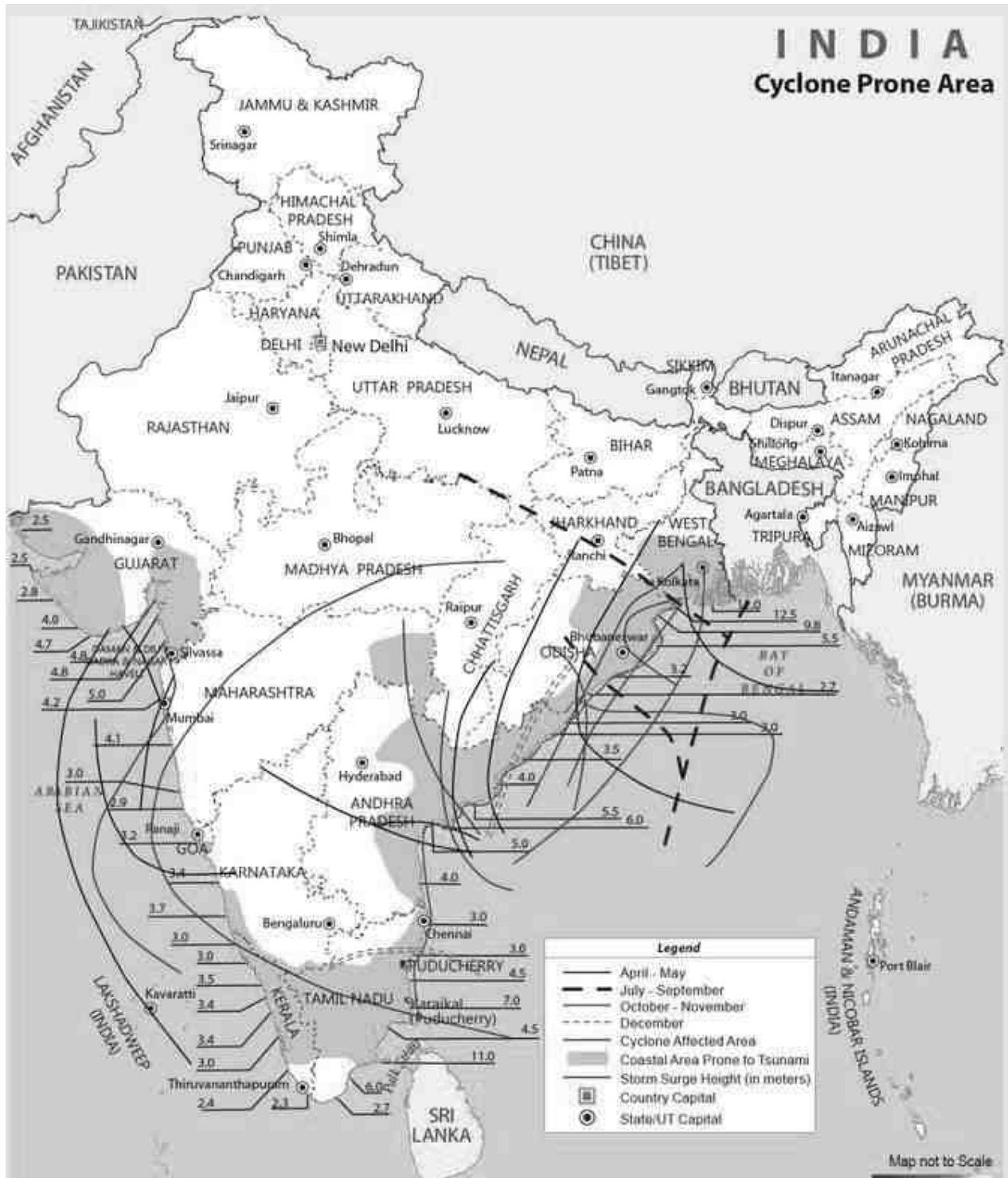
3.3.1.2 Historical Meteorological Data:

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 15° and 18° 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.

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Figure 3.3: History of Cyclonic Storms

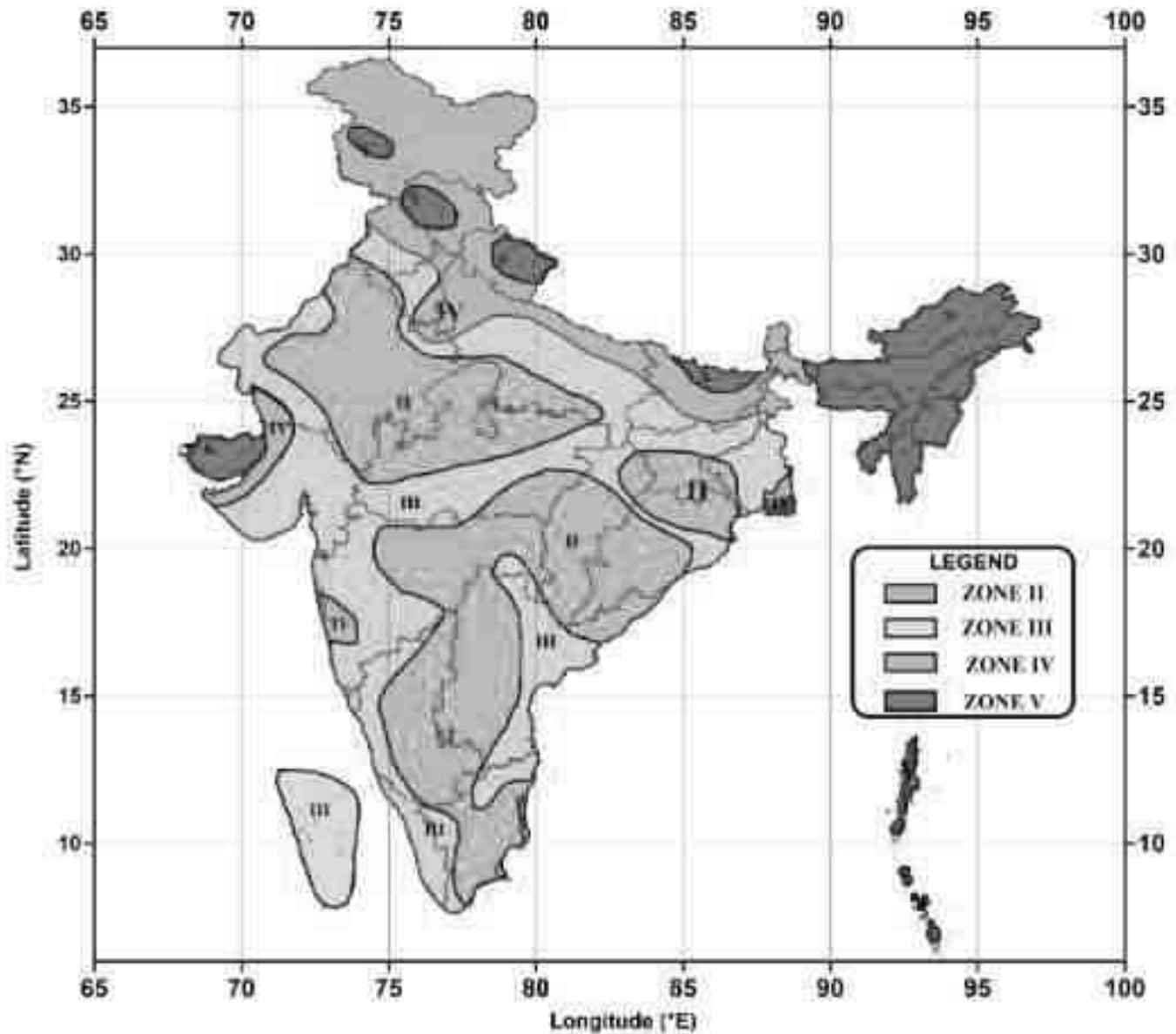


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B. SEISMIC DATA

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



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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.

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 3.9: 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



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Figure 3.5: Total Rainfall

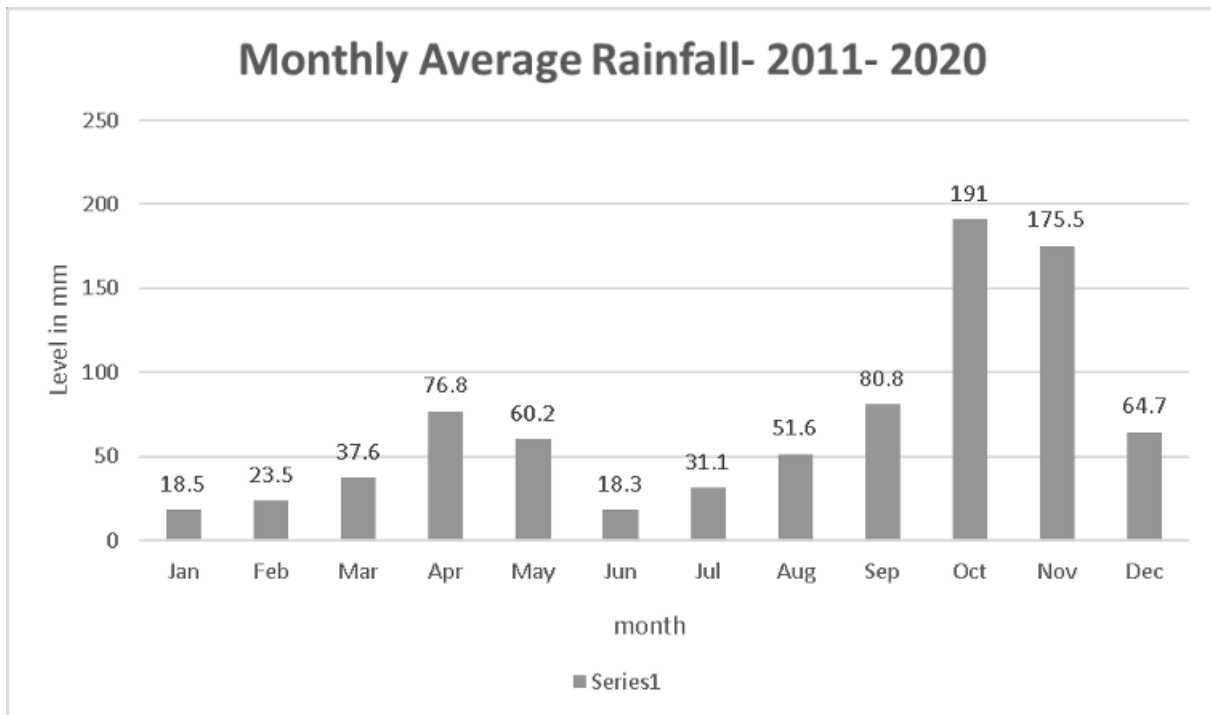
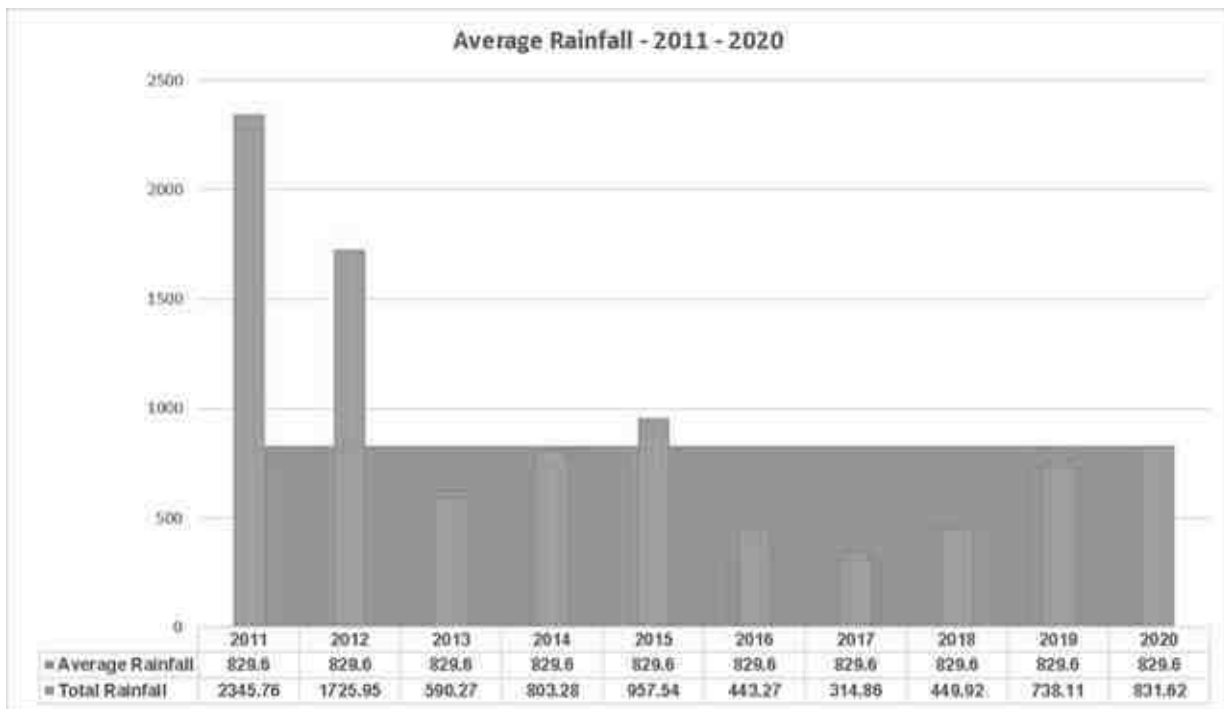


Figure 3.6: Average Annual Rainfall



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3.3.1.3 SITE SPECIFIC METEOROLOGICAL DATA:

Micrometeorology and microclimatic parameters of 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 21.1°C to 36.4°C while the relative humidity varied between 36.0 - 98%. The wind speed during the study period ranged from <1.8 to 20.9 km/h. 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**.

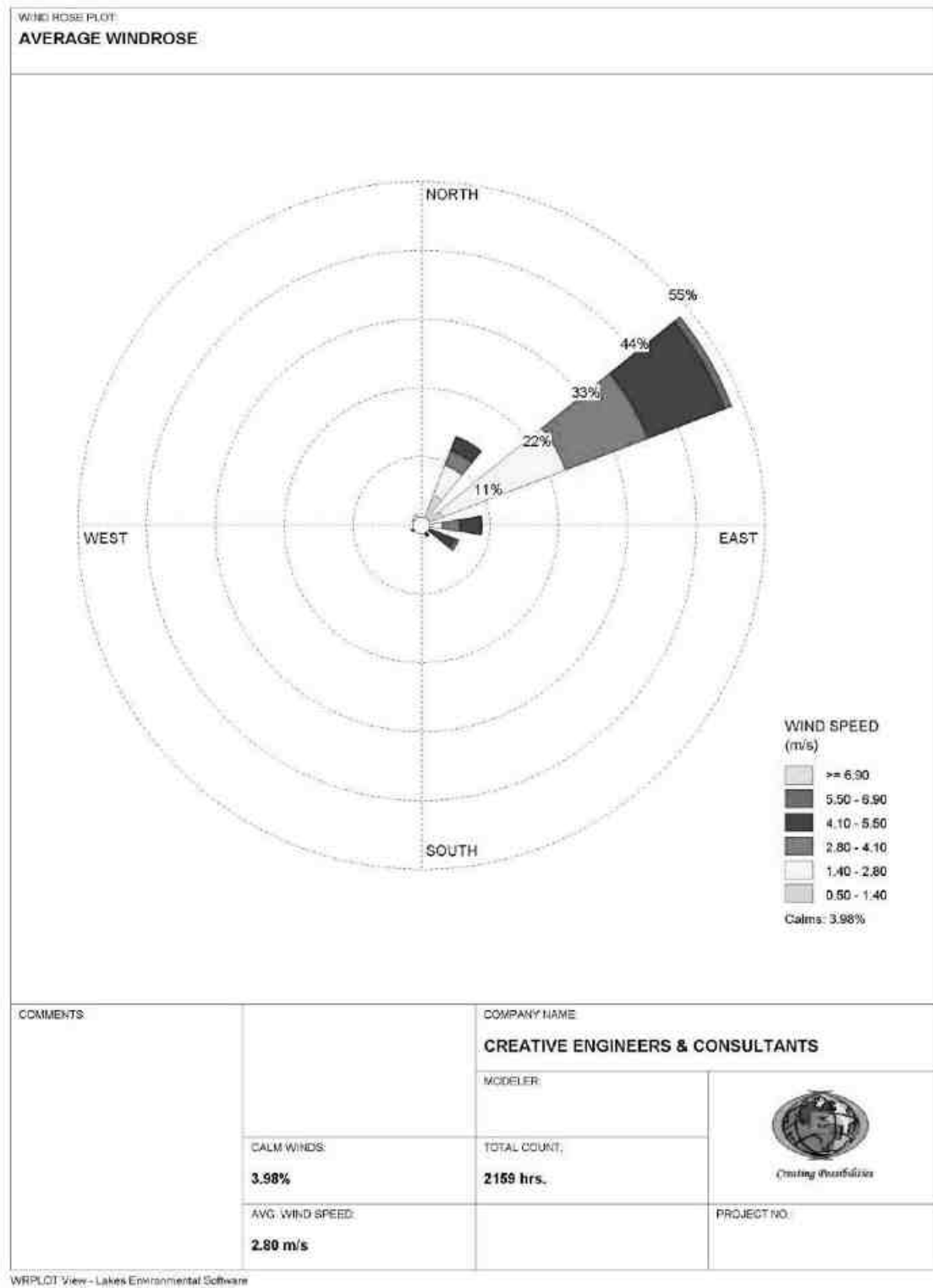
Table 3.10: Meteorological Data

Season: Winter Season (Dec 2021 to Feb 2022)			
S.NO	PARAMETERS	MIN	MAX
1	Temperature In ⁰ c	21.1	36.4
2	Humidity in %	36.0	98.0
3	Wind speed in km/hr	<1.8	20.9
4	Predominant wind direction from	NE	



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Figure 3.7: Average Wind Rose



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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.
- Representation of regional background levels.
- Representation of cross sectional distribution in down wind direction.
- Predominant wind direction and wind pattern.

Table 3.11: Air Quality Monitoring

1.	Monitoring Period	Winter Season (Dec 2021 to Feb 2022)
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
	f. Silica	Colorimetric (Molybdate Method) NIOSH 7601 -2003
4.	Monitoring Frequency	2 days in a week, 4 weeks in a month for 3 months in a season.

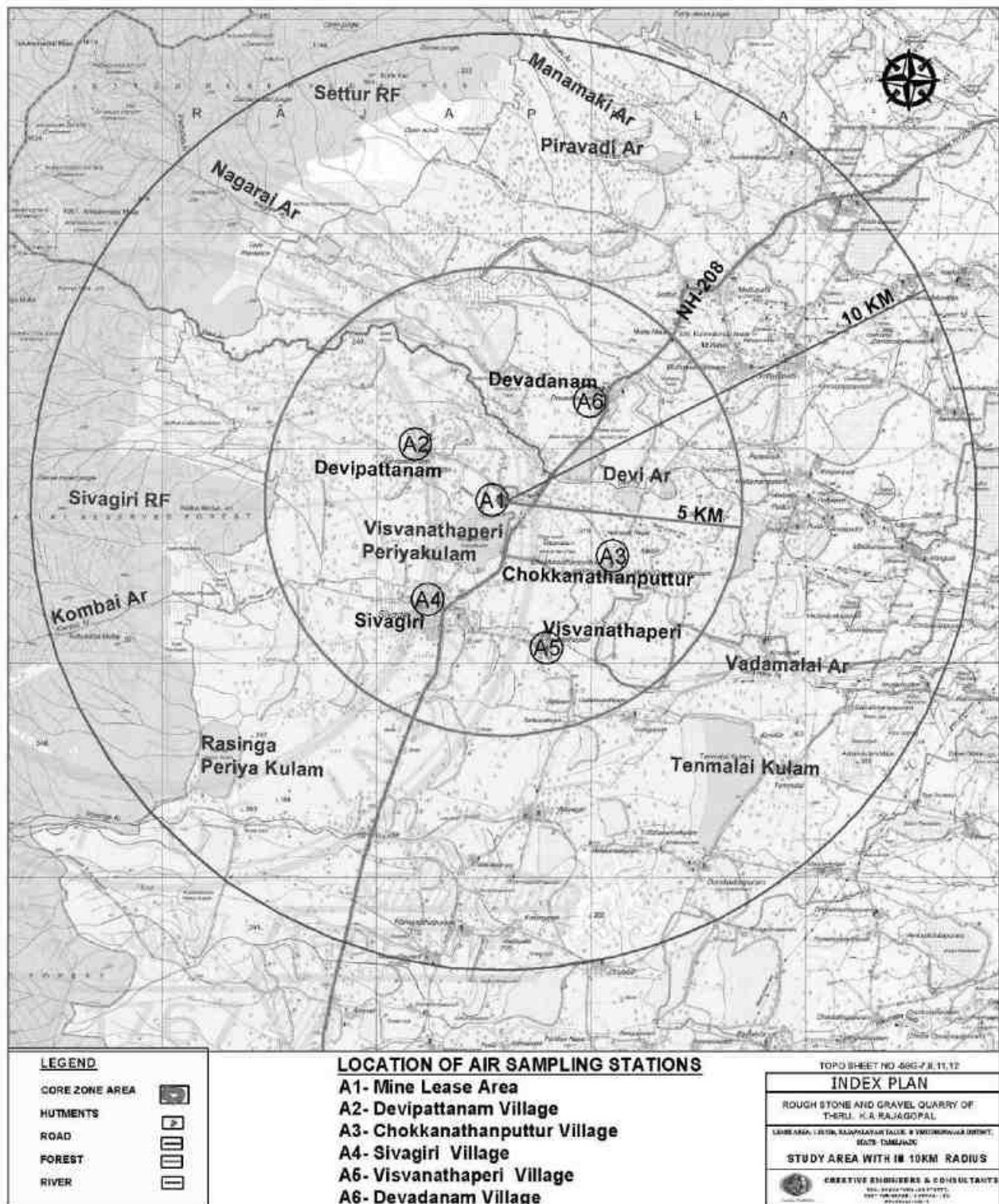
Table 3.12: Air Quality Monitoring Locations

S.NO	LOCATION CODE	LOCATION	DISTANCE FROM CORE ZONE (KM)	DIRECTION
1	A1	Near Mine Lease Area	-	-
2	A2	Devipattinam Village	1.7km	NW
3	A3	Chokkanathanputhur Village	2.4km	SE
4	A4	Sivagiri Village	2.2km	SW
5	A5	Viswanathaperi Village	3.1km	SE
6	A6	Devathanam(Kovilur)	2.7km	NE



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Figure 3.8: Ambient Air Quality Study Stations



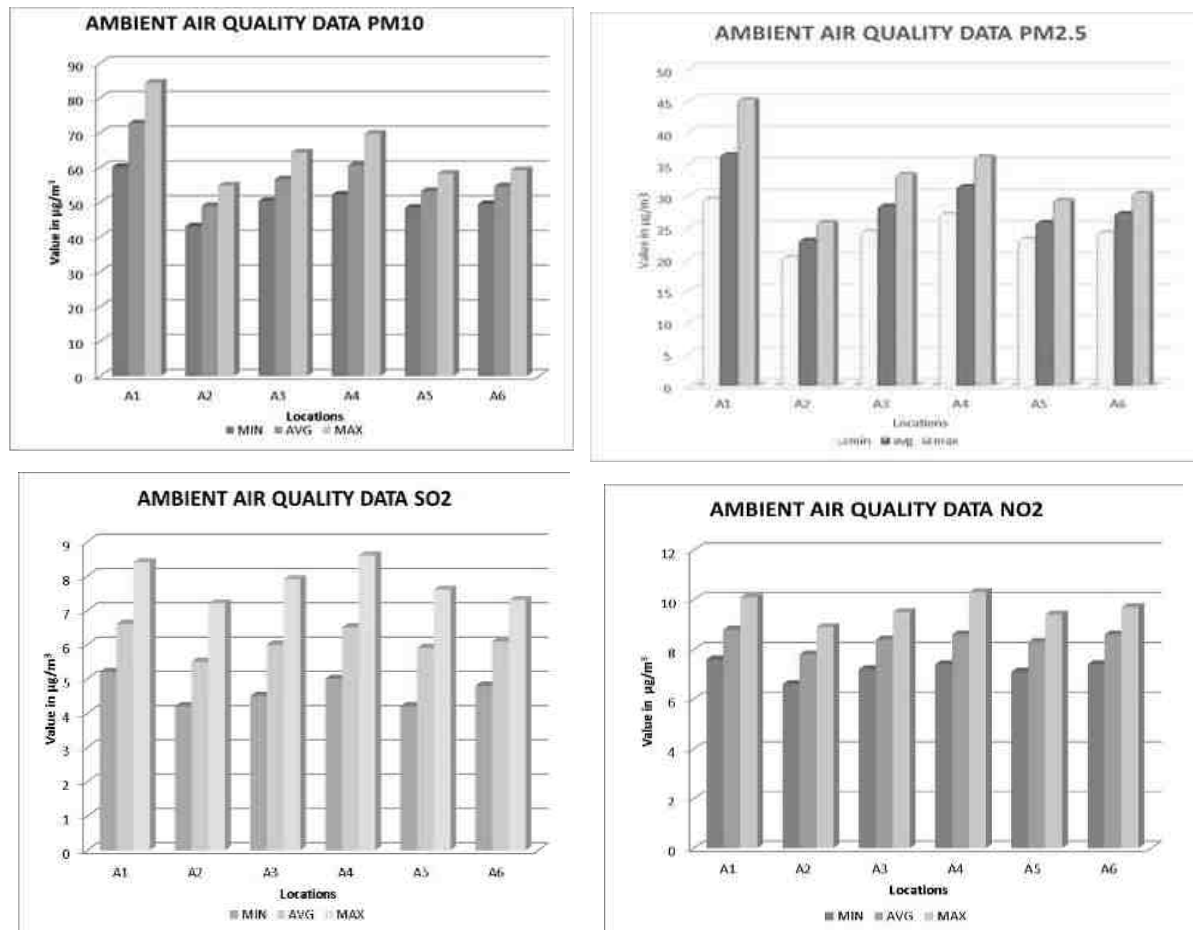
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Table 3.13: Ambient Air Quality Data

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	60.2	72.7	84.4	29.5	36.5	45.2	5.2	6.6	8.4	7.6	8.8	10.1
A2-Devipattinam Village	R	43.1	48.9	54.8	20.3	23.0	25.8	4.2	5.5	7.2	6.6	7.8	8.9
A3-Chokkanatham puthur Village	R	50.4	56.6	64.3	24.4	28.4	33.4	4.5	6.0	7.9	7.2	8.4	9.5
A4-Sivagiri Village	R	52.2	60.6	69.7	27.1	31.5	36.2	5.0	6.5	8.6	7.4	8.6	10.3
A5-Viswanathapuri Village	R	48.4	53.2	58.2	23.2	25.8	29.3	4.2	5.9	7.6	7.1	8.3	9.4
A6-Devatharam(Kovilur)	R	49.5	54.6	59.2	24.2	27.2	30.4	4.8	6.1	7.3	7.4	8.6	9.7
NAAQ Limits		PM₁₀			PM_{2.5}			SO₂			NO₂		
	*	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



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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 - 3.9**. Ambient Air Quality data during the study period is given in **Annexure- 8**. From the table it is seen that, in the ambient air, the PM₁₀ values were in the range of 43.1-84.4 µg/m³. PM_{2.5} values were in the range of 20.3-45.2 µg/m³. SO₂ levels were ranging from 4.2– 8.6 µg/m³. NO₂ levels were ranging from 6.6-10.3 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:

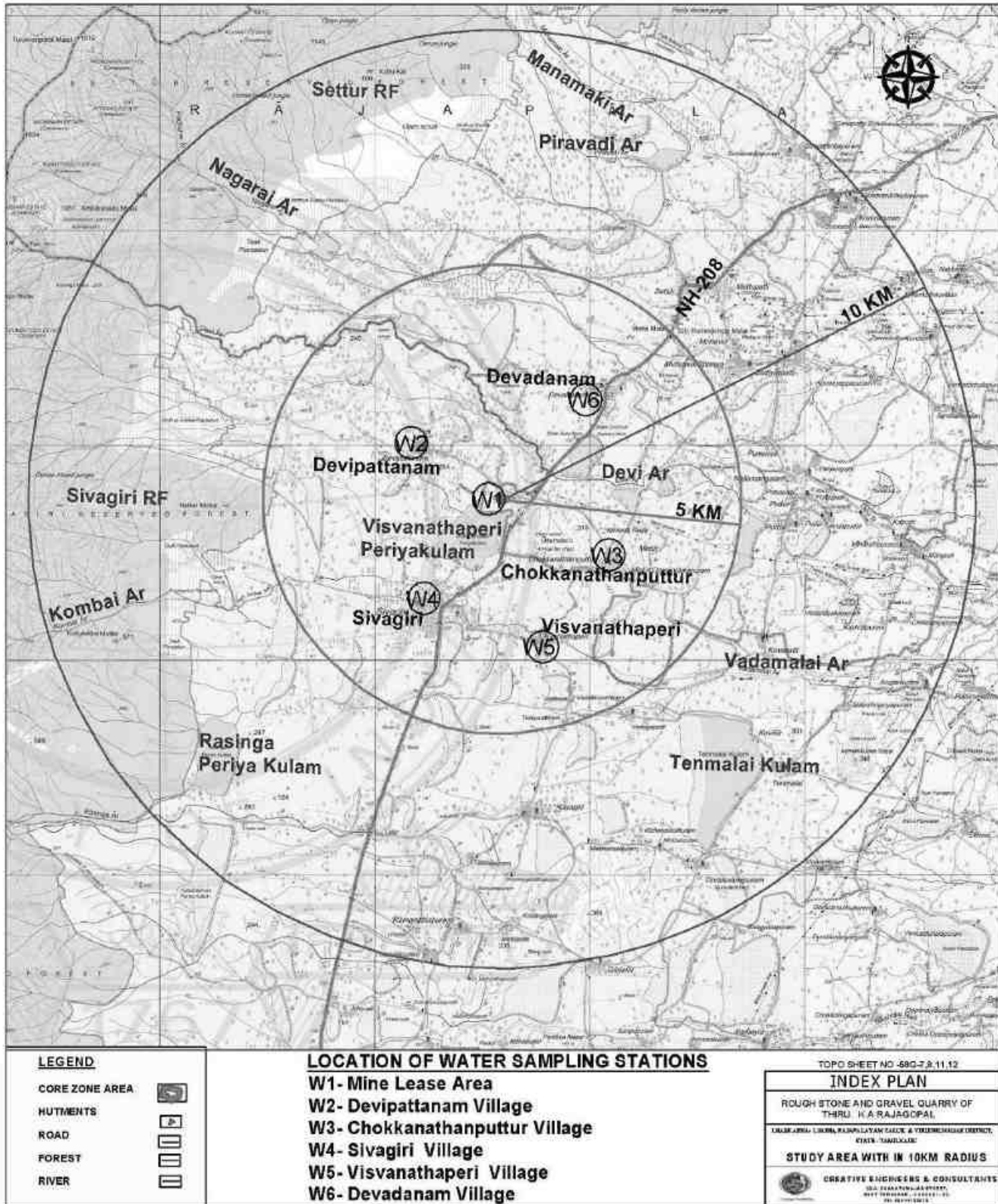
Table 3.14: Water Quality Monitoring

1.	Monitoring Period	Winter Season (Dec 2021 to Feb 2022)			
2.	Monitoring Location	The location map showing water sampling locations are given in Figure No.3.10 .			
	Code	Location	Sample Type	Distance	Direction
	W1	Near Mine Lease Area	BoreWell	-	-
	W2	Devipattinam Village	Borewell	1.7km	NW
	W3	Chokkanathanputhur Village	Borewell	2.4km	SE
	W4	Sivagiri Village	Borewell	2.2km	SW
	W5	Viswanathaperi Village	Borewell	3.1km	SE
	W6	Devathanam(Kovilur)	Borewell	2.7km	NE
3.	Methodology	Sampling - IS 3025 Part - I Analysis – IS 3025 relevant parts / APHA 23rd Edition			



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Figure 3.10: Location of Water Sampling Stations



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Table 3.15: Summary of Water Quality Data

Winter Season	Dec 2021 to Feb 2022	
Monitoring Locations	6 locations	
Parameters	Range of values	Limits*
pH at 25 °C	7.01 – 7.89	6.5-8.5
Total Dissolved Solids, mg/L	496 – 1100	2000
Chloride as Cl-, mg/L	56.7 – 362	1000
Total Hardness (as CaCO ₃), mg/L	84 – 521	600
Total Alkalinity (as CaCO ₃), mg/L	223– 492	600
Sulphates as SO ₄ ²⁻ , mg/L	21.7 – 268	400
Iron as Fe, mg/L	0.05 – 0.14	0.3
Nitrate as NO ₃ , mg/L	1.61 – 10.9	45
Fluoride as F, mg/L	0.14 – 0.66	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 were ranging in between 7.01 – 7.89 TDS values were in the range of 496 – 1100mg/L. Chloride values were ranging from 56.7 – 362 mg/L. Iron content was found to be in the range 0.05 – 0.14mg/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-9**.

3.3.4 NOISE ENVIRONMENT:

Opearional 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:



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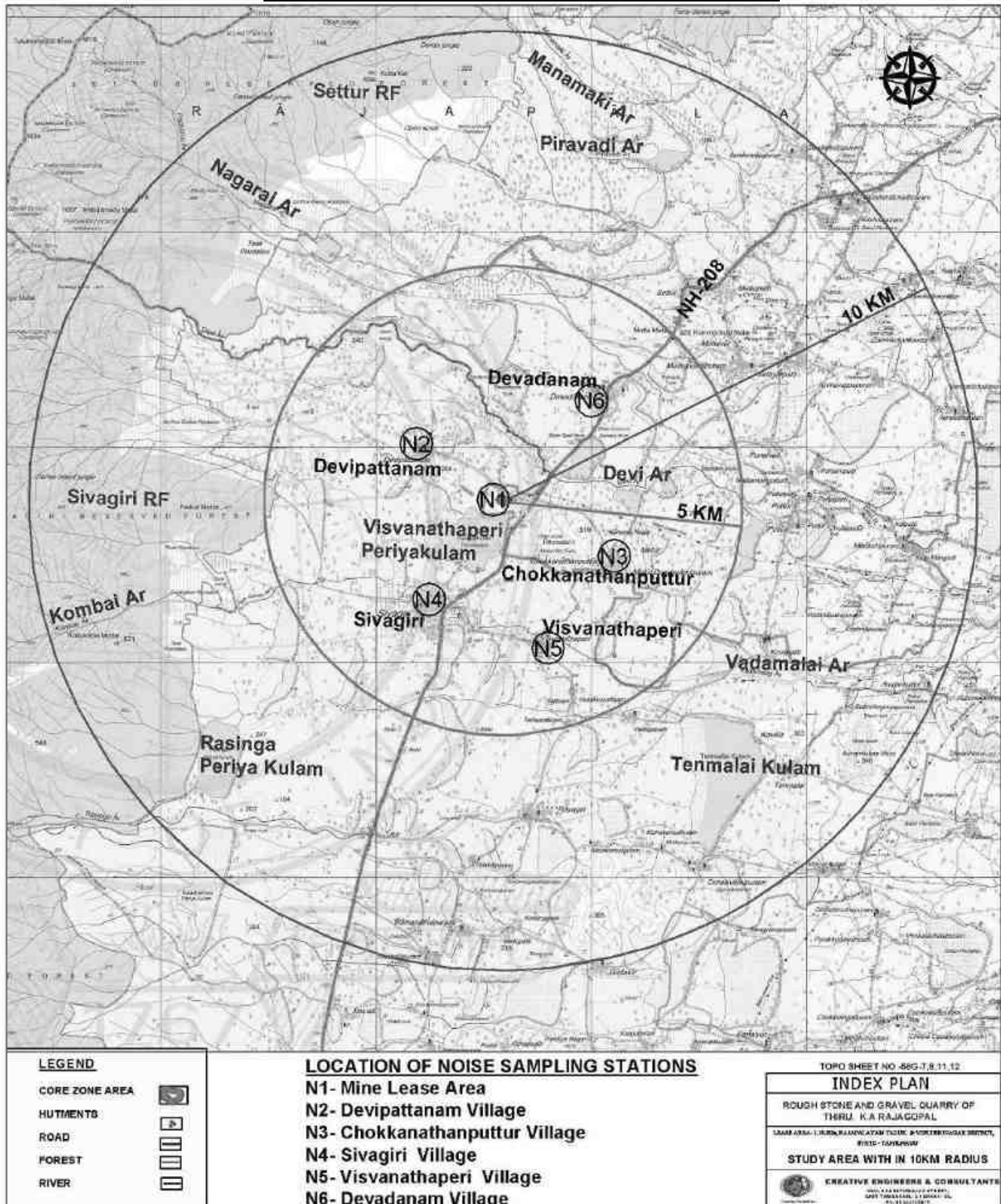
Table 3.16: Noise Level Monitoring

1.	Monitoring Period	Winter Season (Dec 2021 to Feb 2022)		
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	Devipattinam Village	1.7km	NW
	N3	Chokkanathanputhur Village	2.4km	SE
	N4	Sivagiri Village	2.2km	SW
	N5	Viswanathaperi Village	3.1km	SE
	N6	Devathanam(Kovilur)	2.7km	NE
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		



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Figure 3.11: Location of Noise Sampling Stations

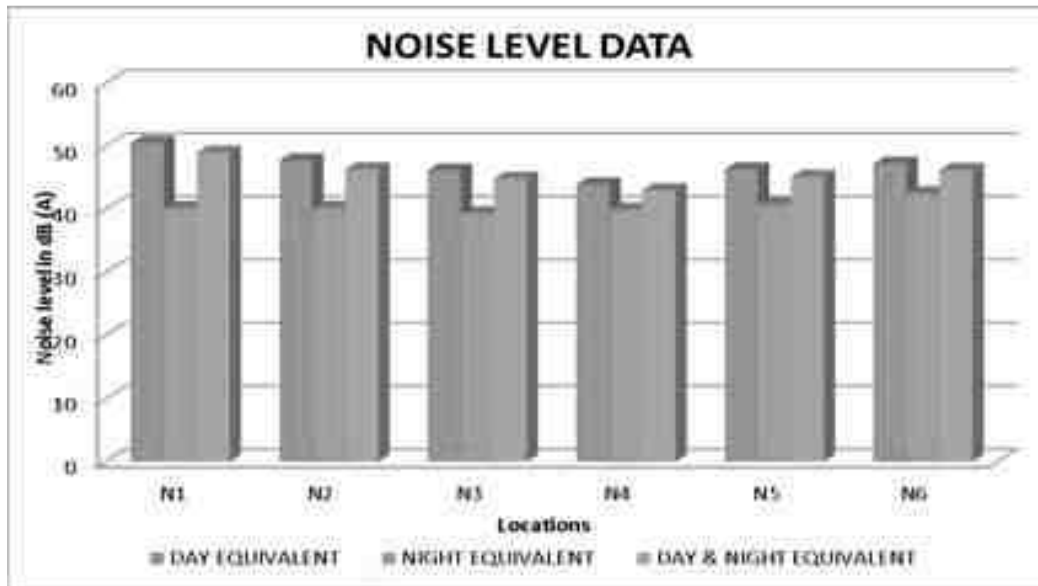


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Table No – 3.15: Ambient Noise Level in dB (A)

Date and time of monitoring	N1	N2	N3	N4	N5	N6
Day Equivalent	50.5	47.7	46.1	43.9	46.3	47.2
Night Equivalent	40.2	40.2	39.3	39.9	40.7	42.5
Day & Night Equivalent	48.9	46.3	44.8	43	45.1	46.2
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-3.17**. The noise values for all above locations are shown in a comparative chart given in **Figure No - 3.12**. In the buffer zone, day Equivalent Noise (Leq-d) noise levels were ranging from 43.9 dB(A) to 50.2 dB(A) and night Equivalent Noise (Leq-d) levels ranged between 39.3 dB(A) to 42.5 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.



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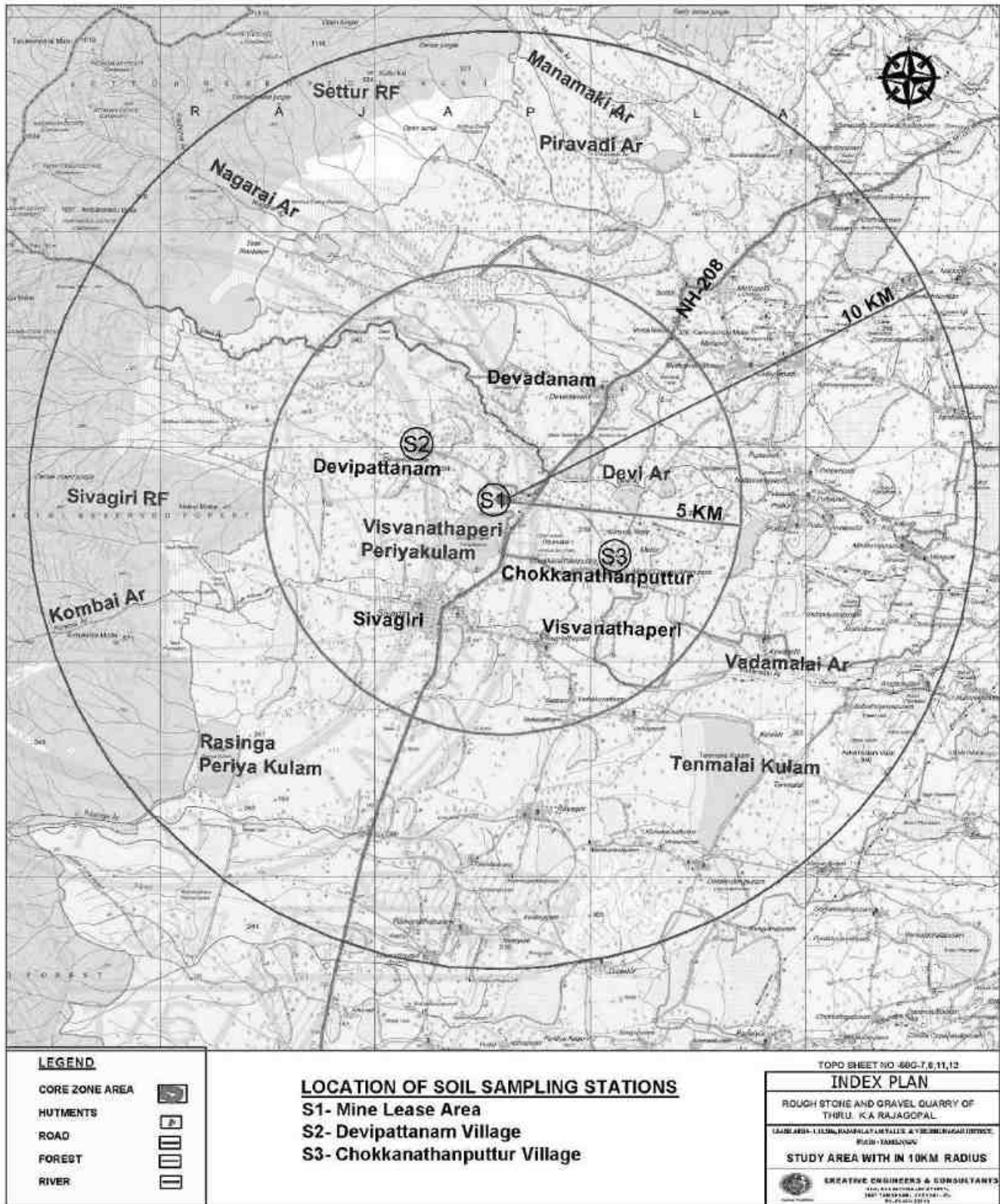
Table 3.17: Soil Quality Monitoring

1.	Monitoring Period	Winter Season (Dec 2021 – Feb 2022)		
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	Devipattinam Village	1.7km	NW
	S3	Chokkanathanputhur Village	2.4km	SE
3.	Methodology	Composite soil samples using sampling augers and field capacity apparatus.		
4.	Monitoring Frequency	Once during monitoring period		



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Figure 3.13: Location of Soil Sampling Stations



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Table 3.18: Soil Quality Data

S.No	Parameters	Unit	S1	S2	S3
1	pH at 25°C	-	7.31	7.57	7.73
2	Electrical Conductivity	(µmhos/cm)	33.96	23.71	77.35
3	Dry matter content	%	97.57	97.86	93.85
4	Water Content	%	2.43	2.14	6.15
5	Organic Matter	%	0.62	1.21	0.81
6	Soil texture	-	Clay Loam	Clay Loam	Silt loam
7	Grain Size Distribution i. Sand	%	29.87	31.42	21.56
8	ii. Silt	%	34.38	39.86	52.64
9	iii. Clay	%	35.75	28.72	25.8
10	Phosphorous	µg/g	1.83	2.28	1.59
11	Sodium	mg/kg	456	479	342
12	Potassium	mg/kg	782	820	656
13	Total Nitrogen	mg/kg	100	157	98.8
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 7.31 to 7.73 and Electrical Conductivity values were ranging between 23.71 – 77.35 µmhos/cm. Soils are generally silt loam and Clay loam type. Organic matter values were ranging between 0.62 – 1.21 %.

Total Nitrogen values were ranging between 98.8 - 157 mg/kg. Phosphorus values were ranging between 1.59 - 2.28 µg/g. Potassium values were ranging between 656 -820 mg/kg. Sodium values were ranging between 342 - 479 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.



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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 Sentinel-2 data has been used as base data acquired on April 2022 (Figure No.3.14) has been used to generate the required land use map showing their spatial pattern within the buffer area. The table showing data used for generation of information on land use 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.	Sentinel-2	Apr 2022	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 land use 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 land use categories. The land use categorization and nomenclature used in the present study is based on the national level land use classification system, which is adopted for the entire country as recommended by National Remote Sensing Centre (NRSC), Department of Space, Government of India.

Figure 3.14 : Landsat 8 Satellite Data of the Study Area

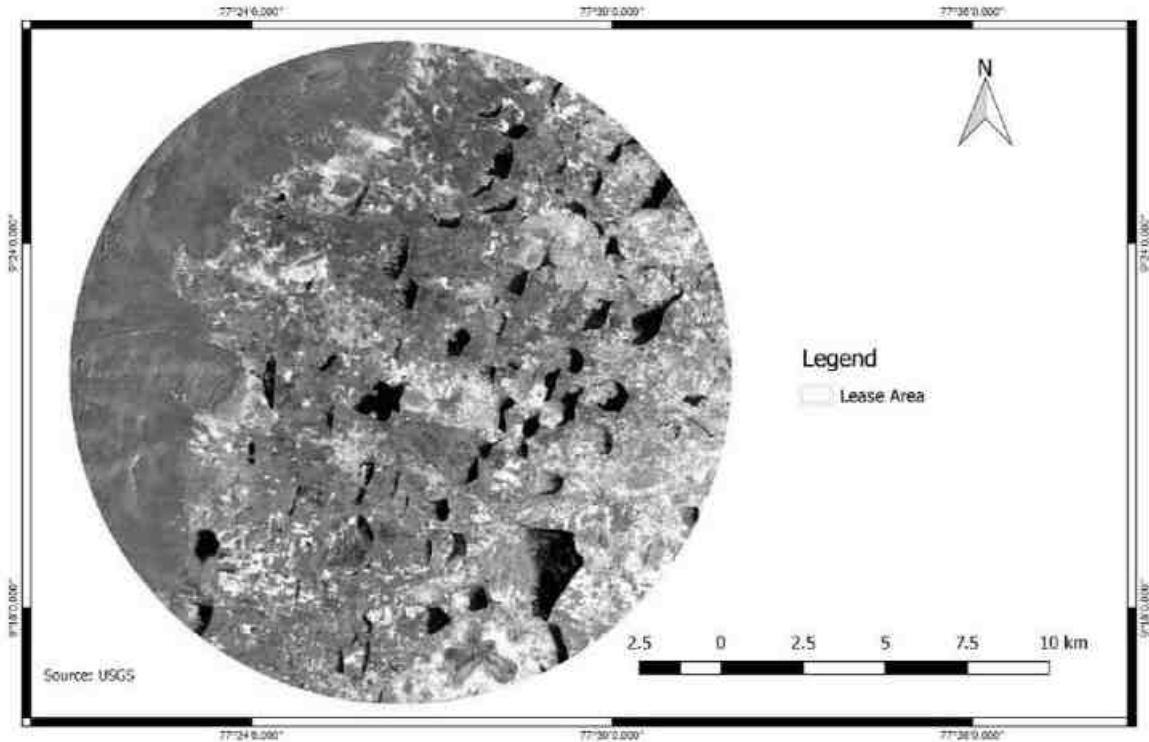


Table 3.20: Major Landuse Units of the Study Area

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

Such LandUse and Land cover (LULC) categories have been verified using field check and identified sample sites within the buffer area, verified on field and transferred into gis geo-coordinates using observation coordinates received from hand held GPS (global positioning system) instrument. Thus, an interpreted final landuse map has been generated (Figure No. 3.15) using above such elaborate procedure and transformed into GIS environment for its

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spatial distribution and area estimation. Spatial nature and extent of various landuse categories within the buffer area is discussed is given below:

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

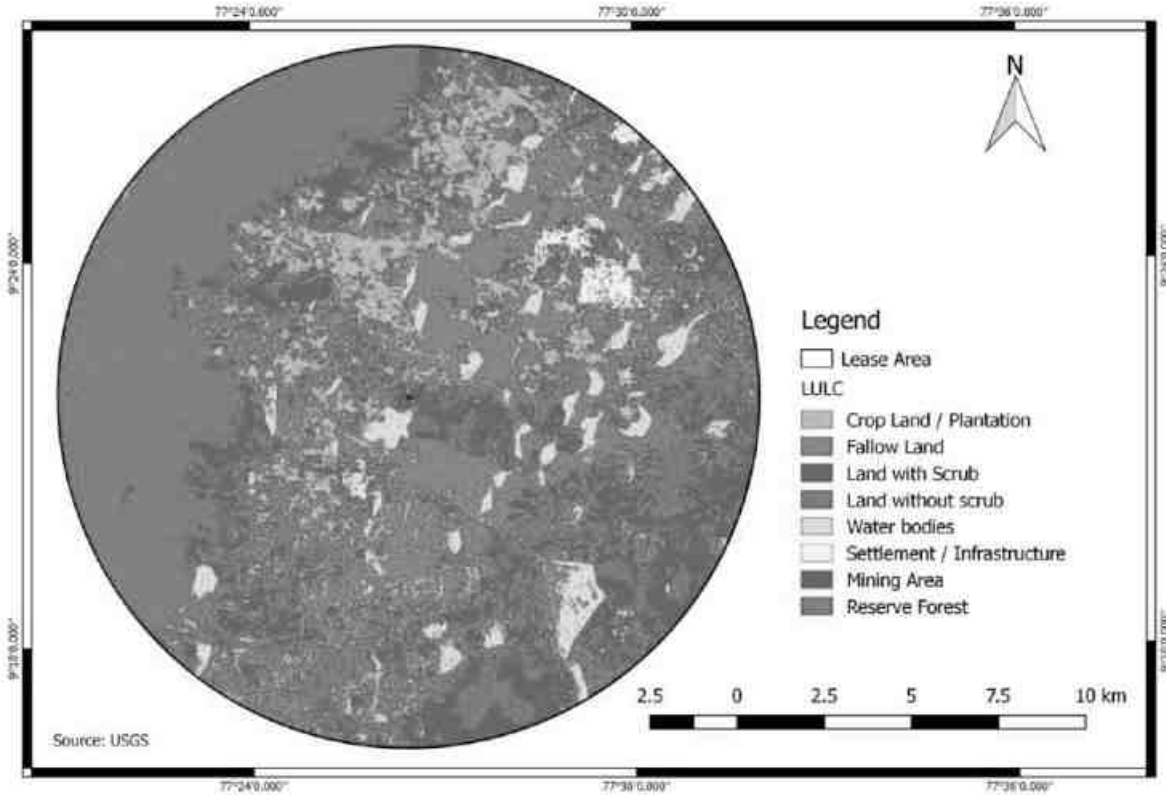


Table 3.21: Area Estimation of Landuse Categories in Buffer Zone

S.No	Landuse Feature	Area (Sq.Km)	Percentage
1	Agriculture/ Plantation	38.64	12.21
2	Fallow Land	41.09	12.98
3	Land With Scrub	36.00	11.37
4	Land Without Scrub	70.78	22.36
5	Water bodies	15.40	4.86
6	Settlement	5.94	1.88
7	Mining Area/ Industries	3.52	1.11
8	Reserve Forest	105.13	33.23
	Total	316.50	100

From the above table it is seen that 12.21 % of the study area is agriculture land and 12.98 % are fallow land. Land with scrub constitutes 11.37 %, lands without scrub constitute 22.36 %, Reserve Forest constitutes 33.22 % and waterbodies & others constitute 7.86%.

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3.4.2 LAND USED BASED ON REVENUE RECORDS:

The lease area falls in Duraisampuram village, Rajapalayam 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 - 3.21. Village wise land use pattern is provided in **Annexure-10**.

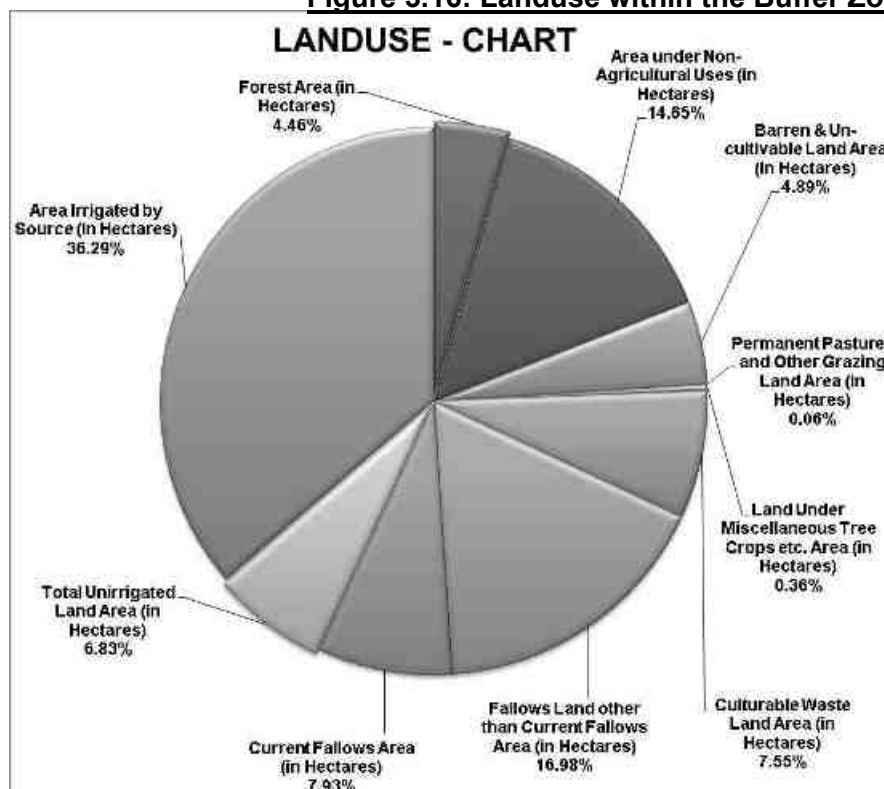


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Table 3.22: Land Use Pattern of the Study Area Falling Within 10 Km Area in (Ha)

Study Area	Total Geographical Area	Forest Area	Area under Non-Agricultural Uses	Barren & Uncultivable 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	278.63	0	18.19	1.22	2.02	0	0.47	20.57	164.79	0	71.37
2 - 5 KM	6718.86	2.15	1181.73	269.96	0	78.55	41.82	512.73	165.91	266.94	4199.07
5-10 KM	21929.76	1286.74	3037.23	1142.05	14.58	25.17	2143.02	4379.37	1964.2	1709.25	6228.15
0-10 KM	28927.25	1288.89	4237.15	1413.23	16.6	103.72	2185.31	4912.67	2294.9	1976.19	10498.59

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

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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 quadrat, 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. Major part of lease area is barren land with few bushes (*Prosopis juliflora*) and grasses. The detailed list of plants found in the core zone are given in Table no – 3.23.

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Table 3.23: List of Floristic Species in the Core Zone

Sl.No	Species Name	Common Name	Family
Trees			
1	<i>Acacia nilotica</i>	Fabaceae	Karuvelan
2	<i>Acacia auriculiformis</i>	Fabaceae	Pencil tree
3	<i>Acacia leucophloea</i>	Fabaceae	Valvelam
4	<i>Leucaena leucocephala</i>	Fabaceae	Subabul
5	<i>Prosopis juliflora</i>	Fabaceae	Cimaikkaruvel
Shrubs			
1	<i>Ricinus communis</i>	Euphorbiaceae	Amanakku
2	<i>Cassia auriculata</i>	Fabaceae	Aavarampoo
3	<i>Calotropis gigantea</i>	Apocynaceae	Earukku
4	<i>Lantana camara</i>	Verbenaceae	Putus
Herbs			
1	<i>Tridax procumbens</i>	Asteraceae	Vettukai poondu
2	<i>Sida acuta</i>	Malvaceae	Palambasi
3	<i>Acalypha indica</i>	Amaranthaceae	Kupaimeni keeri
4	<i>Sida rhombifolia</i>	Malvaceae	Kurundotti
5	<i>Anisomeles malabarica</i>	Lamiaceae	Peyimarutti
6	<i>Achyranthes aspera</i>	Amaranthaceae	Nayuruvi
7	<i>Phyllanthus niruri</i>	Phyllanthaceae	Keelzhaneeli
Grasses			
1	<i>Cynodon dactylon</i>	Poaceae	Arugampillu

C.BUFFER ZONE:

The Dominated species are *Acacia auriculiformis*, *Azadirachta indica*, *Borassus flabellifer*, *Acacia nilotica*, *Albizia lebbek*, *Acacia leucophloea*, *Prosopis juliflora*, etc. The detailed list of plants found in the Bufferzone is given in Table no – 3.24.

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Table 3.24: List of Floristic Species in the Buffer Zone

Sl.No	Species Name	Family	Local Name
Trees			
1	<i>Morinda tinctoria</i>	Rubiaceae	Nuna
2	<i>Mangifera indica</i>	Anacardiaceae	Maamaram
3	<i>Samanea saman</i>	Fabaceae	Amaivagai
4	<i>Bauhinia purpurea</i>	Caesalpiniaceae	Mantharai
5	<i>Acacia nilotica</i>	Fabaceae	Karuvelan
6	<i>Albizia lebbek</i>	Fabaceae	Vagai
7	<i>Aegle marmelos</i>	Rutaceae	Vilvamaran
8	<i>Ficus religiosa</i>	Moraceae	Poarasamaram
9	<i>Acacia auriculiformis</i>	Fabaceae	Pencil tree
10	<i>Azadirachta indica</i>	Meliaceae	Vembu
11	<i>Moringa oleifera</i>	Moringaceae	Murungai
12	<i>Psidium guava</i>	Myrtaceae	Koyya
13	<i>Casuarina equisetifolia</i>	Casuarinaceae	Savukku
14	<i>Ficus benghalensis</i>	Moraceae	Aalamaram
15	<i>Polyalthia longifolia</i>	Annonaceae	Nietilingam
16	<i>Leucaena leucocephala</i>	Fabaceae	Subabul
17	<i>Tectona grandis</i>	Verbenaceae	Tekku
18	<i>Manilkara zapota</i>	Sapotaceae	Sappota
19	<i>Musa paradisiaca</i>	Musaceae	Valzhlai
20	<i>Tamarindus indica</i>	Fabaceae	Puli
21	<i>Bobax ceiba</i>	Malvaceae	Ilavu
22	<i>Phyllanthus emblica</i>	Euphorbiaceae	Nelli
23	<i>Cocus nucifera</i>	Arecaceae	Tennai
24	<i>Pithecellobium dulce</i>	Fabaceae	Kodukkapuli
25	<i>Delonix regia</i>	Fabaceae	Gulmohar
26	<i>Citrus limon</i>	Rutaceae	Lemon
27	<i>Thespesia populnea</i>	Malvaceae	Puvarasu
28	<i>Carica papaya</i>	Caricaceae	Pappali
29	<i>Terminalia arjuna</i>	Combretaceae	Marudha Maram
30	<i>Sygygium cumuni</i>	Myrtaceae	Naval
31	<i>Prosopis juliflora</i>	Fabaceae	Seemai karuvel
32	<i>Cassia fistula</i>	Fabaceae	Konrai

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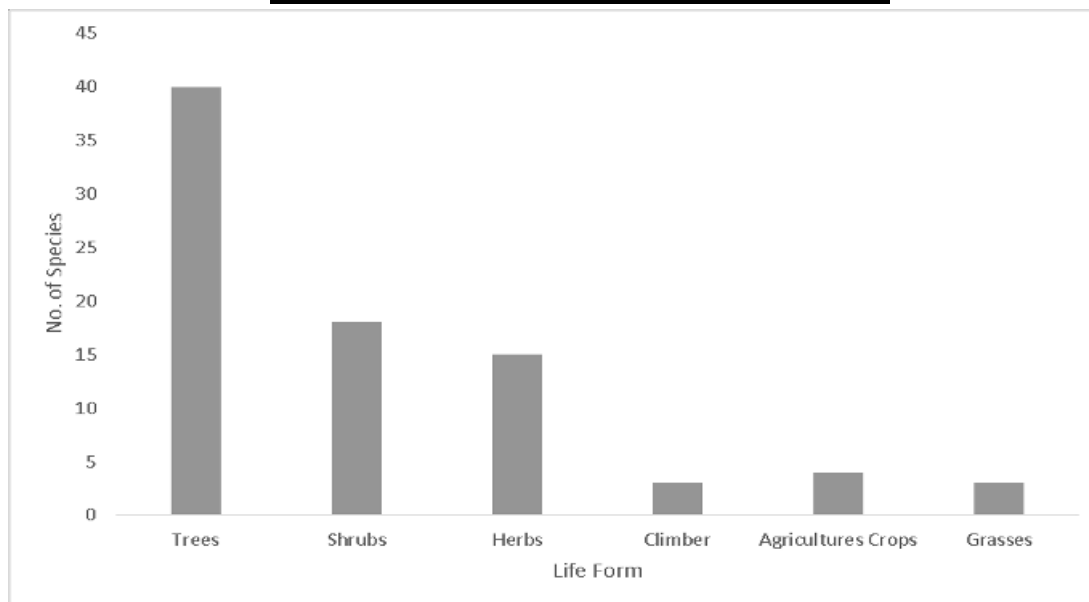
SI.No	Species Name	Family	Local Name
33	<i>Gmelina arborea</i>	Lamiaceae	Kumalaamaram
34	<i>Mimusops elengi</i>	Sapotaceae	Magizhamboo
35	<i>Acacia leucophloea</i>	Fabaceae	Valvelam
36	<i>Madhuca longifolia</i>	Sapotaceae	Iluppai
37	<i>Borassus flabelliformis</i>	Arecaceae	Panna-maram
38	<i>Morinda pubescens</i>	Rubiaceae	Manjanathi
39	<i>Pongamia pinnata</i>	Fabaceae	Pungai
40	<i>Peltophorum pterocarpum</i>	Fabaceae	Kilukiluppai
Shrubs			
1	<i>Cassia auriculata</i>	Fabaceae	Aavarampoo
2	<i>Jatropha glandulifera</i>	Euphorbiaceae	Vellaikattukottai
3	<i>Sida cordifolia</i>	Malvaceae	Sida plant
4	<i>Ipomoea carnea</i>	Convolvulaceae	Pink morning glory
5	<i>Hibiscus rosa-sinensis</i>	Malvaceae	Semparuthi
6	<i>Justicia adhatoda</i>	Acanthaceae	Adathoda
7	<i>Ricinus communis</i>	Euphorbiaceae	Amanakku
8	<i>Nerium indicum</i>	Apocynaceae	Arali
9	<i>Ixora casei</i>	Rubiaceae	Idlipoo
10	<i>Lawsonia inermis</i>	Lythraceae	Maruthani
11	<i>Boerhaavia diffusa</i>	Nyctaginaceae	Kagithapoo
12	<i>Tecoma stans</i>	Bignoniaceae	Yellow trumpetbush
13	<i>Ziziphus jujuba</i>	Rhamnaceae	Elanthai
14	<i>Aloe vera</i>	Asphodelaceae	Chotthu kathalai
15	<i>Abutilon indicum</i>	Malvaceae	Thuthi
16	<i>Calotropis gigantea</i>	Apocynaceae	Earukku
17	<i>Lantana camara</i>	Verbenaceae	Putus
Herbs			
1	<i>Anisomeles malabarica</i>	Lamiaceae	Peyimarutti
2	<i>Sida acuta</i>	Malvaceae	Palambasi
3	<i>Achyranthes aspera</i>	Amaranthaceae	Nayuruvi
4	<i>Leucas aspera</i>	Lamiaceae	Thumbai
5	<i>Acanthospermum hispidum</i>	Asteraceae	Gokul kanta
6	<i>Cleome viscosa</i>	Cleomaceae	Naai velai
7	<i>Argemone mexicana</i>	Papaveraceae	Mexican poppy
8	<i>Ocimum tenuiflorum</i>	Lamiaceae	Thulasi



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SI.No	Species Name	Family	Local Name
9	<i>Anisomeles indica</i>	Lamiaceae	marutti
10	<i>Parthenium hysterophorus</i>	Asteraceae	Parthenium
11	<i>Sida rhombifolia</i>	Malvaceae	Kurundotti
12	<i>Tridax procumbens</i>	Asteraceae	Vettukai poondu
13	<i>Phyllanthus niruri</i>	Phyllanthaceae	Keelzhaneeli
14	<i>Solanum xanthocarpum</i>	Solanaceae	Kandangkattari
15	<i>Acalypha indica</i>	Amaranthaceae	Kupaimeni keeri
Climber			
1	<i>Abrus precatorius</i>	Fabaceae	Kundumani
2	<i>Asparagus racemosus</i>	Asparagaceae	Tannir-vittan
3	<i>Cissus quadrangularis</i>	Vitaceae	Pirandai
Agricultures Crops			
1	<i>Sesbania grandiflora</i>	Fabaceae	Agati
2	<i>Gossypium hirsutum</i>	Malvaceae	Paruththi
3	<i>Musa paradisiaca</i>	Musaceae	Valzhai
4	<i>Solanum melongena</i>	Solanaceae	Kaththarii
Grasses			
1	<i>Chloris barbata</i>	Poaceae	Kodai pullu
2	<i>Cynodon dactylon</i>	Poaceae	Arugampillu
3	<i>Cyperus rotundus</i>	Cyperaceae	korai pullu

Figure 3.17: Flora species in the Buffer Zone



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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.

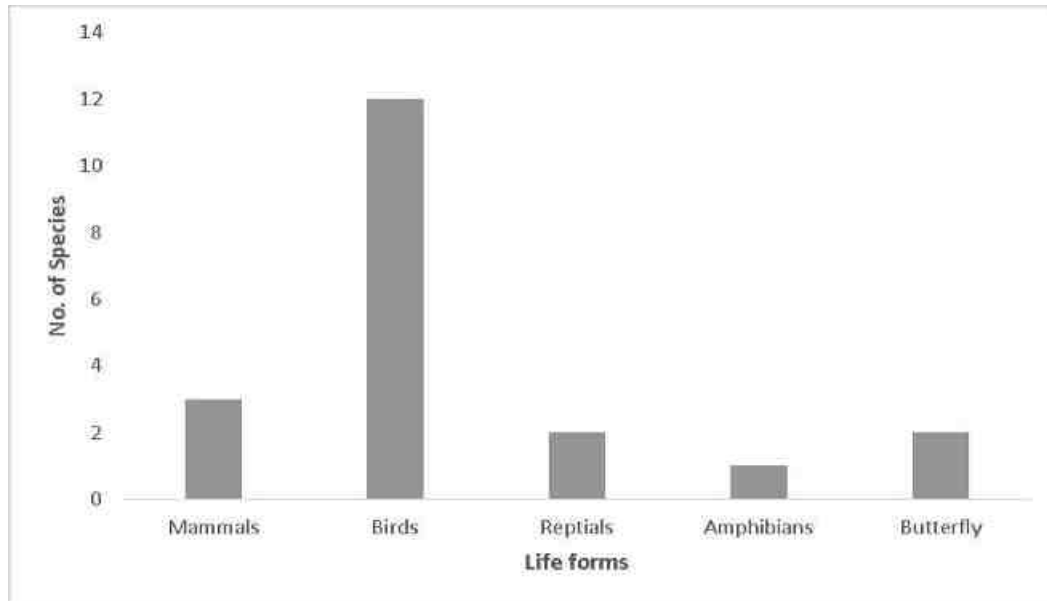
Observation: There is no Wild Life Sanctuary or National Park within the study area of 10 km. Domesticated animals are commonly found. The lease and 10 Km buffer zone does not fall in the Western Ghats ESA boundary. No wild mammalian species was directly sighted during the field survey. There is no Schedule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

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	Indian Grey Mongoose	Herpestes edwardsii	II
3	Common Indian Hare	Lepus ruficaudatus	IV
Birds			
1	Purple-rumped Sunbird	Nectarinia zeylonica	IV
2	Black Drongo	Dicrurus macrocercus	IV
3	Common Myna	Acridotheres tristis	IV
4	Rose-ringed Parakeet	Psittacula krameri	IV
5	House Sparrow	Passer domesticus	IV
6	Indian Cuckoo	Cuculus micropterus	IV
7	Common Crow	Corvus splendens	V
8	Spotted Dove	Streptopelia chinensis	IV
9	Common Kingfisher	Alcedo atthis	IV
10	Little Cormorant	Phalacrocorax niger	IV
11	Cattle Egret	Bubulcus ibis	IV
12	Little Egret	Egretta garzetta	IV
Reptiles			
1	Common Indian krait	Bungarus caeruleus	II
2	Rat Snake	Ptyas mucosa	II
Amphibians			
1	Common Indian toad	Bufo melanostictus	IV
Butterfly			
1	Common crow	Euploea core	IV
2	Lime butterfly	Papilio demoleus	IV



Figure 3.18: Fauna Diversity in the Buffer Zone



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 Duraisampuram Village, Rajapalayam Taluk is considered to understand the nature of the general hydrogeological conditions of the area.

3.6.1 PHYSIOGRAPHY AND DRAINAGE:

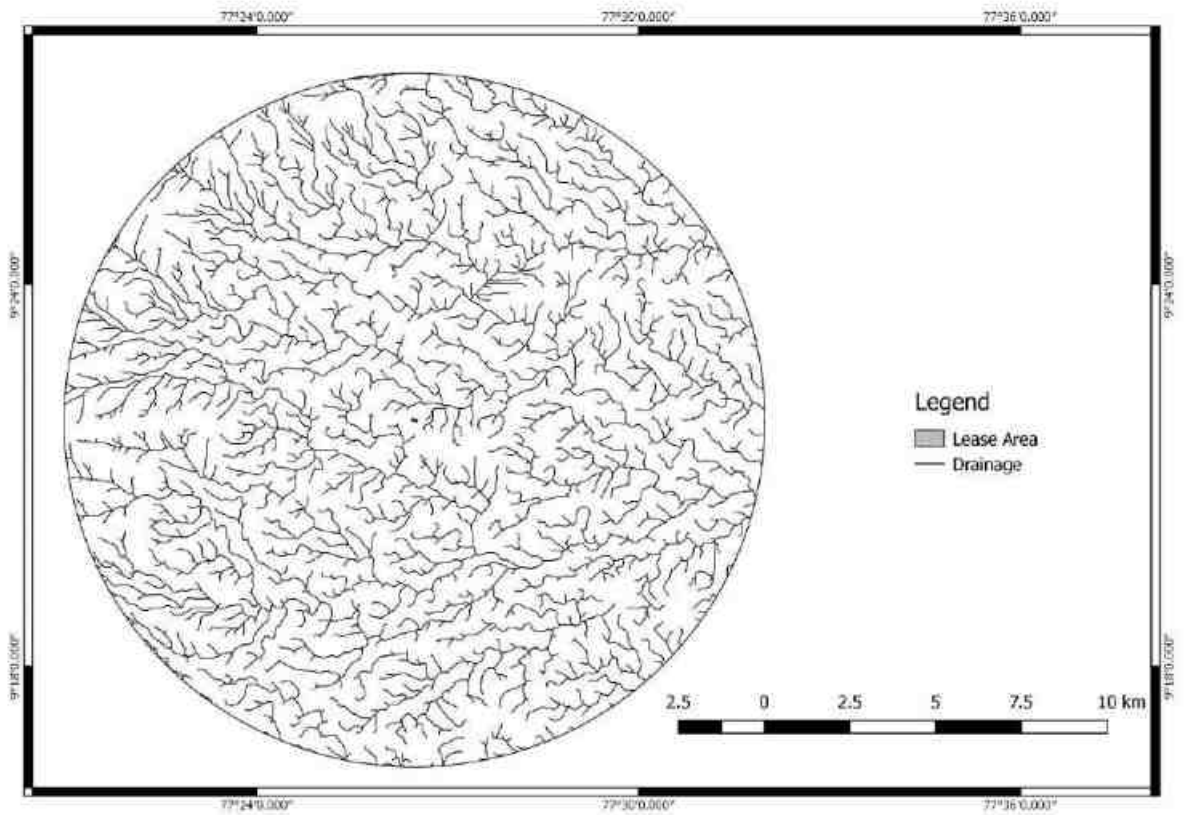
Physiography: The The rocks in this area belonging to archean group of rocks. Below the Gravel formation a hard Rough stone Charnockite are noted. The rocks are Phaneric to medium grained nature. And in these rocks there are mineral constituents of Blue Quarts, Micro Cline Feldspar, Hypersthene and flacks of Biotite Mica.

Drainage: There is no major water body in the core zone however there is a tank located at a distance of 230m on the southern side of the lease area. Besides, Devi Ar is located at a distance of 1.9Km on the eastern side of the lease area The drainage map prepared from the

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survey of India topographic maps shows the presence of few streams running in a dendritic pattern.

Figure 3.19: Drainage Map



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3.6.2 GEOLOGY AND GEOMORPHOLOGY

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

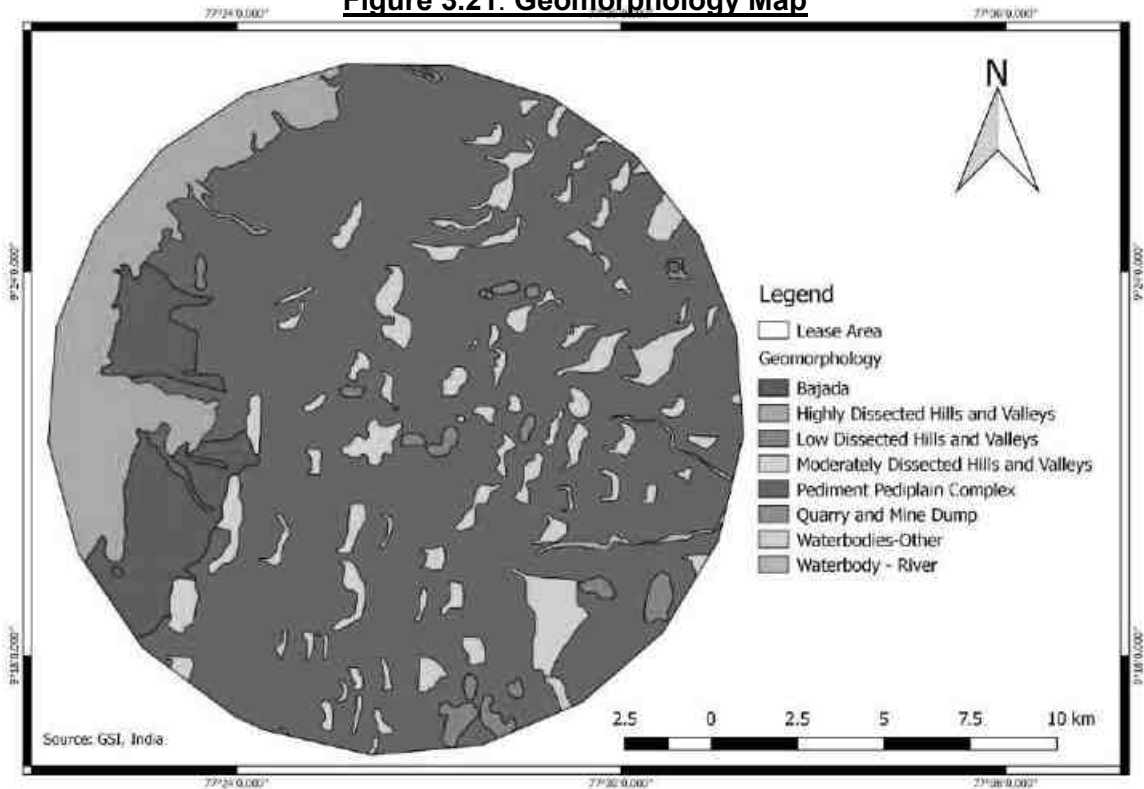
Figure 3.20: Geology Map



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

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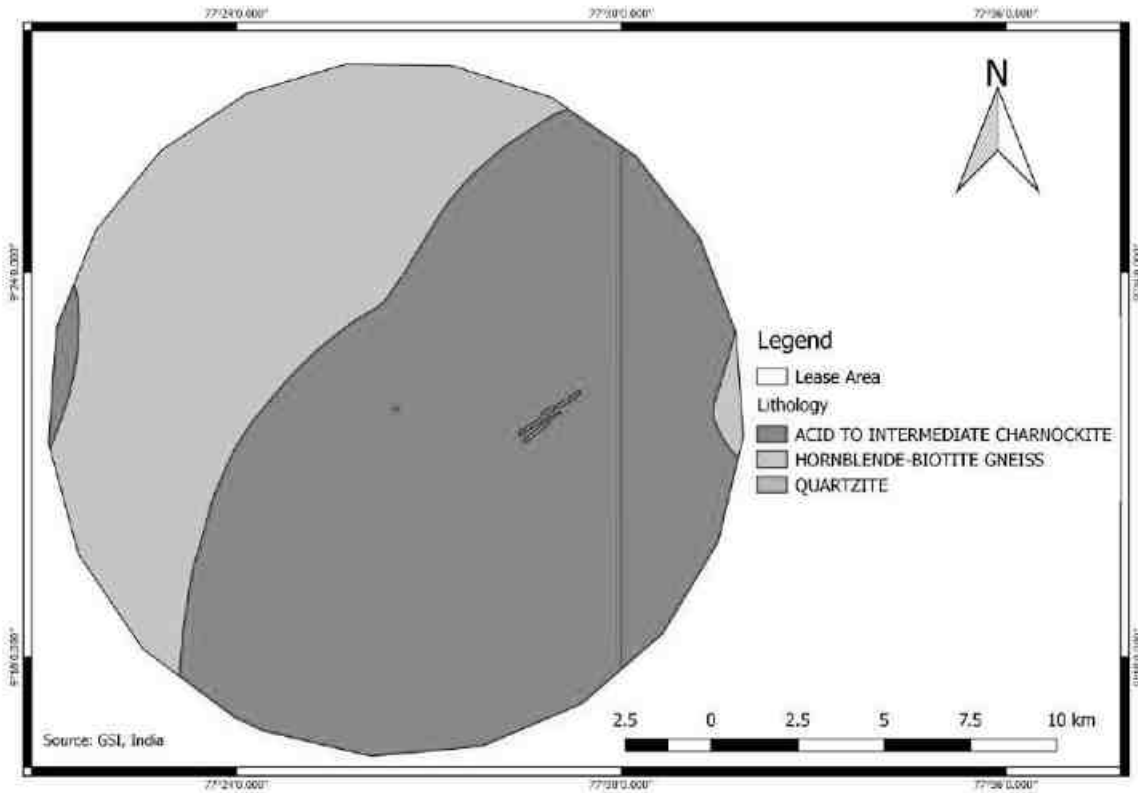
Figure 3.21: Geomorphology Map



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

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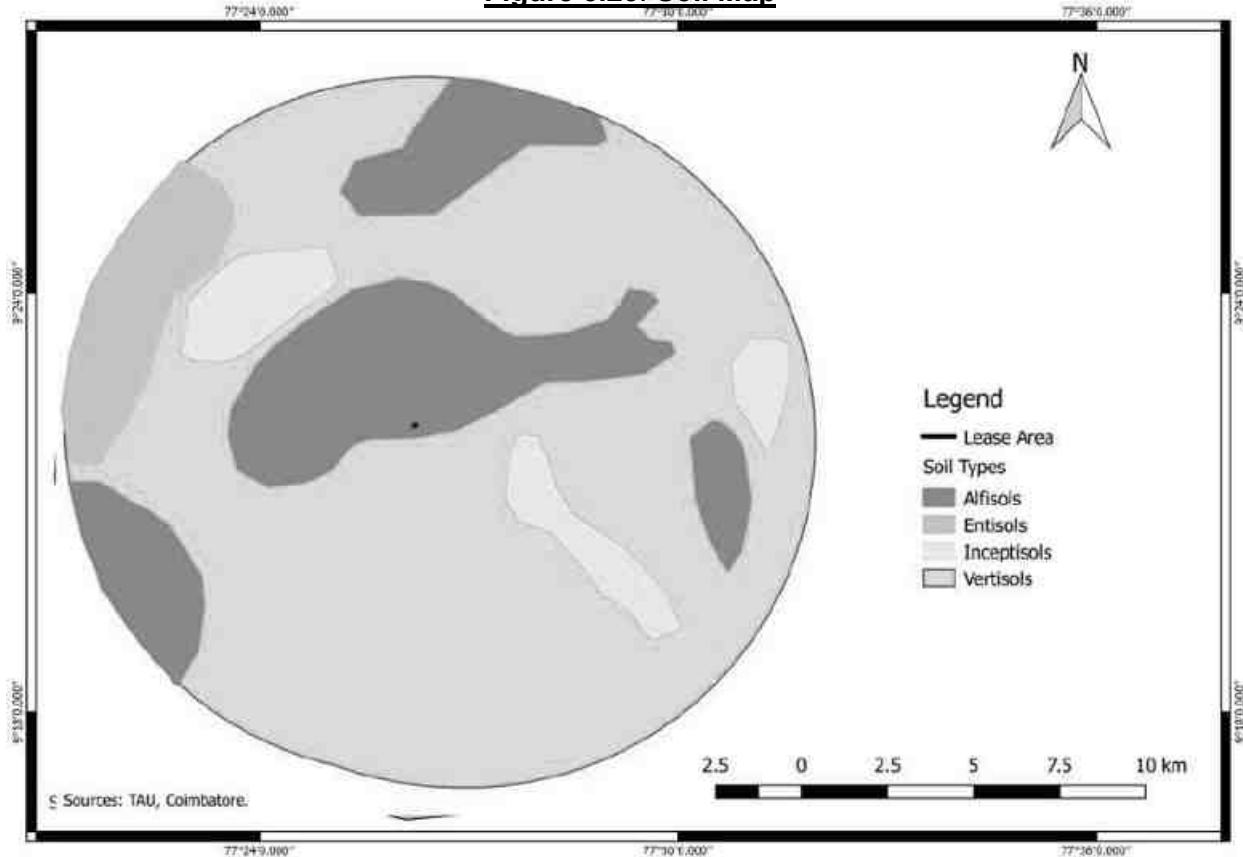
Figure 3.22: Lithology Map



Soil: The study area is characterized by Vertisols, Alfisols, Entisols and Inceptisol. The lease area falls under the category of Alfisols. The project area is dominated with Alfisols type of soil.

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Figure 3.23: 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 Rajapalayam Block, Viruthunagar District, Tamil Nadu the following is observed.

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

Year	Depth to Water Level (m bgl)		Wells Monitored	
	Pre-Monsoon	Post-Monsoon	Pre-Monsoon	Post-Monsoon
2015	2.225	4.89	2	2
2016	5.49	8.03	3	3
2017	-	7.09	-	2
2018	7.19	4.7	3	2

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The premonsoon and post monsoon water levels are depicted in Figure No.3.26, and 3.27 and they indicate that the depth to water level in project area ranges between 2.0 to 10.0 m bgl during the pre-monsoon season(April) and 2.0 to 10.0 m bgl during the post monsoon season (November).

Figure 3.24: Pre-Monsoon Water Level

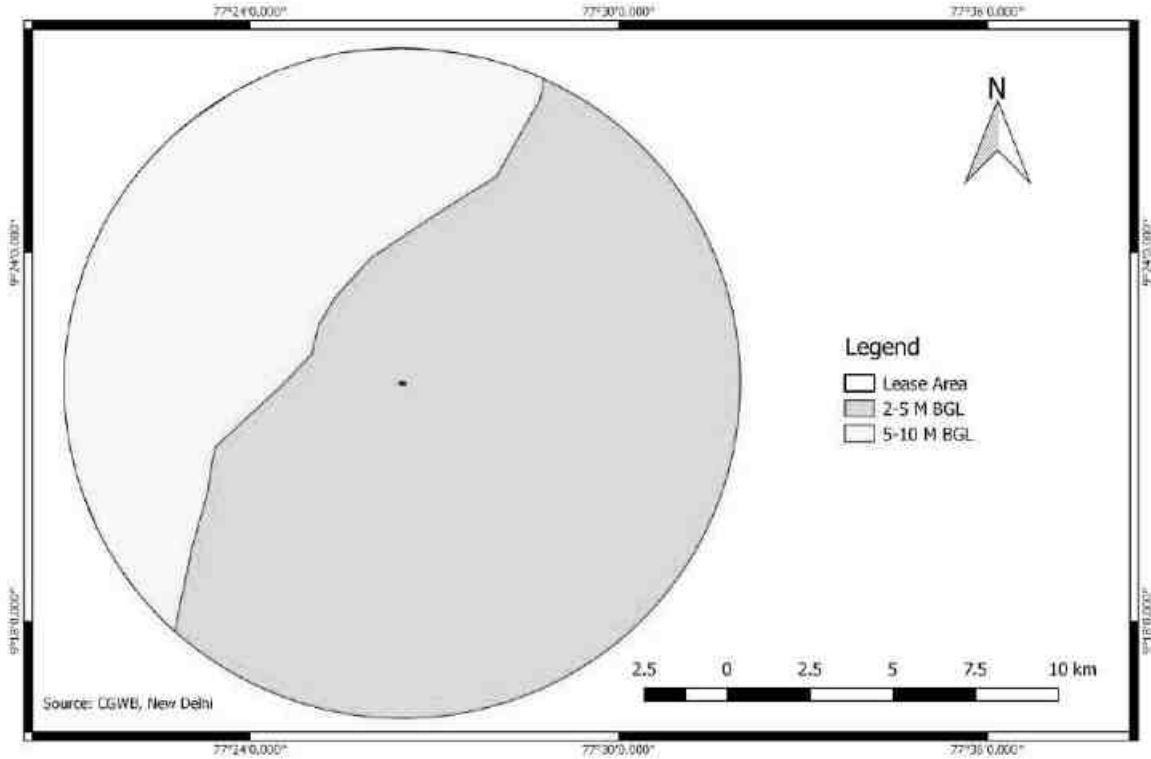
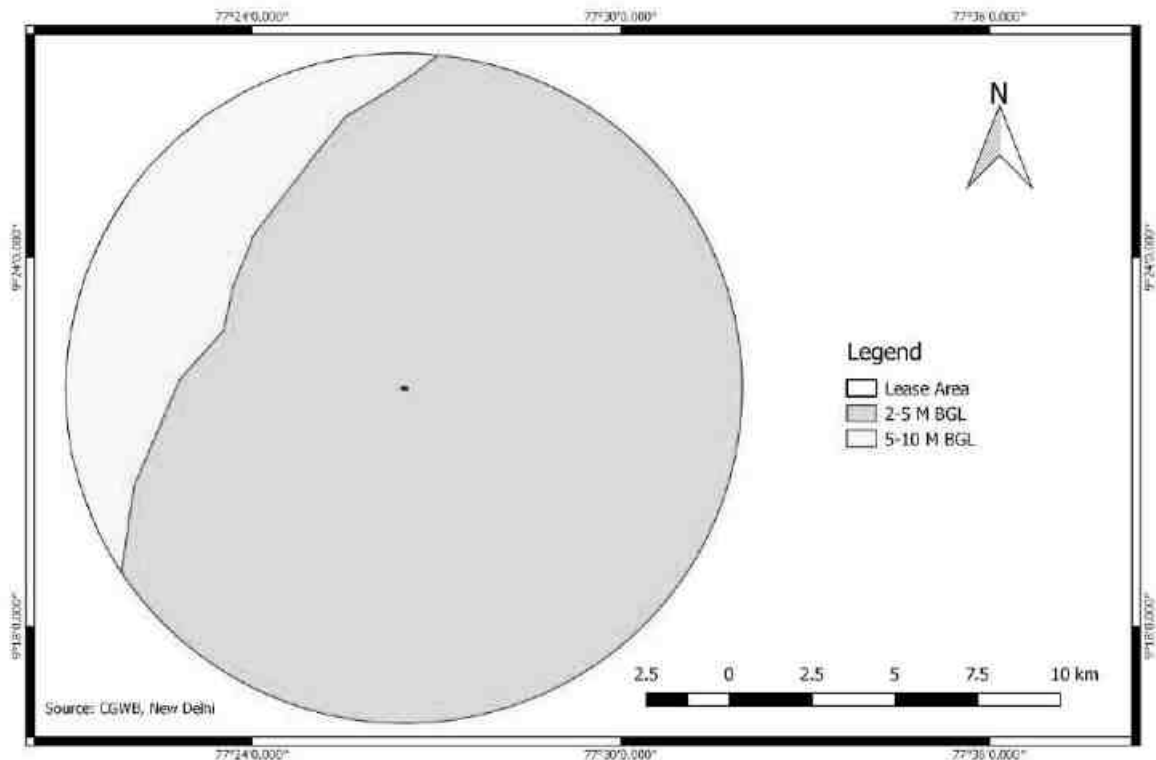


Figure 3.25: Post Monsoon Water Level



Field investigation:

Study of the area shows that the sub-surface formations reveal about 1 to 2m of soil with low recharge potentials. Subsequently hard and massive formations of rock are found.

In the study area, the shallow aquifer is developed through dug wells and deeper aquifer through tube wells. The study has revealed that potential fractures are encountered at deeper levels. The water in the wells are available mainly after post monsoon and it reduces during summer necessitating only dry crops cultivation. Bore wells are as deep as 600 ft also and it reflects that the yield is only better at deeper water levels.

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Based on the available information and the geophysical investigations it is concluded that the project area is considered to poor groundwater potential up to 50m. 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.

Rain water collected in the tanks in the region acts as a good source of water during post monsoon. In order to increase the recharge, tanks, and percolation ponds may be provided with the recharge wells/recharge shafts penetrating this impervious layer to make it more effective in recharging the aquifer

* * * * *



CHAPTER 4

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 GENERAL

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

4.2 AIR ENVIRONMENT:

4.2.1 IMPACTS DUE TO PROJECT OPERATION:

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

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

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

Particulate matter smaller than 10 microns, referred to as 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 problems. Higher concentration of SO₂, NO_x, CO may cause some health effect on the human



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

Table 4.1: Impact and Mitigation Measures – Air Environment

S.No	Activity	Consequence	Mitigation Measures
1	Drilling	Dust Emanation	Usage of Drill bits in good condition
			Covering of drill holes with wet cloth
			Usage of sharp drill bits for drilling of holes.
			Provision of dust filters / mask to workers working at highly dust prone and affected areas.
2	Blasting	Instantaneous dust emanation	Well-designed blasting parameter, effective stemming to achieve optimum breakage occurs without generating fines.
			Use of appropriate explosives for blasting and avoiding overcharging of blast holes.
			Avoiding blasting during high wind periods where the fine dust is carried out away easily affecting the ambient air quality.
			Use of controlled blasting techniques with Nonel to keep the dust generation, noise as well as vibration level within the prescribed limits.
3	Excavation and Loading	Dust emanation, Gaseous Emission	HEMM will be operated as per the manufacturer's guidelines
			Enclosures for operator cabin.
			Imparting sufficient training to operators on safety and environmental parameters.
			Proper maintenance of hauling equipments.
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.
			Green netting 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.



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Considering that the quantum of production is less, only 1 excavator, 4 tippers will be engaged. These equipments will be properly and regularly maintained. Besides, as mentioned earlier, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 560 number of plants will be planted in and around the lease area.

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

4.2.2 AIR QUALITY IMPACT PREDICTION:

The model simulations are done for the air pollutant arising from the mining operations, namely, 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 scenario. The details of the emission factors used for the same is provided below:

Table 4.3: Emission Factors

S.No	Activity	PM10	PM2.5	Unit
1	Ore Loading	1.5×10^{-3}	2.1×10^{-4}	Kg/T



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2	OB Loading	1.4×10^{-4}	1.5×10^{-5}	Kg/T
3	Hauling inside lease area	0.19	0.019	g/VKT
4	Drilling	0.1	0.04	Kg/hole

4.2.2.2 Emission Rates:

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

Table 4.4: Emission Rate

ACTIVITIES/POLLUTANTS	PM ₁₀ (g/sec)	PM _{2.5} (g/sec)
Ore Loading	0.012	0.002
Drilling	0.054	0.021
Hauling inside lease area	0.053	0.008
Total	0.119	0.031

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 Winter Season (Dec 2021 to Feb 2022) and the same has been used in the predictions.

4.2.2.3 Results and Discussions

The results of the Peak GLC's for various environmental parameters with control measures are given below:

Table 4.5: Peak Incremental Concentration

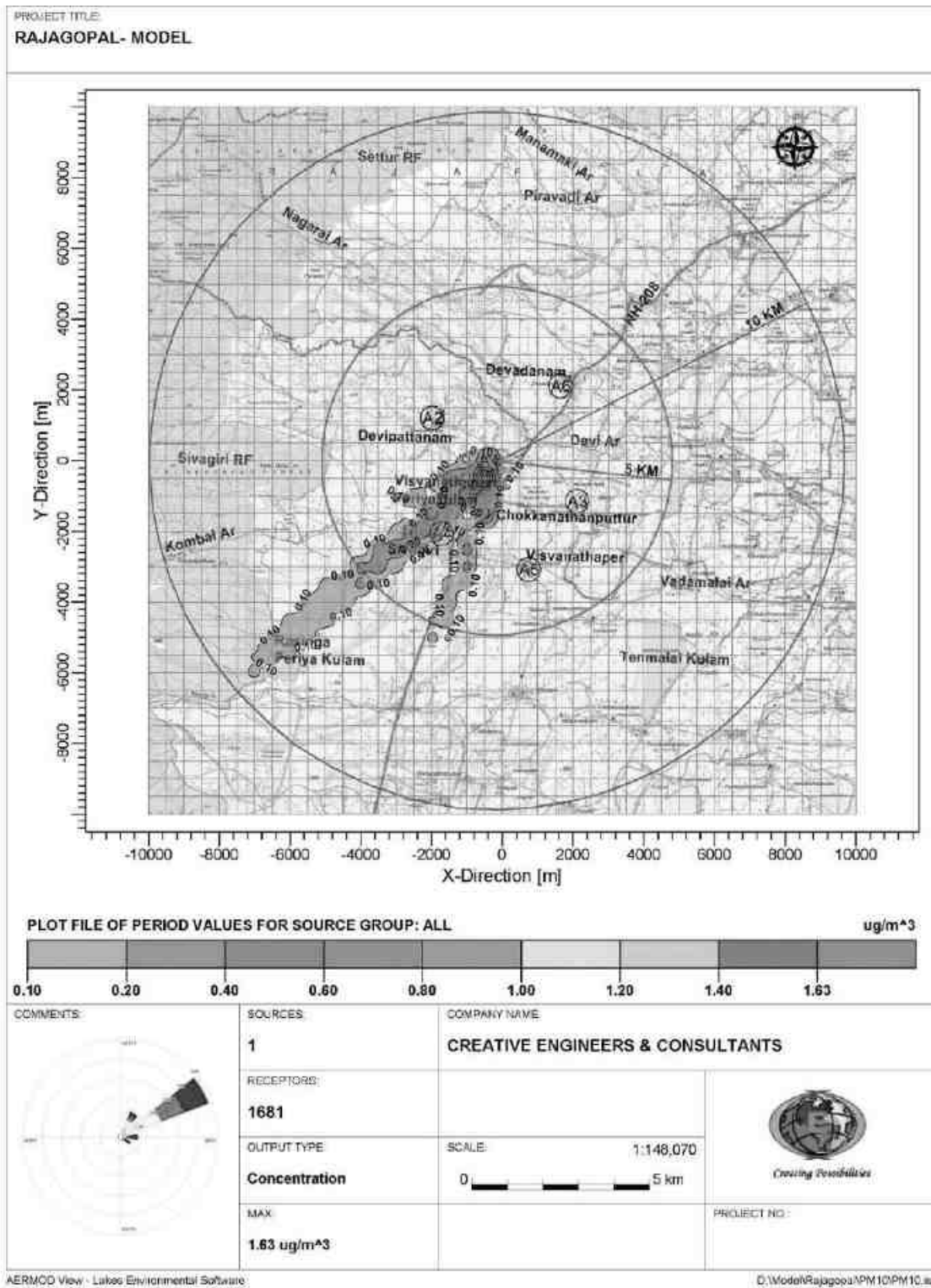
S.No	Parameters	Peak incremental concentration $\mu\text{g}/\text{m}^3$
1	PM ₁₀	1.63
2	PM _{2.5}	0.43

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 for 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.



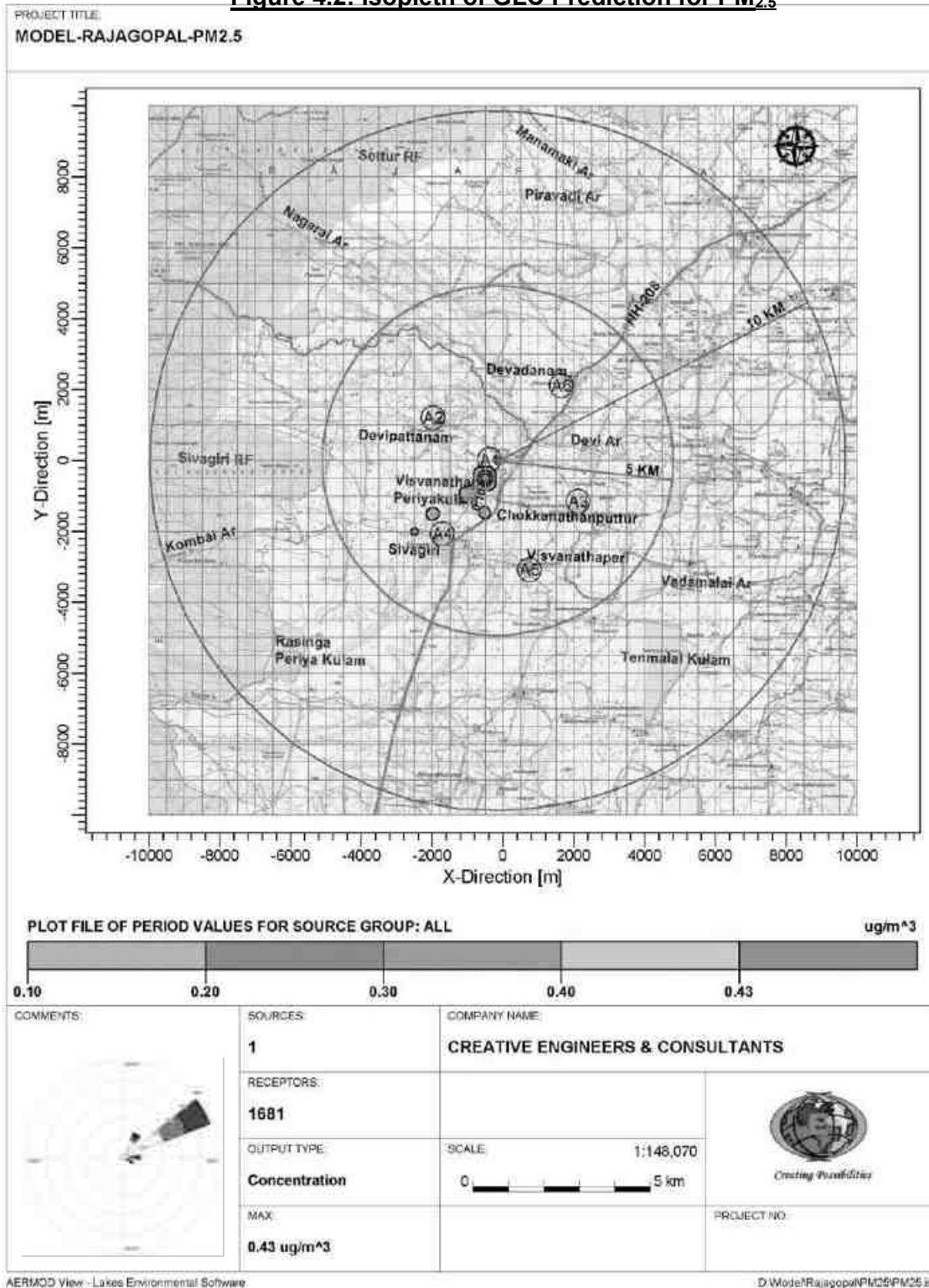
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Figure 4.1: Isopleth of GLC Prediction for PM₁₀



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



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4.2.2.4 Predicted Ambient Air Quality:

The post project Concentrations of PM₁₀, PM_{2.5}, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No - 4.6 to 4.7.

Table 4.6: Concentrations Of PM₁₀ after Project Implementation

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

S. No	Location	Background Concentration	Predicted Incremental Concentration	Post Project Concentration	Statutory Limits
1	Near Mine Lease Area	84.4	1.6	86.0	-
2	Devipattinam Village	54.8	1.0	55.8	100
3	Chokkanathanputhur Village	64.3	1.0	65.3	
4	Sivagiri Village	69.7	1.0	70.7	
5	Viswanathaperi Village	58.2	1.0	59.2	
6	Devathanam(Kovilur)	59.2	1.0	60.2	

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

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

S. No	Location	Background Concentration	Predicted Incremental Concentration	Post Project Concentration	Statutory Limits
1	Near Mine Lease Area	45.2	1.0	46.2	-
2	Devipattinam Village	25.8	1.0	26.8	60
3	Chokkanathanputhur Village	33.4	1.0	34.4	
4	Sivagiri Village	36.2	1.0	37.2	
5	Viswanathaperi Village	29.3	1.0	30.3	
6	Devathanam(Kovilur)	30.4	1.0	31.4	

It can be seen that the resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM₁₀ are in the range of 55.8 $\mu\text{g}/\text{m}^3$ to 86.0 $\mu\text{g}/\text{m}^3$ and with respect to PM_{2.5} are in the range of 26.8 $\mu\text{g}/\text{m}^3$ to 46.2 $\mu\text{g}/\text{m}^3$ 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.

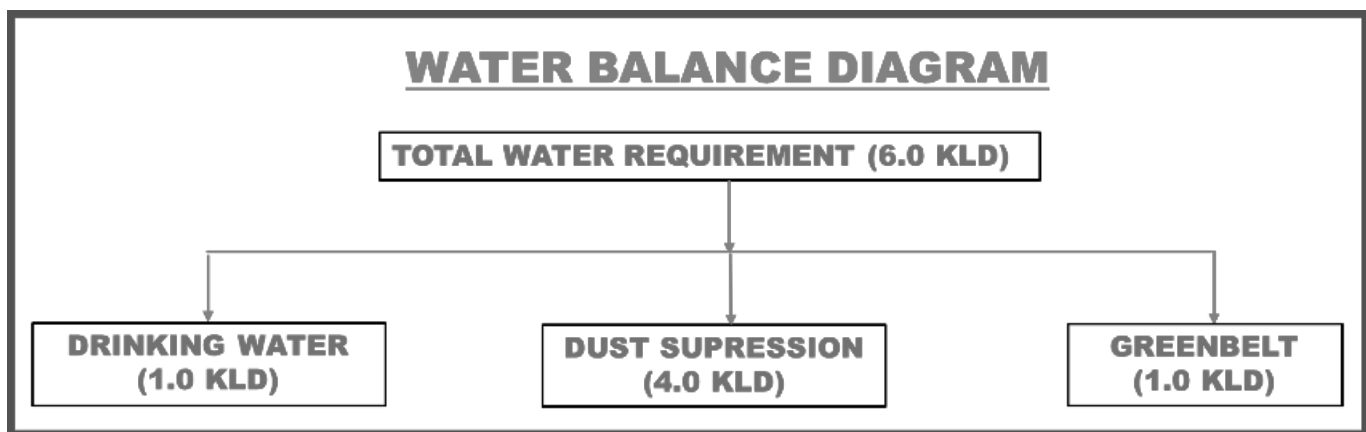


4.3 WATER ENVIRONMENT:

4.3.1 WATER REQUIREMENT:

The total water requirement for this project will be 6.0 KLD comprising 1.0 KLD for drinking water and domestic use, 4.0 KLD for dust suppression and 1.0 KLD for greenbelt. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. The water balance diagram for the same is shown in **Figure No 4.3**.

Figure 4.3: Water Balance Diagram



4.3.2 SOURCES OF WATER POLLUTION:

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

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

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

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

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4.3.3 TREATMENT SCHEME:

A. Generation of domestic effluent:

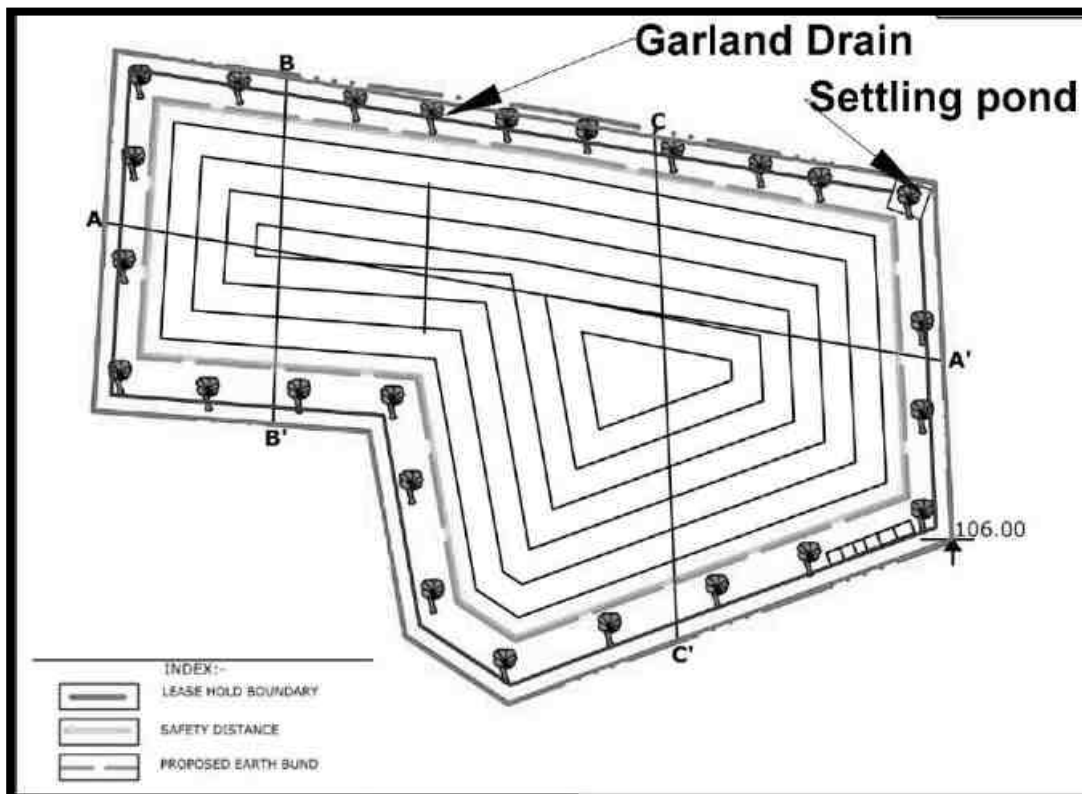
The domestic sewage to be generated from the project will be collected in septic tank with soak pits.

B. Washouts from overburden, ore stockpile, etc.

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

The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc. Towards surface runoff management, a garland drain of length 450m 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.**

Figure 4.4: Surface Runoff Management Structures



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C. Disturbance to drainage courses

There is a tank located at a distance of 230m on the southern side of the lease area. Besides, Devi Ar is located at a distance of 1.9Km on the eastern side of the lease area. There is no proposal to discharge any effluent into these water bodies. No major impact is envisaged on the nearby water bodies due to project operations. There is no proposal to discharge any effluent into this water body. No major impact is envisaged on the nearby water bodies due to project operations.

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

The occurrence and movement of groundwater in hard rock formations are restricted to the porous zones of weathered formations and the open systems of fractures, fissures and joints. Generally, in hard rock regions, occurrence of weathered thickness is discontinuous both in space and depth. Hence recharge of groundwater in hard rock formations is influenced by the intensity and depth of weathering. 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. The ultimate pit depth of mining is 21m. 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. 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.’



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Table 4.8: Ground Water Resources Estimation– Rajapalayam 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	Stage of Ground water Development (%)	Category of Block
1017.91	863.10	4.00	867.10	85	Semi Critical

From the table it is seen that the stage of groundwater development of Rajapalayam where the study area falls is 85%. In view of this, this area can be categorized as 'Semi Critical' from ground water development point of view.

4.3.4 REDUCING WATER CONSUMPTION OVER THE YEARS:

4.3.4.1 GENERAL METHODS:

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

4.3.4.2 RAINWATER HARVESTING PLAN

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

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



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- 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 4.9: 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 4.10: Impact of Noise Levels

NOISE LEVELS	ADVERSE EFFECTS
90-115 dB	Partial deafness and nervous irritability
> 115 dB	Permanent deafness



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

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

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

Noise modeling is carried out using the following formula:

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

Table 4.11: 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.	North West Corner	50.5	63.0	90
2.	North East Corner	50.5	59.0	90
3	South East Corner	50.5	63.0	90
4	South West Corner	50.5	63.7	90
5	Devipattinam Village	47.7	47.9	55
6	Chokkanathanputhur Village	46.1	46.2	55
7	Sivagiri Village	43.9	44.1	55
8	Viswanathaperi Village	46.3	46.4	55
9	Devathanam(Kovilur)	47.2	47.3	55



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

4.4.1.2 CONTROL MEASURES FOR NOISE ENVIRONMENT:

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

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

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



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4.4.2 GROUND VIBRATIONAL DUE TO BLASTING EFFECTS:

Vibrations due to blasting may cause damage to nearby structures, if appropriate control measures are not adopted. Flyrock is another possible damage causing outcome of blasting. There are many factors, which influence these, like long explosive column with little stemming column, improper burden, loose material or pebbles near holes and long water columns in the holes. The following control measures will be planned to reduce ground vibratory conditions to sustainable statutory limits:

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

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 4.12: Permissible Peak Particle Velocity (PPV) In Mining Areas

Type of structure	Dominant excitation frequency Hz		
	<8 Hz	8-25 Hz	>25 Hz
In mm/sec			
A. Buildings/structures not belonging to owner			
Domestic houses /structures (Kuchha brick and cement)	5	10	15



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Industrial buildings (RCC and framed structures)	10	20	25
Objects of historical importance and sensitive structures.	2	5	10
B. Building belonging to owner with limited span of life			
Domestic houses/structures (Kuchha brick and cement)	10	15	25
Industrial buildings (RCC and framed structures)	15	25	50

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

4.5 LAND ENVIRONMENT:

The lease area of 1.105 Ha is a patta land in the name of the applicant Thiru K.A.Rajagopal vide Patta No. 443 (Annexure-VI of Mining Plan). The land use table is provided below:

Table 4.13: Land Use Table

S.No	Land Use	Present Area (Ha)	Area during quarrying period(Ha)
1	Mining \Excavation	-	0.700
2	Infrastructure	-	0.010
3	Greenbelt and Plantation	-	0.365
4	Road	-	0.030
5	Undisturbed	1.105	-
	Total	1.105	1.105

4.5.1 LAND RECLAMATION:

There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Hence, there is no external overburden dump involved. At the end of the quarrying period, mining will be carried out upto a depth of 21m over an area of 0.700Ha. Ultimately the entire mined out area will be left as water body. 0.010Ha will be plantation, 0.030Ha will be road and 0.365Ha will be greenbelt and plantation.

Table 4.14: Land Use During Post Operational Period

S.No	Description	Land use (Ha.)			
		Plantation	Water body	Others	Total
1	Quarrying Pit	-	0.700	-	0.700
2	Infrastructure	0.010	-	-	0.010
3	Green Belt	0.365	-	-	0.365
4	Road	-	-	0.030	0.030
	TOTAL	0.375	0.700	0.030	1.105



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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 to meet the water requirement of the project.

4.6 BIOLOGICAL ENVIRONMENT:

4.6.1 EXISTING FLORA AND FAUNA:

The core zone area is a hard rock formation area, with barren patches. 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 4.15: Impact on Biological Environment

S.No	ISSUES	OBSERVATIONS
1	Clearance of vegetation due to mining and allied activities	No clearance of major vegetation is involved.
2	Retardation of tree growth, tip burning, etc, due to deposition of dust and the Particulate matter generated from the mining operation.	Necessary mitigative measures like dust suppression, proper maintenance of equipment's, roads will be carried out to prevent dust generation.
3	Proximity to national park/ wildlife sanctuary/reserve forest/mangroves/Coastline/estuary/sea	Nellai Wildlife Sanctuary is located at a distance of 4.6Km on the eastern side of the lease area. Based on MoEF&CC Notification S.O.2794(E) dated 02.08.2019, the eco sensitive zone is at a distance of 3.5Km. Hence, NBWL clearance is not applicable. Srivilliputhur-Meghamalai Tiger Reserve (SMTR) is located at a distance of 6.3Km from the lease area. As final notification is awaited, application for NBWL clearance has been made.
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.



**DRAFT EIA/EMP REPORT FOR ROUGHSTONE AND GRAVEL QUARRY THIRU.K.A.RAJAGOPAL
OVER AN AREA OF 1.10.5Ha IN SURVEY NOS. 293/1A (P) & 293/2B(P) IN
MELUR - DURAISAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

7	Located near an area populated by rare or endangered species	There are no Schedule 1 animals
8	Risk of fall/slip or cause death to wild animals due to project activities	In the post mining stage, barbed wire fencing is proposed all around the mined-out void to prevent falling of animals in the mine pits.
9	Project affects the forest-based livelihood/any specific forest product on which local livelihood depends	Not applicable
10	Project likely to affect migration routes	No migration routes are in the area.
11	Project likely to affect flora of an area, which have medicinal value	No such significantly important medicinal value species within the ML area and its nearby region.
12	The project likely to affect wetlands, fish breeding grounds, marine ecology	There are no any wetlands, fish breeding grounds, marine ecology nearby the ML area which will be affected due to this project.
13	Project affects the Agriculture, Forestry and Traditional Practices	Due to 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.
14	Impact on soil health and biodiversity	The lease area is covered with grasses and bushes only (Photograph of the site attached in Chapter-II). Besides, there is no waste generation, disposal or stacking involved in this project. As such no loss of soil health and Bio-diversity is expected.
15	Climate change leading to droughts, floods, etc.	<ul style="list-style-type: none"> •As such the production from this lease is low to cause any appreciable impact.
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.	<ul style="list-style-type: none"> •No adverse impact on the surrounding environment is envisaged since the number of equipments to be used to achieve this small production is very less and the magnitude of operation is of very small level. •Besides, as is it a mining project, no adverse generation of heat is envisaged. •Certified vehicles with low carbon emissions will only be used. These equipments will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 450 number of plants will be planted in and around the lease area. •Geologically the area in and around the lease area contains charnokite type rock formation containing mostly fallow land. As such there no major vegetation or agricultural activities are observed. •It will be ensured that mining will be carried out



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		<p>adhering to all the statutory rules and regulations and maintaining the environmental quality within the prescribed standards by effective implementation of various mitigative measures.</p> <ul style="list-style-type: none"> • 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.
17	Possibilities of water contamination and impact on aquatic ecosystem health and impact on Sediment geochemistry in the surface streams	<ul style="list-style-type: none"> • This being a mining project no process effluent will be generated. • Water generation is expected to be due to <ul style="list-style-type: none"> ✓ 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 conforming to applicable limits will be let out to downstream users for agricultural or other purposes. • Due to above mentioned reasons and absence of perennial 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.



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Figure 4.5: Wildlife Sanctuary Map – Nellai Wildlife Sanctuary

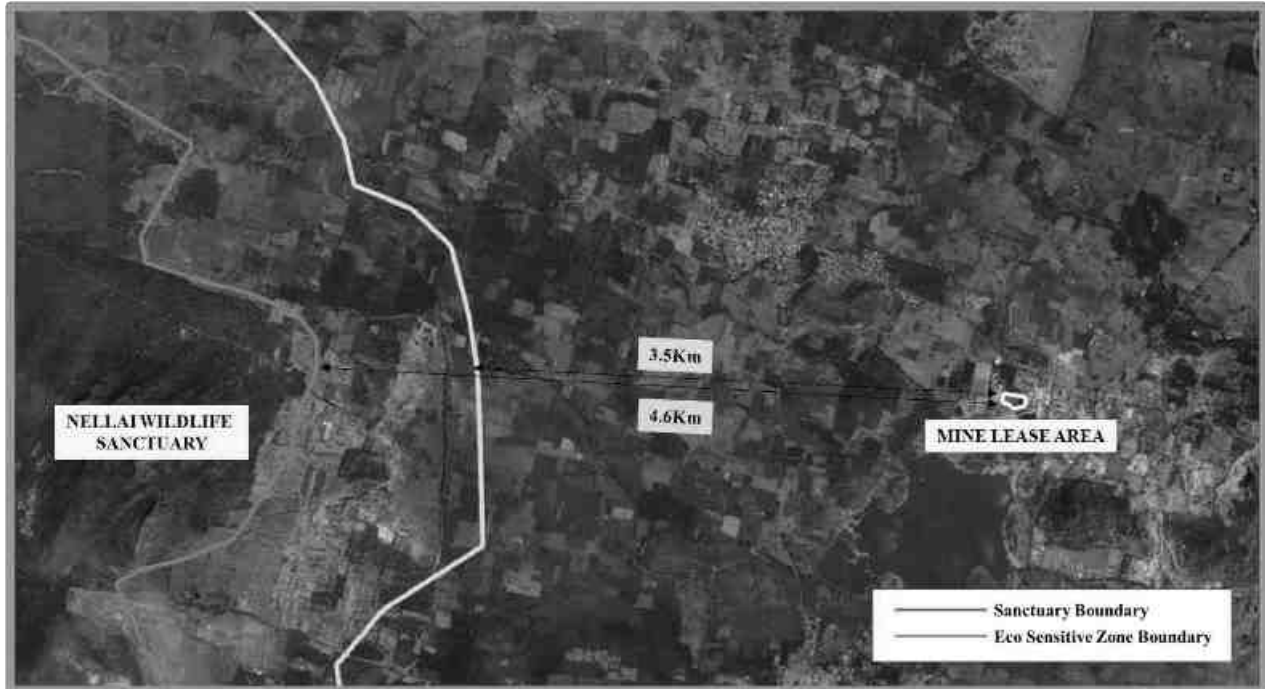


Figure 4.6: Wildlife Sanctuary Map - SMTR



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4.6.3 CONTROL MEASURES FOR BIOLOGICAL ASPECTS:

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

4.6.4 GREEN BELT & PLANTATION:

In the lease area, safety barrier 7.5m around the periphery. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. About 550 trees will be planted in and around the lease area.

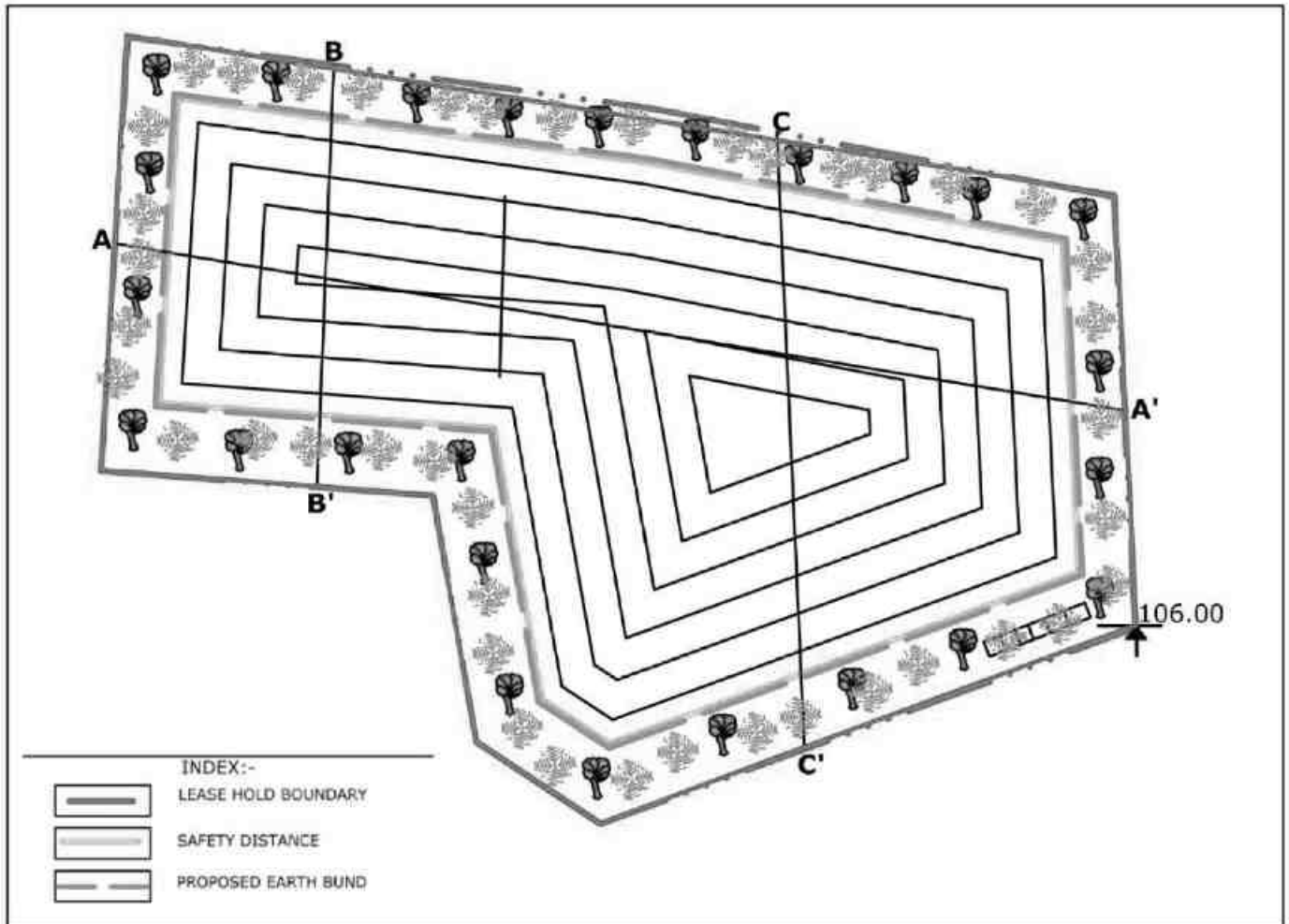
Table 4.16: Proposed Plantation

Year	No. of trees proposed to be planted	Name of the species
I	110	Pungai, Vagai, Vembu, Manjal konrai, Naval, Puvarasu, etc.,
II	110	
III	110	
IV	110	
V	110	
Total	550	

Ultimately the entire mined out area of 0.700 Ha will be left as water body. 0.010 Ha will be the infrastructure, 0.030Ha will be roads, 0.365 Ha will be covered with vegetation. The post mining land use plan showing afforestation and water body is shown in **Figure No- 4.7**.

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Figure 4.7: Mine Closure Plan



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4.7 SOCIO ECONOMIC ENVIRONMENT:

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

The mining operations in the proposed mine will employ about 10 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 4.17: CER Cost

Project Cost (Rs.)	Rs. 47,12,380/-
CER Cost Requirement (2% of the Project Cost) (Rs.)	Rs. 94,247
Revised CER cost allocated (Rs.)	Rs. 5,00,000/-

However, towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs.5 Lakhs under Corporate Environmental Responsibility. The



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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.



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- Regular awareness campaigns amongst staff and workers
- Staff will be provided with PPE to guard against excess noise levels, Dust generation and inhalation, etc., as per standards prescribed by DGMS.

4.8.4 MITIGATIVE MEASURES FOR SAFETY ASPECTS:

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

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

4.9 LOGISTICAL SYSTEM:

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

Table 4.18: Details of Transportation

Sl.no	Particulars of activity	Quantity
A	Maximum Material Transported (m ³ /year)	31,573
B	No of days in a year	300
C	Transport hours per day	8
D	Truck capacity in T	20
	Trips per hour	2 Trips/hr

From the above table it is seen that there will be about 2 trips per hour. The existing road can easily 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.



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- ❖ 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 this project.

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

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

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



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

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

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CHAPTER 5

ANALYSIS OF ALTERNATIVES

5.1 ALTERNATE TECHNOLOGY:

This is a proposed Rough Stone and Gravel Quarry in which Semi – 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.

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CHAPTER 6

ENVIRONMENTAL MONITORING PROGRAMME

6.1 GENERAL

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

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

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

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

6.2 MONITORING SCHEDULES FOR VARIOUS PARAMETERS

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



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Table 6.1: Environmental Monitoring Schedule

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

6.3 LEGISLATIVE AND REGULATORY FRAME WORK:

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



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Table 6.2: Environmental Standards

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

Table 6.3: National Ambient Air Quality Standards

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**NATIONAL AMBIENT AIR QUALITY STANDARDS
CENTRAL POLLUTION CONTROL BOARD
NOTIFICATION**

New Delhi, the 18th November, 2009

No. B-2901620/90/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 West 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



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(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.



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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.



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Table No – 6.2 contd.

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

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

NOTES

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

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



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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
$\frac{1}{2}$	102
$\frac{1}{4}$	105
1/8	108
1/16	111
1/32	114



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

* * * * *



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. R&R Plan
4. Mine closure planning
5. Cumulative Impact Study

7.2 PUBLIC CONSULTATION:

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

7.3 RISK ASSESSMENT:

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

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



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S.No	Factors	Causes of risks	Control measures
		b) Down the hole drill rod may break due to improper maintenance of rod.	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> 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.



7.3.1 DISASTER MANAGEMENT PLAN:

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

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

Mining operation in this lease will be carried out under the management control and direction of a qualified mine manager. The DGMS have been issuing a number of standing orders, model standing orders and circulars to be followed by the mine management in case of disaster. All these orders statutory rules and regulations will be followed. Seismically project site and study area falls in the Zone – II and is described as least active zone. There are no perennial water body near the lease area to cause any flooding. As such no disaster due to this project is envisaged. In order to take care of above hazard / disasters the following control measures have been adopted.

- Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- Avoiding mining during heavy monsoon period and marching of all the HEMM to the top benches during rainy period.
- Provision of high capacity standby pumps with generator sets with sufficient quantity of diesel for emergency pumping especially during monsoon.
- All safety precautions and provisions of regulations will be strictly followed during all mining operations
- Prohibiting entry of unauthorized persons.
- Provision of 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 area only. The entire mine lease area is a Patta land. There is no population within the ML area. Hence, the question of R& R does not arise.

7.5 MINE CLOSURE PLAN:

In the mine closure stage all necessary measures will be taken as per Act & Rules, There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of life of mine will be properly fenced all around to prevent inherent entry of public and cattle and all the statutory requirements will be fulfilled. As already explained, in the post mining stage the rainwater harvested in the mined out void shall be utilized for irrigation and domestic needs locally. The mine closure plan is provided in Figure 4.5.



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7.6 CUMULATIVE IMPACT STUDY:

As mentioned earlier, this Rough Stone and Gravel Quarry is located in Melur-Duraisampuram village, Rajapalayam 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-2) has been provided below:

Table 7.1: Details of quarries within 500m radius

S. NO.	LESSEE	VILLAGE	SF.NOS.	EXTENT (Ha)
A. EXISTING QUARRIES:				
1.	N.S.Satheesh Kumar Rajapalayam.	Melur- Duraisampuram (KV1/148759/2013 dt.9.1.2017) 22.01.2022	304/5(P), 305/1(P) (Patta Land)	1.21.0
2.	A.Kamaraj Rajapalayam	Melur- Duraisampuram (KV1/38182/2014 dt.18.4.2017) 8.5.2022	304/3 & 304/4 (Patta Land)	0.68.5
3.	K.A.Rajagopal, Rajapalayam	Melur- Duraisampuram (KV1/5931/2017 dt.17.2.2018) 12.4.2023	301/1, 2A, 2C & 2D (Patta Land)	1.58.0
4.	M.Sundaram, Srivilliputtur	Melur- Duraisampuram (KV1/7427/2017 dt.15.3.2018) 18.4.2023	302 (P) (Govt. Land)	2.00.0
5.	S.Victor Alphonse Raja, Rajapalayam	Melur- Duraisampuram (KV1/7429/2017 dt.15.3.2018) 18.4.2023	302 (P) (Govt. Land)	2.00.0
B. ABANDONED QUARRIES:				
		NIL		
C. PROPOSED QUARRIES :				
1.	K.A.Rajagopal, Rajapalayam	Melur- Duraisampuram	293/1A (part) & 293/2B (part)	1.10.5
		TOTAL		8.98.0

From that above it is seen that, although the individual lease area of this project is less than 5 Ha, the other existing and proposed quarries within the 500m radius along with this subject project works out to >5 Ha. As such cluster situation applicable and this report is prepared.



CHAPTER 8 PROJECT BENEFITS

The proposed Roughstone and Gravel Quarry of Thiru **K.A.Rajagopal** will improve physical and social infrastructures in the area like:

- Direct employment to 10 people.
- Indirect employment to scores of people.
- Financial gains for the governments, through collection of various taxes like royalty, GST, etc.,
- Increase in General Awareness of the People.
- Continual improvements of the local amenities for the local society
- Improvement of the General Living Standard of the People in the Vicinity
- Overall Improvement in HDI (Human Development Index)
- Growth of Allied Industries in the Area.
- Improvement in Per Capita Income.
- Providing certain 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 has planned to allocate Rs.5.0 Lakhs for various activities under CER. From the CER activities allocated for various social welfare activities, the villages near the lease area will be benefited.

* * * * *



**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 this project has been received from SEIAA, Tamil Nadu vide their letter No. SEIAA-TN/F.No.8743/SEAC/ToR-1052/2022 dated 31.01.2022. Environmental cost benefit analysis is not prescribed in the terms of reference. Hence, it is not applicable for this project.

* * * * *



CHAPTER 10

ENVIRONMENTAL MANAGEMENT PLAN

10.1 INTRODUCTION:

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

10.2 COMPONENTS OF THE ENVIRONMENTAL MANAGEMENT PLAN:

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

10.2.1 ENVIRONMENTAL POLICY:

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

- ❖ Ensuring risk-free and safe mining operations by following all rules and conditions prescribed in the Indian mines Act, 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.



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- ❖ 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:

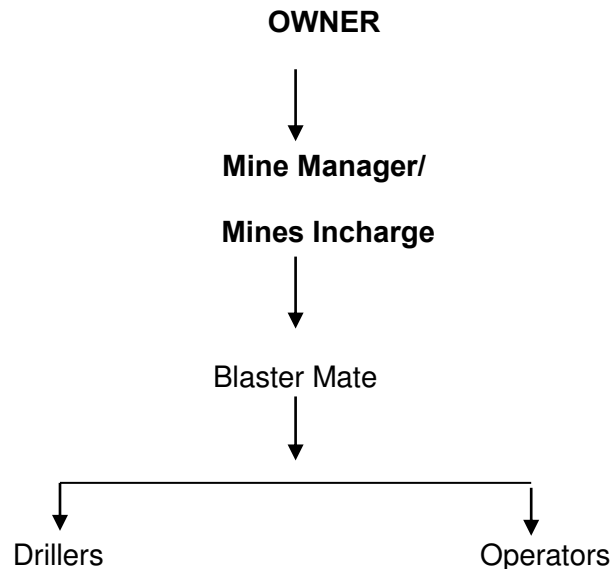
The Mines Manager/Mine Incharge will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level



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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.



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- ❖ 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



10.2.3 ENVIRONMENTAL MANAGEMENT PLAN:

10.2.3.1 General:

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

10.2.3.2 Air Quality:

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

- Regular water sprinkling in the transport roads using mobile tankers for dust suppression.
- Controlled blasting techniques with NONEL.
- Provision of dust filters / mask to workers working at highly dust prone and affected areas.
- Covering of drill holes with wet cloth, using sharp drill bits
- Avoiding blasting during high wind periods where the fine dust is carried out away easily affecting the ambient air quality.
- Proper maintenance of haul roads, HEMM and dumpers.
- Covering of loaded tippers with tarpaulins during transportation
- Vehicular emissions will be controlled through regular and proper preventive maintenance schedules and emissions tests are done with diesel smoke meter equipment to ensure emission values.
- Besides, there will be good green belt cover will be developed around mine periphery and in safety zone.
- 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 this project. The domestic sewage to be generated will be collected in septic tank with soak pit arrangements. Besides, there will be no waste dumps or stockpiles within the lease area as the entire material will be directly despatched to the consumers.

Surface runoff management structures such as garland drain of 450m length connected to a settling pond will be constructed around the quarry to collect the rain water. The supernatant clear water from the settling pond will be provided to nearby downstream users. Towards rainwater harvesting, the rainwater harvested in the mine 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 is a tank located at a distance of 230m on the southern side of the lease area. Besides, Devi Ar is located at a distance of 1.9Km on the eastern side of the lease area. There is no proposal to discharge any effluent into these water bodies. No major impact is envisaged on the nearby water bodies due to project operations. There is no proposal to discharge any effluent into this water body. No major impact is envisaged on the nearby water bodies due to project operations. Elaborate details regarding the same is provided under section 4.3.3, Chapter-IV.

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 of 7.5m in the mine periphery.
- 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.

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- 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:

No Schedule-I animals are observed in the core and buffer zone. There will be no major clearance of vegetation involved in this project. However, good greenbelt and plantation programmes are planned within the lease area. In the lease area, safety barrier 7.5m around the periphery is left. Greenbelt / Plantation will be carried out to enhance the vegetative growth



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and aesthetic in the safety zone area. This will boost the biological, visual and aesthetic outlook of the area. Nellai Wildlife Sanctuary is located at a distance of 4.6Km on the eastern side of the lease area. Based on MoEF&CC Notification S.O.2794(E) dated 02.08.2019, the eco sensitive zone is at a distance of 3.5Km. Hence, NBWL clearance is not applicable. Srivilliputhur-Meghamalai Tiger Reserve (SMTR) is located at a distance of 6.3Km from the lease area. As final notification is awaited, application for NBWL clearance has been made. Elaborate details regarding the same is provided under section 4.6.4, Chapter-IV.

10.2.2.7 Socio-Economic Environment:

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

10.3 ENVIRONMENTAL POLLUTION CONTROL COST:

In this proposed quarry Implementation of environmental control measures as stated above involves capital as well as recurring expenses. The probable capital and recurring environmental control cost are calculated and given below **Table No – 10.1**

Table 10.1: Environmental Control Cost

Rs. In lakhs

S. No	Mitigation Measure	Capital cost	Recurring Cost /Annum
Air Environment			
1	Water sprinkling	-	1.0
2	Installing wheel wash system near gate of quarry	0.3	0.1
3	Muffle blasting – To control fly rocks during blasting	0.0	0.1
4	Wet Drilling with dust extraction	0.5	0.1
5	Environmental Monitoring	0.0	0.5
6	Transport Trucks -Monitoring exhaust fumes, covering with tarpaulin, monitoring manually with security guard to avoid overloading and installation of speed governors, Parking area	0.6	0.3



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	with flaggers for traffic management		
7	Road Maintenance - Haul road maintenancem Regular sweeping and maintenance of approach road	0.1	0.3
Sub-Total (A)		1.5	2.4
Noise Environment			
8	Controlled Blasting using NONEL, provision of blaster shed	0.5	1.7
Sub-Total (B)		0.5	1.7
Water Environment			
9	Surface Runoff Management Structures	0.1	0.1
Sub-Total (C)		0.1	0.1
Implementation of EC, Mining Plan & DGMS Condition			
10	Waste Management - Collection and Disposal	0.1	0.1
11	Fencing and Green Net Provision	2.2	0.1
12	Health and Safety - Provision of PPEs, IME, PME, First aid	0.4	0.3
13	Sign Boards -safety precaution signages, EC Conditions display board	0.2	0.0
16	Installation of CCTV cameras	0.3	0.1
17	Remuneration of statutory persons	0.0	3.0
Sub-Total (D)		3.2	3.5
Green Belt Development			
34	Plantation Inside the lease area(400 Nos.)	0.8	0.1
35	Plantation Outside the lease area (150 Nos.)	0.5	0.0
Sub-Total (E)		1.3	0.2
Grand Total		6.5	7.8

Towards EMP measures, Rs.6.50 lakhs is allocated under capital cost. Besides, Rs.7.80 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.

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 11

SUMMARY & CONCLUSION

11.1 INTRODUCTION:

Thiru. K.A.Rajagopal proposes to operate a **Rough Stone and Gravel Quarry** Survey No. at 293/1A(P) and 293/2B(P) over an area of 1.10.5Ha in Melur-Duraisampuram village, Rajapalayam Taluk, Virudhunagar District, Tamil Nadu and has initiated action towards obtaining environmental clearance.

It is proposed to mine 56,890 m³ of Roughstone and 45,468 m³ of Gravel for a period of five years upto a depth of 21m as per approved ToR as against the mining plan approved quantity of 64,390 m³ of Roughstone and 45,468 m³ of Gravel for a period of five years upto a depth of 26m.

Although the individual lease area of this project is less than 5 Ha, the other existing 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. The details of the quarries located within the 500m radius of the project is given vide **Annexure-2**. A cumulative impact study has been carried out and furnished in **Para 7.3, Chapter-VII**.

This EIA/EMP report is prepared based on standard and additional Terms of Reference issued by SEIAA, Tamil Nadu vide letter no. SEIAA-TN/F.No.8743/SEAC/ToR-1052/2022 dated 31.01.2022 and is in conformance of the generic structure prescribed by MOEF&CC in their notification of September 2006 and the approved mining plan.

11.1.1 STATUTORY APPROVALS:

S.No	Statutory Approval	Authority	Letter Number and Date	Reference
1.	Precise Area Communication Letter	District Collector Virudhunagar	Rc.No: KV1/932/2018, dated 01.06.2019	Annexure-1
2.	Mining Plan Approval	Assistant Director (i/c), Geology & Mining, Virudhunagar	Rc.No: KV1/932/2018, dated 15.10.2019	Annexure-2

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU K.A.RAJAGOPAL AT 293/1A(P) AND 293/2B(P) OVER AN AREA OF 1.10.5Ha IN MELUR-DURASAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

11.1.2 ENVIRONMENTAL CLEARANCE APPLICATION:

Particulars	Details
Terms of Reference	Letter No. SEIAA-TN/F.No.8743/SEAC/ToR-1052/2022. Dated:31.01.2022
Baseline Data Collection	Carried out by Creative Engineers & Consultants , Chennai for Winter Season (December 2021 to February 2022)

This draft EIA/EMP report will be presented for public hearing, as per rules and procedures in line with the EIA notification 2006 wherein the opinions, concerns and objections if any, of the public and other stakeholders connected will be taken into consideration and a compliance report for the same will be incorporated in the final EIA/EMP report which will be submitted to SEIAA, Tamil Nadu.

11.2 SALIENT FEATURES OF THE PROJECT:

Table 11.1: Site Details

Location	Melur- Duraisampuram Village, Rajapalayam Taluk, Virudhunagar District, Tamil Nadu
Survey No.	293/1A(P) and 293/2B(P)
Coordinates	Latitude: 9°21'50.40"N to 9°21'53.70"N Longitude: 77°26'26.00"E TO 77°26'31.33"E
Nearest Highway	NH-744 (Sivagiri-Rajapalayam) – 0.48Km (SE)
Nearest Village	Devipattanam – 1.3Km (NW)
Nearest Town	Rajapalayam – 16Km (NE)
Nearest Railway Station	Rajapalayam – 16Km (NE)
Nearest Airport	Madurai – 100Km (NE)
Topography	Plain terrain, dry lands with scarce vegetation.
Accessibility	The lease area can be approached from Devipattanam Road which joins Tenkasi – Madurai Road on the eastern side of the lease area at a distance of 0.5Km which ultimately connects to Rajapalayam on the northern side and Puliyangudi on the southern side.
Drainage	There is a tank located at a distance of 230m on the southern side of the lease area. Besides, Devi Ar is located at a distance of 1.9Km on the eastern side of the lease area.

Table 11.2: Environment Setting of The Study Area

PARTICULARS	DETAILS		
	Name	Distance (Km)	Direction
Nearest major water bodies	Devi Ar	1.9	E



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PARTICULARS	DETAILS															
	<table border="1"> <tr> <td>Nagarai Ar</td> <td>4.7</td> <td>NW</td> </tr> <tr> <td>Vadamalai Ar</td> <td>6.0</td> <td>E</td> </tr> <tr> <td>Kombai Ar</td> <td>7.1</td> <td>SW</td> </tr> <tr> <td>Piravadi Ar</td> <td>7.6</td> <td>NE</td> </tr> <tr> <td>Manamaki Ar</td> <td>8.8</td> <td>NE</td> </tr> </table>	Nagarai Ar	4.7	NW	Vadamalai Ar	6.0	E	Kombai Ar	7.1	SW	Piravadi Ar	7.6	NE	Manamaki Ar	8.8	NE
Nagarai Ar	4.7	NW														
Vadamalai Ar	6.0	E														
Kombai Ar	7.1	SW														
Piravadi Ar	7.6	NE														
Manamaki Ar	8.8	NE														
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 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	Nellai Wildlife Sanctuary is located at a distance of 4.6Km on the eastern side of the lease area. Based on MoEF&CC Notification S.O.2794(E) dated 02.08.2019, the eco sensitive zone is at a distance of 3.5Km. Hence, NBWL clearance is not applicable. Srivilliputhur-Meghamalai Tiger Reserve (SMTR) is located at a distance of 6.3Km from the lease area. As final notification is awaited, application for NBWL clearance has been made.															
Reserved / Protected Forests	Sivagiri R.F-4.7Km (W) Settur R.F – 6.6Km (NW)															
Defence Relocations	Nil within 10 km radius															
Seismic Zone	Zone – II (Least Active)															
Other Industries in the area	Other than rough stone quarry & crushers there are no other major industries in the area.															

Table 11.3: Technical Description

PARTICULARS	DETAILS																					
Geological reserve	Roughstone – 2,16,160 cum , Gravel- 64,848cum																					
Mineable reserve	Roughstone – 56,890cum , Gravel – 45,468cum																					
Method of Mining	Open cast mechanized mining method with drilling, blasting, excavation, loading and transportation of Roughstone to needy buyers.																					
Production	<table border="1"> <thead> <tr> <th>YEAR</th> <th>RoughStone m³</th> <th>Gravel in m³</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13,015</td> <td>18,558</td> </tr> <tr> <td>2</td> <td>11,475</td> <td>7,038</td> </tr> <tr> <td>3</td> <td>10,800</td> <td>6,624</td> </tr> <tr> <td>4</td> <td>10,800</td> <td>6,624</td> </tr> <tr> <td>5</td> <td>10,800</td> <td>6,624</td> </tr> <tr> <td>Total</td> <td>56,890</td> <td>45,468</td> </tr> </tbody> </table>	YEAR	RoughStone m ³	Gravel in m ³	1	13,015	18,558	2	11,475	7,038	3	10,800	6,624	4	10,800	6,624	5	10,800	6,624	Total	56,890	45,468
YEAR	RoughStone m ³	Gravel in m ³																				
1	13,015	18,558																				
2	11,475	7,038																				
3	10,800	6,624																				
4	10,800	6,624																				
5	10,800	6,624																				
Total	56,890	45,468																				
Waste Generation and Management	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																					



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PARTICULARS	DETAILS
	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.
Ultimate Depth	21m
Man power	10 People directly and more than 50 people indirectly
Mode of transport	By Road
Water requirement	6 KLD
Source of water	The required water will be procured from outside agencies initially. Later, water collected in the mine pit will be used to meet the needs.
Power requirement	All the equipment will be diesel operated. No electricity is needed for mining operation. The minimum power requirement for office, etc will be met from state grid.
Life of the mine	5 Years
Project cost	Rs. 47,12,380/-

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 **Winter Season, December 2021 to February 2022**) For the purpose of this study, the area has been divided into two zones, namely, core and buffer zones. Core zone is considered as the total lease area, while buffer zone encompasses an area of 10 km radius distance from the periphery of core zone.

11.3.2 SOCIO-ECONOMIC STATUS:

The proposed Rough stone and gravel quarry is located in in Melur-Duraisampuram village, Rajapalayam Taluk, Virudhunagar District. Based on 2011 census data, in the 10km radius there are 23 Rural villages and 4 urban areas from 5 Taluks namely Rajapalayam, Virudhunagar, Sivakasi, Sivagiri and Sankarankoil.



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

Details	Population	Percentage
A. Gender-wise distribution		
Male Population	90635	49.60
Female Population	92101	50.40
Total	182736	100
B. Caste-wise population distribution		
Scheduled Caste	45970	25.16
Scheduled Tribes	835	0.46
Other	135931	74.39
Total	182736	100
C. Literate and Illiterate population		
Literate Males	68646	37.57
Literate Females	55261	30.24
Total Literate Population	123907	67.81
Others Males	21989	12.03
Others Females	36840	20.16
Others Population	58829	32.19
Total	182736	100
D. Occupational structure		
Main workers	85219	46.60
Marginal workers	11817	6.50
Total Workers	97,036	53.1
Total Non-workers	85700	46.90
Total	182736	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:

Baseline monitoring was carried out during Winter Season, December 2021 to February 2022). The details of the same are provided below:

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Table 11.5: Baseline Data

A) METEOROLOGICAL DATA		Monitoring Location - Near Mine Lease Area	
PARAMETERS	MINIMUM	MAXIMUM	
Temperature in °C	21.1	36.4	
Humidity in %	36.0	98.0	
Wind speed Km/Hr	<1.8	20.9	
Predominant wind direction (From)	NE		
B) AMBIENT AIR QUALITY		Monitoring Location – 6 locations	
PARAMETER	RESULT (µg/m³)		*LIMIT (µg/m³)
Location	Core Zone	Buffer Zone	
Particulate Matter (Size <10 µm)	60.2 – 84.4	43.1 – 69.7	100
Particulate Matter (Size <2.5 µm)	29.5 – 45.2	20.3 – 36.2	60
Sulphur Dioxide (as SO ₂)	5.2 – 6.6	4.2 – 8.6	80
Nitrogen Dioxide (as NO ₂)	7.6 – 10.1	6.6 – 10.3	80
Conclusion: The existing Ambient Air Quality levels for PM10, PM2.5, SO ₂ and NO ₂ , are within the NAAQ standards prescribed CPCB limits of 100 µg/m ³ , 60 µg/m ³ , 80 µg/m ³ & 80 µg/m ³ . The CO values in all the locations were found to be below detectable limit. Silica values in the study area are found to be below detectable limit. (Detection limit – 0.05 mg/m ³)			
C) WATER QUALITY		Monitoring Location – 6 locations	
PARAMETER	Result	*LIMIT (µg/m³)	
pH at 25 °C	7.01 – 7.89	6.5-8.5	
Total Dissolved Solids, mg/L	496 – 1100	2000	
Chloride as Cl ⁻ , mg/L	56.7 – 362	1000	
Total Hardness (as CaCO ₃), mg/L	84 – 521	600	
Total Alkalinity (as CaCO ₃), mg/L	223– 492	600	
Sulphates as SO ₄ ²⁻ , mg/L	21.7 – 268	400	
Iron as Fe, mg/L	0.05 – 0.14	0.3	
Nitrate as NO ₃ , mg/L	1.61 – 10.9	45	
Fluoride as F, mg/L	0.14 – 0.66	1.5	
Conclusion: The water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications.			
D) NOISE LEVELS		Monitoring Location – 6 locations	
PARAMETER	RESULT dB(A)	*LIMIT (µg/m³)	



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU K.A.RAJAGOPAL AT 293/1A(P) AND 293/2B(P) OVER AN AREA OF 1.10.5Ha IN MELUR-DURASAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

	Day Equivalent	Night Equivalent	
Core Zone	50.5	40.2	90
Buffer Zone	43.9 – 47.7	39.3 – 42.5	Day Equivalent - 55dB(A), Night Equivalent - 45dB(A)

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

E) SOIL QUALITY	Monitoring Location – 3 locations
PARAMETER	Range of values
pH	7.31 – 7.73
Electrical Conductivity (µmho/cm)	23.71 – 77.35
Organic matter (%)	0.62 – 1.21
Total Nitrogen (mg/kg)	98.8 – 157
Phosphorus (mg/kg)	1.59 – 2.28
Sodium (mg/kg)	342 – 479
Potassium (mg/kg)	656 - 820
Soil is of Clay 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 11.6: Land Use in 10Km Buffer Zone

S.No	Landuse Feature	Area (Sq.Km)	Percentage
1	Agriculture/ Plantation	38.64	12.21
2	Fallow Land	41.09	12.98
3	Land With Scrub	36.00	11.37
4	Land Without Scrub	70.78	22.36
5	Water bodies	15.40	4.86
6	Settlement	5.94	1.88
7	Mining Area/ Industries	3.52	1.11
8	Reserve Forest	105.13	33.23
	Total	316.50	100

From the above table it is seen that 12.21 % of the study area is agriculture land and 12.98 % are fallow land. Land with scrub constitutes 11.37 %, lands without scrub constitute 22.36 %, Reserve Forest constitutes 33.22 % and waterbodies & others constitute 7.86%. Details are given in Table 3.21, Chapter – III.



G) BIOLOGICAL ENVIRONMENT:

Flora: The lease area is a non forest, private land. Lease area is exposed with rock and bushy area. The lease area is dominated with *Prosopis juliflora*. The detailed list of plants found in the core zone are given in Table no – 3.22 . The Dominated species in the buffer zone are *Acacia auriculiformis* *Azadirachta indica*, *Borassus flabellifer*, *Acacia nilotica*, *Albizia lebbek*, *Acacia leucophloea*, *Prosopis juliflora* are also observed.

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

H) HYDROLOGICAL STUDY:

The area applied for mining lease is a gentle plain terrain. There is no major water body in the core zone. There is a tank located at a distance of 230m on the southern side of the lease area. Besides, Devi Ar is located at a distance of 1.9Km on the eastern side of the lease area. The drainage map prepared from the survey of India topographic maps shows the presence of few streams running in a dendritic pattern

The general trend of depth to water level for Rajapalayam Block, Virudhunagar District, Tamil Nadu the was obtained from the data obtained from India-WRIS, Department of Water Resources, Ministry of Jal Shakti.

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 600 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. Based on the available information and the geophysical investigations it is concluded that the project area is considered to poor groundwater potential up to 50m. Besides, the mining area consists of hard compact

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rock, no major water seepage within the mine is expected. From the nearby working mines, no such seepage is also observed.

11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES:

11.4.1 GENERAL:

This is a proposed project and Semi – Mechanized Open Cast mining will be carried out to quarry out Rough Stone & Gravel. The identified impacts due to this mine during mining and associated activities have been studied in relation to various environmental components like Air, water, noise, vibration, land, transport etc.

11.4.2 AIR ENVIRONMENT:

The principal sources of air pollution 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 11.7: Mitigation Measures – Air Environment

S.No	Activity	Mitigation Measures
1	Drilling	Usage of Drill bits in good condition
		Covering of drill holes with wet cloth
		Usage of sharp drill bits for drilling of holes.
		Provision of dust filters / mask to workers working at highly dust prone and affected areas.
2	Blasting	Well-designed blasting parameter, effective stemming to achieve optimum breakage occurs without generating fines.
		Use of appropriate explosives for blasting and avoiding overcharging of blast holes.
		Avoiding blasting during high wind periods where the fine dust is carried out away easily affecting the ambient air quality.
		Use of controlled blasting techniques with Nonel to keep the dust generation, noise as well as vibration level within the prescribed limits.
3	Excavation	Proper maintenance of HEMM



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	and Loading	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.
		Green netting 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 due to the proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model developed by Lakes Environmental Software which is based on steady state Gaussian plume dispersion. Ground Level Concentration (GLC) have been computed using hourly meteorological data for particulate matter PM₁₀ and PM_{2.5}.

The resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM₁₀ are in the range of 55.8 µg/m³ to 86.0 µg/m³ and with respect to PM_{2.5} are in the range of 26.8 µg/m³ to 46.2 µg/m³ which are within the statutory limits in each case.

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



11.4.3 WATER ENVIRONMENT:

Water Requirement: The total water requirement for this project will be 6.0 KLD comprising 1.0 KLD for drinking water and domestic use, 4.0 KLD for dust suppression and 1.0 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 activity / source of pollution, its impact / consequence, proposed control measures are explained below:

Table 11.8: Mitigation Measures – Water Pollution

S.No	Source	Consequence	Mitigation Measures
A	Domestic use	Generation of waste water	The domestic sewage to be generated from the project will be collected in septic tank with soak pits.
B	Rainfall	Runoff from waste dump and stack	Towards surface runoff management, a garland drain of length 450m 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.
		Rainwater Harvesting	The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc.
C	Drainage Course	Disturbance to drainage course	There is a tank located at a distance of 230m on the southern side of the lease area. Besides, Devi Ar is located at a distance of 1.9Km on the eastern side of the lease area. There is no proposal to discharge any effluent into these water bodies. No major impact is envisaged on the nearby water bodies due to project operations. There is no proposal to discharge any effluent into this water body. 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 this area can be categorized as ‘Safe’ from ground water development point of view.
- **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. The ultimate pit depth of mining is 21m. 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.

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:

To reduce ground vibratory conditions, various control measures will be implemented such as keeping PPV below 10mm/s for 8-25hz frequency range, formulating drilling and charging pattern with less explosive charge, initiating sequence and using NONEL, carrying out blasting with minimum charge per delay, avoiding blasting during strong winds etc. 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. 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. Elaborate details regarding the same are provided under section 4.4.2, Chapter-IV.

11.4.6 IMPACT ON LAND ENVIRONMENT:

The entire mine lease area of 1.105 Ha is a own patta land. There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Hence, there is no external overburden dump involved. Plantation will be carried out in this safety zone area. Mining will be carried out up to 21m depth for 5 years. Ultimately the entire mined out area of 0.700 Ha will be left as water body. 0.030 Ha will be the mine roads & infrastructure, 0.375 Ha will be covered with vegetation. 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:

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. In the lease area, safety barrier 7.5m around the periphery. Greenbelt /



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Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. About 550 trees will be planted in and around the lease area.

11.4.8 SOCIO ECONOMIC ENVIRONMENT:

The entire lease area is a private patta land. 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 quarry will employ about 10 people. Besides through allied opportunities in logistics, trading, repairing works etc. good employment potential will arise in this area, which will provide raising income levels and standards of living in the area through various service related activities connected with the project operations.

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

11.4.9 OCCUPATIONAL HEALTH AND SAFETY ASPECTS:

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

- Medical examination of workers at pre-entry level stage of workers, etc., by qualified doctors, with periodical examination of all workers/staff at least once a year, as per DGMS circulars.
- Regular awareness campaigns amongst staff and workers
- Staff will be provided with PPE to guard against excess noise levels, Dust generation and inhalation, etc., as per standards prescribed by DGMS.
- A total budgetary provision of Rs.50,000 under capital cost and Rs.10,000 is allocated under recurring cost towards Occupational health and Safety Budget.

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. There will be about 2 trips per hour. The transport route can



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

11.4.11 WASTE MANAGEMENT:

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

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

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

11.5 ENVIRONMENTAL MONITORING PROGRAMME:

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

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

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Towards EMP measures, Rs.6.50 Lakhs is allocated under capital cost. Besides, Rs.7.80 Lakhs per annum 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. Further details of the capital and recurring cost of environmental management has been provided in in Table No. 10.2, Chapter-X.

11.6 ADDITIONAL STUDIES:

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

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

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

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

Although the individual lease area of this project is less than 5 Ha, the other existing and proposed quarries within the 500m radius along with this subject project works out to >5 Ha. As such cluster situation applicable and this EMP is prepared. The baseline monitoring carried out for this project reflects the cumulative impact of the existing quarry. Considering that the lease period of the existing quarry will be coming to an end shortly, this proposed quarry will serve more as a replacement for the existing quarries to ensure meeting the present Roughstone demands.



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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.

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CHAPTER 12

DISCLOSURE OF CONSULTANTS ENGAGED

Creative Engineers & Consultants, Chennai – 600 059, is an **NABL** accredited testing laboratory and **NABET** accredited consultancy. Team of people are given below:

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
Dr. N. Radhakrishnan	M.Sc., M.Tech., Ph.D	Functional area Expert (Land use)	Over 25 years of experience in using the advanced spatial analysis techniques in GIS environment. Specialized in Spatial Information Technology and Applications (remote sensing, GIS)
Mr.S.S.Rajendran	M.Sc. (Pharmaceutical Chemistry)	Lab head	More than 9 years of experience in Environmental laboratory.
Mrs. V. Sivaranjani	M.Sc. (Env. Sci.)	Functional Area Expert (AQ,WP)	More than 8 years of experience in preparation of EIA / EMP reports
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,



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MELUR - DURAISAMPURAM VILLAGE, RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT,
TAMIL NADU.**

EXPERT NAME	QUALIFICATION	POSITION	EXPERIENCE
			applications. 5years experience in the field of socio economy and its allied report preparation.
Mr. B. Govindaraman	B.Sc.	Field technician	Over 20 years of field monitoring & data collection experience
Dr.B.Swamynathan	M.Sc (Ecology & Environmental Sciences), M.Phill (Botany), Ph.D (Ecology & Environmental Sciences)	EIA Coordinator and Functional Area Expert (EB,SC,LU and AP)	More than 10 years of experience in Environment and allied fields.
Ms. G. Sandhya	B. Tech Chemical Engineering M.Tech Environmental Engineering	Functional Area Expert (AQ, WP)	Over 5 years experience in preparation of EIA/EMP reports



புவியியல் மற்றும் சுரங்கத்துறை

ந.க. எண்: கேவி1/932/2018-கனிமம், மாவட்ட ஆட்சியர் அலுவலகம்
விருதுநகர்.
நாள்: 01.06.2019

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம், இராஜபாளையம் வட்டம் - மேலூர்துரைச்சாமிபுரம் கிராமம் பட்டா எண்.443 புலஎண்கள்.293/1A(P) (0.53.0), 293/2B(P) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு நிலங்களில் 5 வருடங்களுக்கு உடைக்கல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக்கோரியுள்ளது - சுரங்கத்திட்டம் மற்றும் மாவட்ட அளவிலான சுற்றுச்சூழல் பாதுகாப்பு தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப்பெற்று சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:**
1. திரு.கே.ஏ.இராஜகோபால் த/பெ.அர்ஜுனராஜா, 24E, குண்டூர்மூர்த்தி தெரு, இராஜபாளையம், விருதுநகர் மாவட்டம் என்பவரது விண்ணப்ப நாள்:27.12.2018
 2. இவ்வலுவலக கடிதம் எண் ந.க.கேவி1/932/2018, நாள்:31.12.2018
 3. சாத்தூர் வருவாய் கோட்டாட்சியர் கடிதஎண் மூ.மு.அ2/752/2019 நாள்:06.03.2019.
 4. உதவி புவியியலாளர் (கனிமம்) அவர்களின் புலத்தணிக்கை அறிக்கை நாள் : 18.03.2019
 5. தொடர்புடைய ஆவணங்கள்.

விருதுநகர் மாவட்டம், இராஜபாளையம் வட்டம் மற்றும் நகரம், 24E, குண்டூர்மூர்த்தி தெரு என்ற முகவரியைச் சேர்ந்த திரு.கே.ஏ.இராஜகோபால் த/பெ.அர்ஜுனராஜா என்பவர், விருதுநகர் மாவட்டம், இராஜபாளையம் வட்டம், மேலூர்துரைச்சாமிபுரம் கிராமம் பட்டா எண்.443 புலஎண்கள்.293/1A(P) (0.53.0), 293/2B(P) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு நிலங்களில் ஐந்து வருடங்களுக்கு உடைக்கல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி பார்வை 1-ல் காணும் மனுவில் விண்ணப்பம் செய்துள்ளார்.

சாத்தூர் வருவாய் கோட்டாட்சியர் மற்றும் உதவி புவியியலாளர் (கனிமம்) ஆகியோர் கீழ்காணும் நிபந்தனைகளுக்குட்பட்டு பரிந்துரை செய்துள்ளனர்.

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.

- 2) அருகிலுள்ள அரசு புறம்போக்கு நிலங்களுக்கு 10மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 3) அருகிலுள்ள குவாரிகளுக்கு போதுமான பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 4) குவாரி கழிவுகளை குத்தகை உரிமம் வழங்கப்படும் பகுதிக்கு உள்ளேயே இருப்பு வைக்க வேண்டும்.
- 5) வெடிமருந்தினை விதிகளின்படி பாதிப்பு ஏற்படா வண்ணம் பயன்படுத்த வேண்டும்.
- 6) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.

மேற்கூறிய அலுவலர்களின் பரிந்துரையினை ஏற்றும் நிபந்தனைகளுக்குட்பட்டும், விருதுநகர் மாவட்டம், இராஜபாளையம் வட்டம், மேலூர் துரைச்சாமிபுரம் கிராமம் பட்டா எண்.443 புலஎண்கள்.293/1A(P) (0.53.0), 293/2B(P) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு நிலங்களில் 1959ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் விதி எண்: 19 மற்றும் 20-ன்படி ஐந்து வருடகாலத்திற்கு உடைகல் மற்றும் கிராவல் குவாரி பணி செய்ய தகுதி வாய்ந்த நிலப்பரப்பாக கருதப்படுகிறது.

மேலும் தமிழ்நாடு சிறுகனிம சலுகை விதிகள்-1959 விதி எண்:41ன்படி குவாரி பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்கத் திட்டத்தினை (Mining Plan) 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், விதி எண்: 42-ன்படி மாவட்ட அளவிலான சுற்றுச்சூழல் பாதுகாப்பு தாக்க மதிப்பீட்டு ஆணையத்தின் (District Level Environmental Impact Assessment Authority Clearance) இசைவினைப் பெற்று சமர்ப்பிக்குமாறும் மனுதாரர் கேட்டுக் கொள்ளப்படுகிறார்.

ஆணைப்படி/அனுப்பப்படுகிறது

(ஓம்) அ. சிவஞானம்,
மாவட்ட ஆட்சியர்
விருதுநகர்


மாவட்ட ஆணையர்க்காக
விருதுநகர்

பெறுநர்
திரு.கே.ஏ.இராஜகோபால்
த/பெ.அர்ஜுனராஜா,
24E, குண்டூர்மூர்த்தி தெரு,
இராஜபாளையம்.

31/6/15

விருதுநகர் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர் /
உதவி புவியியலாளர் தொழில்நுட்ப அறிக்கை

1)	குத்தகை உரிமம் கோரிய விண்ணப்பம் பெறப்பட்ட தேதி	:	27.12.2018			
2)	அ) புலத்தணிக்கை செய்த நாள்	:	18.03.2019			
	ஆ) புலத்தணிக்கையின்போது உடனிருந்த அலுவலர்கள் பற்றிய விவரம்	:	உதவி புவியியலாளர் (கனிமம்) புவியியல் மற்றும் சுரங்கத்துறை விருதுநகர்.			
3)	குத்தகை உரிமம் கோரும் விண்ணப்பதாரரின் பெயர் மற்றும் முகவரி	:	திரு.கே.ஏ.இராஜகோபால் த/பெ.அர்ஜுனராஜா, 24E, குண்டூர்மூர்த்தி தெரு, இராஜபாளையம்.			
4)	குத்தகை உரிமம் கோரும் கனிமங்களின் பெயர்	:	உடைகல் மற்றும் கிராவல்			
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 (ஹெக்டேர்)	குத்தகை உரிமம் கோரும் பரப்பு (ஹெக்டேர்)	வகைப்பாடு
1)	இராஜபாளையம்	மேலூர் துரைச்சாமிபுரம்	293/1A(P) 293/2B(P)	0.53.0, 0.57.5	0.53.0, 0.57.5	பட்டா
			மொத்தம்	1.10.5	1.10.5	
7)	அ) குத்தகை உரிமம் கோரும் புல எண்கள், விண்ணப்பதாரரின் பெயரில் பட்டா நிலங்களாக இருப்பின் அது பற்றிய விவரம்	:	குத்தகை உரிமம் கோரும் புலஎண்கள். 293/1A(P), 293/2B(P) பட்டா எண்.443-ல் கொட்டிமுக்கலூர் ஜி.அர்ஜுனராஜா மகன் கே.ஏ.இராஜகோபால் என்பவர் பெயரில் தாக்கலாகி உள்ளது.			
	ஆ) பட்டாதாரரிடமிருந்து குத்தகை ஒப்பந்தம் பெறப்பட்டிருப்பின் அதுபற்றிய விவரம்.	:	வினா எழவில்லை			
	இ) குத்தகை கோரும் புல எண்கள் தாழ்த்தப்பட்டோர்/ பழங்குடியினருக்கு ஒதுக்கீட்டின் அடிப்படையில் பட்டா வழங்கப்பட்டிருப்பின் அதுபற்றிய விவரம்.	:	-இல்லை-			
8	குத்தகை கோரும் கனிமங்களின் புவியியலமைப்பு பற்றிய விவரம்	:	குத்தகை கோரும் புலஎண்கள் மேடு பள்ளமாக உள்ளது.விண்ணப்பதாரர்			

	<p>அனுமதி கோரியுள்ள புலனண்களில் சராசரியாக 1 மீட்டர் ஆழத்திற்கு மண் மற்றும் 5.00 மீட்டர் ஆழத்திற்கு கிராவல் இருப்பது தெரியவருகிறது. அதற்கு கீழே 20 மீட்டர் ஆழத்திற்கு சார்னகைட் வகை பாறை படிவம் அமைந்துள்ளது. மேற்படி புலனண்களில் குத்தகை உரிமம் கோரி விண்ணப்பித்துள்ள புலனண்களில் கிடைக்கும் கிராவல் சாலைகள் அமைப்பதற்கும் பள்ளங்களை நிரப்புவதற்கும், சார்னகைட் வகை பாறைகளிலிருந்து வெட்டி எடுக்கப்படும் ஐல்லி, உடைகல் மற்றும் கட்டுக்கற்கள் சாலைப் பணிகளிலும், கட்டுமானப் பணிகளிலும் பயன்படுத்த ஏதுவான பாறையாக இருப்பதால் அதற்கு மேற்படி கனிமங்களை உபயோகப்படுத்த வாய்ப்புள்ளது. கிராவல் மற்றும் உடைகற்கள் விண்ணப்பித்துள்ள புலனண்களில் பாதுகாப்பு இடைவெளி நீங்களாக கீழ்க்கண்ட பரப்பளவில் வெட்டி எடுக்கலாம் என கணக்கீடு செய்யப்பட்டுள்ளது. அதன் விவரம் வருமாறு.</p> <p><u>உடைகல் மற்றும் ஐல்லி</u> 10000 ச.மீ. (1.10.5 x 20மீ = 2,21,000 மீ) கிராவல் 10000 ச.மீ. (1.10.5x5மீ=5,52,50 மீ)</p>															
9	<p>குத்தகை உரிமம் கோரும் புல எண்களின் நான்கு எல்லைகள் பற்றிய விவரம்.</p>															
<table border="1"> <thead> <tr> <th>புல எண்கள்</th> <th>வடக்கு</th> <th>தெற்கு</th> <th>கிழக்கு</th> <th>மேற்கு</th> </tr> </thead> <tbody> <tr> <td>293/1A(P)</td> <td>புலஎண். 294</td> <td>புலஎண்.293/2B</td> <td>புலஎண். 293/1B, 292</td> <td>புலஎண்.297</td> </tr> <tr> <td>293/2B(P)</td> <td>புலஎண்.293/1A</td> <td>புலஎண்.302</td> <td>புலஎண்.292</td> <td>புலஎண். 297</td> </tr> </tbody> </table>	புல எண்கள்	வடக்கு	தெற்கு	கிழக்கு	மேற்கு	293/1A(P)	புலஎண். 294	புலஎண்.293/2B	புலஎண். 293/1B, 292	புலஎண்.297	293/2B(P)	புலஎண்.293/1A	புலஎண்.302	புலஎண்.292	புலஎண். 297	
புல எண்கள்	வடக்கு	தெற்கு	கிழக்கு	மேற்கு												
293/1A(P)	புலஎண். 294	புலஎண்.293/2B	புலஎண். 293/1B, 292	புலஎண்.297												
293/2B(P)	புலஎண்.293/1A	புலஎண்.302	புலஎண்.292	புலஎண். 297												
10	<p>குத்தகை உரிமம் கோரும் புல எண்களுக்கு ஏற்கனவே குத்தகை உரிமம் வழங்கப்பட்டிருப்பின் அது பற்றிய விவரம்.</p>	-இல்லை-														
11	<p>குத்தகை உரிமம் கோரும் புல எண்களுக்கு அருகில் பாதுகாப்பு இடைவெளிக்குள் அமைந்துள்ள நிரந்தர அமைப்புகள், ஒதுக்கப்பட வேண்டிய பாதுகாப்பு இடைவெளி பற்றிய விவரம்</p>	<p>புலஎண்.301 மற்றும் புலஎண்.302 செயல்படும் குவாரிகள் உள்ளது.</p>														

12	அ) குத்தகை உரிமம் கோரும் புல எண்களிலிருந்து 300 மீட்டர் சுற்றளவுக்குள் குடியிருப்பு பகுதிகள் / அங்கீகரிக்கப்பட்ட வீட்டுமனைப்பிரிவுகள் மற்றும் புராதனச்சின்னங்கள் அமைந்துள்ள விவரம்.	300 மீட்டர் சுற்றளவுக்குள் குடியிருப்பு பகுதிகள் / அங்கீகரிக்கப்பட்ட வீட்டுமனைப்பிரிவுகள் மற்றும் புராதனச்சின்னங்கள் ஏதும் இல்லை.
	ஆ) குத்தகை உரிமம் கோரும் பகுதிக்கு பாதை வசதி உள்ளது பற்றிய விவரம்	: பாதை வசதி உள்ளது.
13	குத்தகை உரிமம் கோரும் புல எண்கள் அமைந்துள்ள கிராமம், மலையிடை பாதுகாப்பு குழுமத்தின் கீழ் வருவது மற்றும் தடையில்லா சான்று பெறவேண்டியது பற்றிய விவரம்.	: -இல்லை-
14	குத்தகை உரிமம் கோரும் பகுதி வனவிலங்கு சரணாலயத்திலிருந்து அமைந்துள்ள தூரம், பெறப்பட வேண்டிய தடையில்லா சான்று பற்றிய விவரம்.	: -இல்லை-
15	குத்தகை கோரும் புல எண்களில் தகுந்த அனுமதியின்றி ஏற்கனவே கனிமங்கள் எடுக்கப்பட்டு அபராதம் விதிக்கப்பட்டிருப்பின் அது பற்றிய விவரம்.	: -இல்லை-
16	அ) குத்தகை உரிமம் கோரும் புலங்களின்பேரில் நிலம் கையகப்படுத்தும் நடவடிக்கைகள் இருப்பின் அதுபற்றிய விவரம்.	: -இல்லை-
	ஆ) குத்தகை உரிமம் கோரும் புல எண்களின் பேரில் நீதி மன்றத்தில் வழக்குகள் இருப்பின் அதுபற்றிய விவரம்.	: -இல்லை-
17	கிராம நிர்வாக அலுவலரின் வாக்குமூலம் பெறப்பட்டுள்ளதா ?	: கிராம நிர்வாக அலுவலரிடம் 22.01.2019 அன்று வாக்குமூலம் பெறப்பட்டுள்ளது.
18	குத்தகை உரிமம் வழங்குவது தொடர்பாக 'அ1' விளம்பரம் செய்யப்பட்டு பொதுமக்களிடமிருந்து ஆட்சேபனை ஏதும் பெறப்பட்டுள்ளதா ?	: "அ1" விளம்பரம் 11.01.2019 அன்று செய்யப்பட்டு ஆட்சேபனைகள் ஏதும் வரப்பெறவில்லை.
19	குத்தகை உரிமம் கோரும் புல எண்களின்பேரில் வருவாய் துறை பரிந்துரை செய்துள்ளதா ?	: இராஜபாளையம் வருவாய் வட்டாட்சியர், சாத்தூர் வருவாய் கோட்டாட்சியர் ஆகியோர் மனுதாரருக்கு குத்தகை உரிமம் வழங்க பரிந்துரை செய்துள்ளார்.

20) குத்தகை உரிமம் கோரும் விண்ணப்பத்தின் பேரில் துணை இயக்குநர் / உதவி புவியியலாளரின் அறிக்கையும் பரிந்துரையும்.

திரு.கே.ஏ.இராஜகோபால் என்பவர் விண்ணப்பித்துள்ள புலஎண்கள் பட்டா நிலங்கள் என்ற அடிப்படையிலும் இராஜபாளையம் வருவாய் வட்டாட்சியர், சாத்தூர் வருவாய் கோட்டாட்சியர் மற்றும் உதவி புவியியலாளர் ஆகியோர் மனுதாரருக்கு குத்தகை உரிமம் வழங்க பரிந்துரை செய்துள்ளதன் அடிப்படையிலும் மனுதாரருக்கு விருதுநகர் மாவட்டம், இராஜபாளையம் வட்டம், மேலூர் துரைச்சாமிபுரம் கிராமம் பட்டா எண்.443 புலஎண்கள்.293/1A(P) (0.53.0), 293/2B(P) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு நிலங்களில் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959, விதி 19 மற்றும் 20-ன் கீழ் கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு ஐந்தாண்டுகளுக்கு குத்தகை உரிமம் வழங்கலாம்.

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 2) அருகிலுள்ள அரசு புறம்போக்கு நிலங்களுக்கு 10மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 3) அருகிலுள்ள குவாரிகளுக்கு போதுமான பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 4) குவாரி கழிவுகளை குத்தகை உரிமம் வழங்கப்படும் பகுதிக்கு உள்ளேயே இருப்பு வைக்க வேண்டும்.
- 5) வெடிமருந்தினை விதிகளின்படி பாதிப்பு ஏற்படா வண்ணம் பயன்படுத்த வேண்டும்.
- 6) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.

உதவி புவியியலாளர்
புவியியல் மற்றும் சுரங்கத்துறை
விருதுநகர்

Annexure - 2

From

Thiru A.Arumuga Nainar M.sc.,
Assistant Director (i/c),
Geology and Mining,
Virudhunagar.

To

Thiru.K.A.Rajagopal,
S/o.Arjunaraja,
24E, Gundurmoorthy Street,
Rajapalayam Town & Taluk,
Virudhunagar District.

Roc. No: KV1/932/2018, Dated : 15.10.2019.

Sir,

Sub: Mines and Minerals - Minor Mineral - Virudhunagar District - Rajapalayam Taluk - MellurDuraismypuram Village - SF. Nos : 293/1A(P) (0.53.0), 293/2B(P) (0.57.5) - Extent - 1.10.5 Hectares - Quarry lease application preferred by Thiru.K.A.Rajagopal for quarrying Rough Stone and Gravel - Approval of Mining Plan - Regarding.

- Ref: 1. Quarry lease application received from Thiru.K.A.Rajagopal, Dated : 27.12.2018.
2. District Collector, Virudhunagar Rc. No. KV1/932/2018, Dated : 01.06.2019.
3. Thiru.K.A.Rajagopal, letter Dated : 10.07.2019.
- *****

Thiru.K.A.Rajagopal has preferred an application for the grant of quarrying lease to quarry Rough Stone and Gravel over an Extent of 1.10.5 Hectares of patta lands in SF. Nos : 293/1A(P) (0.53.0), 293/2B(P) (0.57.5) of MellurDuraismypuram Village, Rajapalayam Taluk 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 permission to quarrying Rough Stone and Gravel in over an Extent of 1.10.5

Hectares of patta lands in SF. Nos : 293/1A(P) (0.53.0), 293/2B(P) (0.57.5) for a period of 5 years subject to produce Mining Plan for approval and to obtain Environment Clearance from DEIAA 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 Geology and Mineable reserves are discussed in chapter 3.3 of part A. The applicant can quarry the mineral in the following measurements:-

MINEABLE RESERVES

Section	Length (m)	Width (m)	Height (m)	Rough Stone Volume (m ³)	Gravel Volume (m ³)
A-A' & B-B'	48	40	6.0	-	11,520
	41	26	5.0	5,330	-
	36	16	5.0	2,880	-
	31	6	5.0	930	-
A-A' & C-C'	82	69	6.0	-	33,948
	75	55	5.0	20,625	-
	70	45	5.0	15,750	-
	65	35	5.0	11,375	-
	60	25	5.0	7,500	-
Total Mineable Reserves				64,390	45,468

The available mineable reserves have been computed as 64,390 m³ as Rough Stone and Gravel as 45,468 m³ upto the depth of 26 metres from the ground level.

Details of quarry within 500 meters radius from the applied area

S.No	Quarry detail	Village	S.F. No	Extent (in Hectares)
I	Exsisting Quarry			
1.	N.S.Sathees kumar Rajapalayam	Melur Duraismypuram (KV1/148759/2013 Dt : 09.01.2017) 22.01.2022	304/5(P), 305/1(P) (Patta Land)	1.21.0
2.	A.Kamaraj Rajapalayam	Melur Duraismypuram (KV1/38182/2014 Dt : 18.04.2017) 08.05.2022	304/3, 304/4 (Patta Land)	0.68.5
3.	K.A.Rajagopal, Rajapalayam	Melur Duraismypuram (KV1/5931/2017 Dt : 17.02.2018) 12.04.2023	301/1 2A, 2C, 2D (Patta Land)	1.58.0
4.	M.Sundaram Srivilliputtur	Melur Duraismypuram (KV1/7427/2017 Dt : 15.03.2018) 18.04.2023	302 (P) (Govt. land)	2.00.0
5.	S.Victor Alponse Raja, Rajapalayam.	Melur Duraismypuram (KV1/7429/2017 Dt : 15.03.2018) 18.04.2023	302 (P) (Govt. Land)	2.00.0
II	Abandand Quarry	NIL		
III	Proposed quarry			

1.	K.A.Rajagopal	Melur Duraismypuram (KV1/932/2018)	293/1A(P) 293/2B(P)	1.10.5
Total				8.98.0

The Environmental Management Plan and Mine closure plan are discussed in Part B, Chapter 9.0 and 10.0. and all conditions has been incorporated in the Mining Plan as laid down by the authorities.

5) 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.K.A.Rajagopal for quarrying Rough Stone and Gravel over an Extent – 1.10.5 Hectares of patta lands in SF. Nos : 293/1A(P) (0.53.0), 293/2B(P) (0.57.5) of MellurDuraismypuram Village, Rajapalayam Taluk, Virudhunagar District for a period of 5 years to obtain Environment Clearance from DEIAA, Virudhunagarsubject 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 (i/c),
Geology and Mining,
Virudhunagar.

S. R. 15/10/13

POPULATION BREAKUP & LITERACY LEVEL IN THE STUDY AREA WITHIN 10 KM RADIUS

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,Rajapalayam Sub-District, Virudhunagar District																						
1	1	Chokkanathaputtur	Rural	2620	9293	4660	4633	999	499	500	1009	492	517	2	1	1	6185	3506	2679	3108	1154	1954
		total (A)		2620	9293	4660	4633	999	499	500	1009	492	517	2	1	1	6185	3506	2679	3108	1154	1954
2-5 km,Rajapalayam Sub-District, Virudhunagar District																						
2	1	Muthusamipuram	Rural	3016	10288	5120	5168	1021	565	456	3932	1974	1958	0	0	0	7072	3869	3203	3216	1251	1965
3	2	Vadakkudevadanam	Rural	809	2731	1332	1399	254	132	122	1287	619	668	0	0	0	1677	945	732	1054	387	667
4	3	Terku Devadanam	Rural	693	2373	1202	1171	233	125	108	737	368	369	0	0	0	1590	891	699	783	311	472
5	4	Kovilur	Rural	476	1677	846	831	186	90	96	0	0	0	0	0	0	1300	711	589	377	135	242
Sivagiri Sub-District,Tirunelveli District																						
6	1	Viswanathapperi	Rural	3105	10483	5059	5424	1113	548	565	4679	2249	2430	15	7	8	6783	3672	3111	3700	1387	2313
Sivagiri Sub-District,Tirunelveli District																						
7	1	Sivagiri (TP)	Urban	6796	23040	11399	11641	2181	1132	1049	4223	2080	2143	105	48	57	14535	8206	6329	8505	3193	5312
		total (B)		14895	50592	24958	25634	4988	2592	2396	14858	7290	7568	120	55	65	32957	18294	14663	17635	6664	10971
5-10 km,Rajapalayam Sub-District, Virudhunagar District																						
8	1	Ayan Kollankondan	Rural	2719	9014	4509	4505	874	442	432	3318	1672	1646	4	2	2	6627	3628	2999	2387	881	1506
9	2	Kollankondan	Rural	1996	6811	3389	3422	725	376	349	2602	1281	1321	0	0	0	4734	2567	2167	2077	822	1255
10	3	Sundararajapuram	Rural	1254	4370	2144	2226	423	219	204	3855	1894	1961	0	0	0	3015	1604	1411	1355	540	815
11	4	Solaicheri	Rural	629	2105	1059	1046	207	110	97	832	410	422	0	0	0	1310	730	580	795	329	466
12	5	Ilandirai Kondan	Rural	959	3422	1690	1732	390	208	182	1091	522	569	0	0	0	2080	1191	889	1342	499	843
13	6	Nallamangalam	Rural	1094	3962	2021	1941	425	212	213	59	26	33	0	0	0	3016	1674	1342	946	347	599
14	7	Puthur	Rural	2306	8230	4162	4068	875	448	427	1794	884	910	137	70	67	5764	3237	2527	2466	925	1541
Sivakasi Sub-District, Virudhunagar District																						
15	1	Kilanmarinadu	Rural	637	2388	1190	1198	252	116	136	525	261	264	0	0	0	1614	914	700	774	276	498
Virudhunagar Sub-District, Virudhunagar District																						
16	1	Ellinganayakkampatti	Rural	278	1082	551	531	118	63	55	253	119	134	0	0	0	670	402	268	412	149	263
Sivagiri Sub-District,Tirunelveli District																						
17	1	Inam Kovilpatti	Rural	504	1747	872	875	178	92	86	566	290	276	0	0	0	1130	647	483	617	225	392
18	2	Rayagiri	Rural	389	1342	657	685	117	55	62	280	143	137	0	0	0	861	466	395	481	191	290
19	3	Thenmalai	Rural	3060	10283	4983	5300	1002	478	524	1889	893	996	0	0	0	6724	3793	2931	3559	1190	2369
20	4	Gudalur	Rural	1098	3662	1794	1868	378	208	170	853	411	442	0	0	0	2074	1182	892	1588	612	976
21	5	Ramanathapuram	Rural	1716	5669	2767	2902	550	277	273	1770	829	941	0	0	0	4063	2231	1832	1606	536	1070
22	6	Tirumalapuram	Rural	1244	4525	2218	2307	455	219	236	2119	1024	1095	0	0	0	3035	1681	1354	1490	537	953
23	7	Sivagiri Reserve Forest	Rural	26	93	46	47	22	11	11	0	0	0	93	46	47	50	21	29	43	25	18
Sankarankoil Sub-District,Tirunelveli District																						
24	1	Perumalpatti	Rural	1456	5175	2608	2567	567	269	298	512	251	261	0	0	0	3749	2128	1621	1426	480	946
Rajapalayam Sub-District, Virudhunagar District																						
25	1	Seithur (TP)	Urban	5807	20228	10015	10213	2044	1044	1000	3768	1837	1931	17	9	8	13261	7335	5926	6967	2680	4287
26	2	Chettiarpatti (TP)	Urban	5002	17520	8848	8672	1880	989	891	1814	907	907	3	1	2	13186	7170	6016	4334	1678	2656
Sivagiri Sub-District,Tirunelveli District																						
27	1	Rayagiri (TP)	Urban	3270	11223	5494	5729	1075	542	533	2203	1096	1107	459	240	219	7802	4245	3557	3421	1249	2172
		total (C)		35444	122851	61017	61834	12557	6378	6179	30103	14750	15353	713	368	345	84765	46846	37919	38086	14171	23915
		Grand Total (A+B+C)		52959	182736	90635	92101	18544	9469	9075	45970	22532	23438	835	424	411	123907	68646	55261	58829	21989	36840

*Source: District Primary Census Abstract, Virudhunagar & Tirunelveli District of Tamilnadu State-2011

OCCUPATIONAL STRUCTURE IN THE STUDY AREA WITHIN 10 KM RADIUS

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,Rajapalayam Sub-District, Virudhunagar District																	
1	1	Chokkanathaputtur	Rural	2788	2085	155	47	810	796	105	210	1718	1032	102	124	1770	2424
		total (A)		2788	2085	155	47	810	796	105	210	1718	1032	102	124	1770	2424
2-5 km,Rajapalayam Sub-District, Virudhunagar District																	
2	1	Muthusamipuram	Rural	2949	2279	130	39	1011	939	41	129	1767	1172	68	93	2103	2796
3	2	Vadakkudevadanam	Rural	781	617	39	17	329	369	4	14	409	217	25	86	526	696
4	3	Terku Devadanam	Rural	691	518	7	5	325	301	80	120	279	92	30	24	481	629
5	4	Kovilur	Rural	530	472	19	11	189	214	27	92	295	155	1	5	315	354
Sivagiri Sub-District,Tirunelveli District																	
6	1	Viswanathapperi	Rural	2870	2427	428	327	1375	1444	44	104	1023	552	250	330	1939	2667
Sivagiri Sub-District,Tirunelveli District																	
7	1	Sivagiri (TP)	Urban	5729	3490	229	44	2471	2039	67	284	2962	1123	1064	1215	4606	6936
		total (B)		13550	9803	852	443	5700	5306	263	743	6735	3311	1438	1753	9970	14078
5-10 km,Rajapalayam Sub-District, Virudhunagar District																	
8	1	Ayan Kollankondan	Rural	2169	1599	83	42	571	726	84	151	1431	680	574	684	1766	2222
9	2	Kollankondan	Rural	1895	1381	85	29	470	527	114	231	1226	594	54	101	1440	1940
10	3	Sundararajapuram	Rural	977	692	190	110	522	451	31	30	234	101	241	342	926	1192
11	4	Solaicheri	Rural	608	530	59	37	358	376	3	26	188	91	61	58	390	458
12	5	Ilandiraikondan	Rural	992	905	41	24	284	455	47	36	620	390	12	18	686	809
13	6	Nallamangalam	Rural	1237	993	79	40	233	316	14	16	911	621	11	6	773	942
14	7	Puthur	Rural	1755	1133	144	60	405	417	29	35	1177	621	343	355	2064	2580
Sivakasi Sub-District, Virudhunagar District																	
15	1	Kilanmarinadu	Rural	648	417	38	21	53	141	8	14	549	241	75	86	467	695
Virudhunagar Sub-District, Virudhunagar District																	
16	1	Ellinganayakkampatti	Rural	359	281	22	11	114	155	1	1	222	114	2	2	190	248
Sivagiri Sub-District,Tirunelveli District																	
17	1	Inam Kovilpatti	Rural	525	482	217	219	82	100	57	65	169	98	103	82	244	311
18	2	Rayagiri	Rural	270	179	48	9	168	98	0	43	54	29	127	135	260	371
19	3	Thenmalai	Rural	3009	2513	368	189	1282	1522	49	144	1310	658	88	167	1886	2620
20	4	Gudalur	Rural	987	971	105	95	659	733	11	16	212	127	54	60	753	837
21	5	Ramanathapuram	Rural	1577	1417	114	39	801	735	22	426	640	217	39	38	1151	1447
22	6	Tirumalapuram	Rural	1272	1055	154	88	898	846	11	20	209	101	28	55	918	1197
23	7	Sivagiri Reserve Forest	Rural	10	10	0	0	10	9	0	0	0	1	14	17	22	20
Sankarankoil Sub-District,Tirunelveli District																	
24	1	Perumalpatti	Rural	1433	1090	111	38	473	522	97	139	752	391	127	166	1048	1311
Rajapalayam Sub-District, Virudhunagar District																	
25	1	Seithur (TP)	Urban	5086	3471	298	56	1593	1504	240	459	2955	1452	1150	809	3779	5933
26	2	Chettiarpatti (TP)	Urban	4865	2562	27	10	176	182	191	396	4471	1974	642	729	3341	5381
Sivagiri Sub-District,Tirunelveli District																	
27	1	Rayagiri (TP)	Urban	3004	2634	222	75	1101	1032	264	832	1417	695	352	393	2138	2702
		total (C)		32678	24315	2405	1192	10253	10847	1273	3080	18747	9196	4097	4303	24242	33216
		Grand Total (A+B+C)		49016	36203	3412	1682	16763	16949	1641	4033	27200	13539	5637	6180	35982	49718

*Source: District Primary Census Abstract, Virudhunagar & Tirunelveli District of Tamilnadu State-2011

EDUCATIONAL FACILITIES IN THE STUDY AREA WITHIN 10 KM RADIUS

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,Rajapalayam Sub-District, Virudhunagar District																
1	1	Chokkanathaputtur	1	3	3	1	1	1	0	0	0	0	0	0	2	0
		total (A)		3	3	1	1	1	0	0	0	0	0	0	2	0
2-5 km,Rajapalayam Sub-District, Virudhunagar District																
2	1	Muthusampuram	1	4	1	0	0	0	0	0	0	0	0	0	1	0
3	2	Vadakkudevadanam	1	1	1	1	0	0	0	0	0	0	0	0	1	0
4	3	Terku Devadanam	2	0	0	0	0	0	0	0	0	0	0	0	0	0
5	4	Kovilur	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Sivagiri Sub-District,Tirunelveli District																
6	1	Viswanathapperi	1	5	5	6	4	0	0	0	0	0	0	0	1	0
		total (B)		11	7	7	4	0	0	0	0	0	0	0	3	0
5-10 km,Rajapalayam Sub-District, Virudhunagar District																
7	1	Ayan Kollankondan	1	1	0	0	1	1	0	0	0	0	0	0	3	0
8	2	Kollankondan	1	3	1	0	0	0	0	0	0	0	0	0	1	0
9	3	Sundararajapuram	1	2	1	1	1	1	0	0	0	0	0	0	1	0
10	4	Solaicheri	1	1	1	0	0	0	0	0	0	0	0	0	1	0
11	5	Ilandiraikondan	1	3	3	2	0	0	0	0	0	0	0	0	2	0
12	6	Nallamangalam	1	3	2	1	1	0	0	0	0	0	0	0	2	0
13	7	Puthur	1	5	7	3	2	2	0	0	0	0	0	0	7	0
Sivakasi Sub-District, Virudhunagar District																
14	1	Kilanmarinadu	1	2	1	0	0	0	0	0	0	0	0	0	1	0
Virudhunagar Sub-District, Virudhunagar District																
15	1	Ellinganayakkampatti	1	1	1	0	0	0	0	0	0	0	0	0	1	0
Sivagiri Sub-District,Tirunelveli District																
16	1	Inam Kovilpatti	1	2	1	1	0	0	0	0	0	0	0	0	1	0
17	2	Rayagiri	1	1	1	0	0	0	0	0	0	0	0	0	1	0
18	3	Thenmalai	1	3	8	2	1	1	0	0	0	0	0	0	1	0
19	4	Gudalur	1	4	3	1	0	0	0	0	0	0	0	0	1	0
20	5	Ramanathapuram	1	4	6	0	0	0	0	0	0	0	0	0	1	0
21	6	Tirumalapuram	1	4	2	0	0	0	0	0	0	0	0	0	1	0
22	7	Sivagiri Reserve Forest	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Sankarankoil Sub-District,Tirunelveli District																
23	1	Perumalpatti	1	4	2	1	0	0	0	0	0	0	0	0	1	0
		total (C)		43	40	12	6	5	0	0	0	0	0	0	26	0
		Grand Total (A+B+C)		57	50	20	11	6	0	0	0	0	0	0	31	0

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

MEDICAL FACILITIES WITHIN THE STUDY AREA WITHIN 10 KM RADIUS

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,Rajapalayam Sub-District, Virudhunagar District														
1	1	Chokkanathaputtur	1	0	1	1	1	1	0	0	1	0	0	1
		total (A)		0	1	1	1	1	0	0	1	0	0	1
2-5 km,Rajapalayam Sub-District, Virudhunagar District														
2	1	Muthusamipuram	1	0	2	2	2	2	0	0	2	0	0	2
3	2	Vadakkudevadanam	2	0	0	1	0	0	0	0	0	0	0	0
4	3	Terku Devadanam	2	0	0	0	0	0	0	0	0	0	0	0
5	4	Kovilur	2	0	0	0	0	0	0	0	0	0	0	0
Sivagiri Sub-District,Tirunelveli District														
6	1	Viswanathapperi	1	0	2	2	2	2	0	0	2	0	0	2
		total (B)		0	4	5	4	4	0	0	4	0	0	4
5-10 km,Rajapalayam Sub-District, Virudhunagar District														
7	1	Ayan Kollankondan	1	0	0	1	1	0	0	0	0	1	0	0
8	2	Kollankondan	1	1	1	1	1	1	0	0	1	1	0	1
9	3	Sundararajapuram	1	0	0	1	0	0	0	0	0	0	0	0
10	4	Solaicheri	2	0	0	0	0	0	0	0	0	0	0	0
11	5	Ilandiraikondan	1	0	0	1	0	0	0	0	0	0	0	0
12	6	Nallamangalam	1	0	0	1	0	0	0	0	0	1	0	0
13	7	Puthur	1	0	0	2	0	0	0	0	0	2	0	0
Sivakasi Sub-District, Virudhunagar District														
14	1	Kilanmarinadu	1	0	0	1	0	0	0	0	0	0	0	0
Virudhunagar Sub-District, Virudhunagar District														
15	1	Ellinganayakkampatti	2	0	0	0	0	0	0	0	0	0	0	0
Sivagiri Sub-District,Tirunelveli District														
16	1	Inam Kovilpatti	1	0	0	1	0	0	0	0	0	0	0	0
17	2	Rayagiri	1	0	0	1	1	0	0	0	0	0	0	0
18	3	Thenmalai	1	0	2	1	2	2	0	0	2	0	0	2
19	4	Gudalur	1	0	0	1	0	0	0	0	0	0	0	0
20	5	Ramanathapuram	1	0	0	1	0	0	0	0	0	0	0	0
21	6	Tirumalapuram	1	0	0	1	0	0	0	0	0	0	0	0
22	7	Sivagiri Reserve Forest	2	0	0	0	0	0	0	0	0	0	0	0
Sankarankoil Sub-District,Tirunelveli District														
23	1	Perumalpatti	1	0	0	1	0	0	0	0	0	0	0	0
		total (C)		1	3	15	5	3	0	0	3	5	0	3
		Grand Total (A+B+C)		1	8	21	10	8	0	0	8	5	0	8

*Source: District Primary Census Abstract, Virudhunagar & Tirunelveli District of Tamil Nadu State-2011

Note : A: Available, NA- Not Available

INFRASTRUCTURAL FACILITIES IN THE STUDY AREA WITHIN 10 KM RADIUS

Sl. No	No. of Villages	Name of village	Tap Water-Treated (Status A(1)/NA(2))	Covered Well (Status A(1)/NA(2))	Hand Pump (Status A(1)/NA(2))	Tube Wells/Borehole (Status A(1)/NA(2))	Spring (Status A(1)/NA(2))	River/Canal (Status A(1)/NA(2))	Tank/Pond/Lake (Status A(1)/NA(2))	Post Office (Status A(1)/NA(2))	Sub Post Office (Status A(1)/NA(2))	Post And Telegraph Office (Status A(1)/NA(2))	Telephone (landlines) (Status A(1)/NA(2))	Mobile Phone Coverage (Status A(1)/NA(2))	Public Bus Service (Status A(1)/NA(2))	Railway Station (Status A(1)/NA(2))	Commercial Bank (Status A(1)/NA(2))	Cooperative Bank (Status A(1)/NA(2))	Agricultural Credit Societies (Status A(1)/NA(2))
0-2 km,Rajapalayam Sub-District, Virudhunagar District																			
1	1	Chokkanathaputtur	1	2	1	1	2	2	2	2	1	2	1	1	1	2	2	1	2
2-5 km,Rajapalayam Sub-District, Virudhunagar District																			
2	1	Muthusamipuram	1	1	2	1	1	2	2	1	1	1	1	1	1	2	2	2	2
3	2	Vadakkudevadanam	1	2	2	1	2	2	2	1	2	1	1	1	1	2	2	2	2
4	3	Terku Devadanam	1	2	2	1	2	2	1	2	2	2	1	1	1	2	2	2	2
5	4	Kovilur	1	1	2	1	2	2	2	2	2	2	1	1	1	2	2	2	2
Sivagiri Sub-District,Tirunelveli District																			
6	1	Viswanathapperi	1	1	1	1	2	2	2	2	1	2	1	1	1	2	2	2	1
5-10 km,Rajapalayam Sub-District, Virudhunagar District																			
7	1	Ayan Kollankondan	1	2	2	1	2	2	2	2	2	2	1	1	1	2	2	1	1
8	2	Kollankondan	1	1	2	2	2	2	2	1	1	1	1	1	1	2	2	2	2
9	3	Sundararajapuram	1	2	2	1	2	2	2	2	1	2	1	1	1	2	2	2	2
10	4	Solaicheri	1	2	2	1	2	2	2	2	2	2	1	1	2	2	2	2	2
11	5	Ilandiraikondan	1	2	2	1	2	1	2	2	2	2	1	1	1	2	2	2	2
12	6	Nallamangalam	1	2	1	1	2	2	2	2	1	2	1	1	1	2	2	2	2
13	7	Puthur	1	1	1	1	2	2	2	2	1	2	1	1	1	2	2	2	2
Sivakasi Sub-District, Virudhunagar District																			
14	1	Kilanmarinadu	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	1
Virudhunagar Sub-District, Virudhunagar District																			
15	1	Ellinganayakkampatti	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2
Sivagiri Sub-District,Tirunelveli District																			
16	1	Inam Kovilpatti	1	2	1	1	2	2	2	2	1	2	1	1	1	2	2	2	2
17	2	Rayagiri	1	2	1	1	2	2	2	2	2	2	1	1	2	2	2	2	2
18	3	Thenmalai	1	1	1	1	1	2	2	2	1	2	1	1	1	2	1	1	1
19	4	Gudalur	1	1	1	1	2	2	2	2	1	2	1	1	1	2	2	2	2
20	5	Ramanathapuram	1	1	1	1	2	1	1	2	1	2	1	1	1	2	1	1	2
21	6	Tirumalapuram	1	2	2	1	2	2	2	2	2	2	1	1	1	2	2	2	2
22	7	Sivagiri Reserve Forest	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2
Sankarankoil Sub-District,Tirunelveli District																			

*Source: District Primary Census Abstract, Virudhunagar & Tirunelveli District of Tamilnadu State-2011

Note : A: Available, NA- Not Available

Status: A(1)/NA(2)



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AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry of Thiru.K.A. Rajagopal
Name of the Location	:	Near Mine Lease Area
Station Code	:	A1

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	06.12.2021	66.7	32.7	5.8	8.2
2	07.12.2021	75.6	38.6	6.7	9.1
3	17.12.2021	72.1	35.3	6.4	8.7
4	18.12.2021	64.5	31.6	5.6	8.2
5	20.12.2021	71.2	34.9	6.3	8.6
6	21.12.2021	60.2	29.5	5.2	7.6
7	31.12.2021	68.9	33.8	6.1	8.4
8	01.01.2022	73.4	36.2	6.5	8.8
9	03.01.2022	65.6	32.1	5.7	8.1
10	04.01.2022	69.5	34.2	6.2	8.5
11	14.01.2022	78.9	40.3	7.2	9.3
12	15.01.2022	82.1	41.9	7.8	9.6
13	17.01.2022	62.3	30.5	5.4	7.8
14	18.01.2022	79.8	40.7	7.4	9.4
15	28.01.2022	81.3	41.5	7.6	9.5
16	29.01.2022	61.1	30.2	5.3	7.8
17	31.01.2022	83.2	42.4	8.1	9.7
18	01.02.2022	63.5	31.3	5.5	7.9
19	11.02.2022	84.4	45.2	8.4	10.1
20	12.02.2022	77.8	39.7	7.1	9.2
21	14.02.2022	74.5	38.1	6.6	8.9
22	15.02.2022	67.9	33.3	5.9	8.3
23	25.02.2022	76.7	39.1	6.8	9.1
24	26.02.2022	83.6	42.6	8.2	9.8
	MIN	60.2	29.5	5.2	7.6
	AVE	72.7	36.5	6.6	8.8
	MAX	84.4	45.2	8.4	10.1

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

Q. P. Rajagopal

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



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

AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry of Thiru.K.A. Rajagopal
Name of the Location	:	Devipattinam Village
Station Code	:	A2

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	06.12.2021	44.2	20.8	4.4	6.8
2	07.12.2021	47.3	22.2	5.1	7.4
3	17.12.2021	51.3	24.1	5.9	8.2
4	18.12.2021	49.5	23.3	5.6	7.9
5	20.12.2021	43.1	20.3	4.2	6.6
6	21.12.2021	46.2	21.7	4.8	7.2
7	31.12.2021	53.7	25.2	6.5	8.7
8	01.01.2022	48.6	22.8	5.4	7.7
9	03.01.2022	44.5	21.1	4.5	6.9
10	04.01.2022	52.8	24.7	6.3	8.5
11	14.01.2022	46.6	21.9	4.9	7.3
12	15.01.2022	50.1	23.5	5.7	8.2
13	17.01.2022	53.2	25.1	6.4	8.6
14	18.01.2022	45.3	21.3	4.6	7.1
15	28.01.2022	47.8	22.5	5.2	7.5
16	29.01.2022	43.6	20.5	4.3	6.7
17	31.01.2022	50.6	23.8	5.8	8.1
18	01.02.2022	54.8	25.8	7.2	8.9
19	11.02.2022	51.7	24.3	6.1	8.3
20	12.02.2022	48.1	22.6	5.3	7.6
21	14.02.2022	45.7	21.5	4.7	7.1
22	15.02.2022	49.4	23.2	5.5	7.8
23	25.02.2022	54.1	25.4	6.8	8.9
24	26.02.2022	52.2	24.5	6.2	8.4
	MIN	43.1	20.3	4.2	6.6
	AVE	48.9	23.0	5.5	7.8
	MAX	54.8	25.8	7.2	8.9

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



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AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry of Thiru.K.A. Rajagopal
Name of the Location	:	Cokkanatham puthur Village
Station Code	:	A3

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	08.12.2021	50.4	24.4	4.5	7.2
2	09.12.2021	54.8	26.6	5.4	8.1
3	15.12.2021	51.9	25.2	4.7	7.5
4	16.12.2021	53.7	26.1	5.2	7.9
5	22.12.2021	61.4	31.9	7.2	9.1
6	23.12.2021	52.9	25.7	4.9	7.7
7	29.12.2021	56.4	27.4	5.8	8.4
8	30.12.2021	52.4	25.5	4.8	7.6
9	05.01.2022	51.1	24.8	4.6	7.3
10	06.01.2022	55.4	26.9	5.5	8.2
11	12.01.2022	59.3	30.8	6.8	8.9
12	13.01.2022	57.6	30.2	6.2	8.6
13	19.01.2022	51.4	24.9	4.6	7.4
14	20.01.2022	54.5	26.4	5.3	8.0
15	26.01.2022	62.8	32.7	7.6	9.3
16	27.01.2022	55.9	27.1	5.6	8.3
17	02.02.2022	62.1	32.3	7.4	9.2
18	03.02.2022	53.4	25.9	5.1	7.8
19	09.02.2022	64.3	33.4	7.9	9.5
20	10.02.2022	57.9	30.1	6.4	8.7
21	16.02.2022	60.7	31.6	7.1	9.0
22	17.02.2022	56.9	27.5	6.1	8.5
23	23.02.2022	58.6	30.4	6.6	8.8
24	24.02.2022	63.5	33.1	7.8	9.4
	MIN	50.4	24.4	4.5	7.2
	AVE	56.6	28.4	6.0	8.4
	MAX	64.3	33.4	7.9	9.5

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



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AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry of Thiru.K.A. Rajagopal
Name of the Location	:	Sivagiri Village
Station Code	:	A4

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	08.12.2021	59.2	30.8	6.0	8.4
2	09.12.2021	52.9	27.5	5.1	7.5
3	15.12.2021	67.6	35.2	8.2	9.6
4	16.12.2021	57.2	29.7	5.7	8.1
5	22.12.2021	55.2	28.7	5.4	7.8
6	23.12.2021	66.9	34.8	8.0	9.5
7	29.12.2021	52.2	27.1	5.0	7.4
8	30.12.2021	58.5	30.4	5.9	8.3
9	05.01.2022	63.9	33.2	7.2	9.1
10	06.01.2022	59.9	31.1	6.2	8.5
11	12.01.2022	66.2	34.4	7.8	9.4
12	13.01.2022	61.3	31.9	6.6	8.7
13	19.01.2022	56.4	29.3	5.6	8.0
14	20.01.2022	53.6	27.9	5.2	7.6
15	26.01.2022	55.7	29.0	5.5	7.9
16	27.01.2022	54.3	28.2	5.3	7.8
17	02.02.2022	68.3	35.5	8.4	9.7
18	03.02.2022	63.4	33.0	7.0	8.9
19	09.02.2022	57.8	30.1	5.6	8.2
20	10.02.2022	62.7	32.6	6.8	8.7
21	16.02.2022	69.7	36.2	8.6	10.3
22	17.02.2022	64.8	33.7	7.4	9.2
23	23.02.2022	60.6	31.5	6.5	8.6
24	24.02.2022	65.5	34.1	7.6	9.3
	MIN	52.2	27.1	5.0	7.4
	AVE	60.6	31.5	6.5	8.6
	MAX	69.7	36.2	8.6	10.3

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

P. P. Raj

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



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AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry of Thiru.K.A. Rajagopal
Name of the Location	:	Viswanathapuri Village
Station Code	:	A5

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	10.12.2021	51.6	24.8	5.1	7.9
2	11.12.2021	48.8	23.4	4.3	7.2
3	13.12.2021	50.1	24.0	4.6	7.5
4	14.12.2021	49.6	23.8	4.5	7.4
5	24.12.2021	52.8	25.3	5.7	8.2
6	25.12.2021	55.2	27.0	6.9	8.8
7	27.12.2021	48.4	23.2	4.2	7.1
8	28.12.2021	52.2	25.1	5.3	8.0
9	07.01.2022	55.6	27.2	7.1	8.9
10	08.01.2022	53.2	25.5	5.9	8.3
11	10.01.2022	49.2	23.6	4.4	7.3
12	11.01.2022	54.4	26.7	6.5	8.6
13	21.01.2022	52.4	25.2	5.5	8.1
14	22.01.2022	54.8	26.9	6.7	8.7
15	24.01.2022	57.6	28.6	7.5	9.3
16	25.01.2022	54.1	26.1	6.3	8.5
17	04.02.2022	50.4	24.2	4.7	7.6
18	05.02.2022	52.2	25.3	4.8	7.9
19	07.02.2022	57.2	28.1	7.4	9.2
20	08.02.2022	51.2	24.8	4.9	7.8
21	18.02.2022	58.2	29.3	7.6	9.4
22	19.02.2022	56.4	27.6	7.2	9.0
23	21.02.2022	57.8	28.1	7.4	9.2
24	22.02.2022	53.6	25.7	6.1	8.4
	MIN	48.4	23.2	4.2	7.1
	AVE	53.2	25.8	5.9	8.3
	MAX	58.2	29.3	7.6	9.4

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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



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AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry of Thiru.K.A. Rajagopal
Name of the Location	:	Devatharam(Kovilur) Village
Station Code	:	A6

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	10.12.2021	52.8	25.6	5.6	8.1
2	11.12.2021	50.4	24.4	4.9	7.5
3	13.12.2021	50.6	24.7	5.1	7.6
4	14.12.2021	52.1	25.3	5.4	7.9
5	24.12.2021	49.5	24.2	4.8	7.4
6	25.12.2021	52.4	25.4	5.5	8.1
7	27.12.2021	54.2	26.7	5.9	8.4
8	28.12.2021	51.6	25.2	5.3	7.8
9	07.01.2022	57.9	29.6	7.1	9.4
10	08.01.2022	54.7	26.5	6.2	8.6
11	10.01.2022	53.2	25.8	5.7	8.2
12	11.01.2022	55.3	26.7	6.3	8.7
13	21.01.2022	57.2	29.3	6.8	9.2
14	22.01.2022	55.6	27.5	6.4	8.8
15	24.01.2022	58.4	29.9	7.2	9.5
16	25.01.2022	56.1	28.6	6.5	8.9
17	04.02.2022	59.2	30.4	7.4	9.7
18	05.02.2022	57.6	29.5	6.9	9.3
19	07.02.2022	56.7	29.1	6.7	9.1
20	08.02.2022	54.4	26.9	6.1	8.5
21	18.02.2022	51.2	25.8	5.2	7.7
22	19.02.2022	53.6	26.2	5.8	8.3
23	21.02.2022	58.9	30.1	7.3	9.6
24	22.02.2022	56.4	28.7	6.6	9.1
	MIN	49.5	24.2	4.8	7.4
	AVE	54.6	27.2	6.1	8.6
	MAX	59.2	30.4	7.3	9.7

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

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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



WATER QUALITY DATA

Project Name	:	Rough Stone and Gravel Quarry of Thiru.K.A. Rajagopal							
Location Name	:	Location Code				Location Name			
		W1				Near Mine Lease Area			
		W2				Devipattinam Village			
		W3				Cokkanatham puthur Village			
		W4				Sivagiri Village			
		W5				Viswanathapuri Village			
		W6				Devatharam(Kovilur) Village			

S. No.	Parameter	Unit	W 1	W 2	W 3	W 4	W 5	W6	*Permissible Limits
1	pH	-	7.63	7.89	7.63	7.21	7.59	7.01	6.5-8.5
2	Electrical Conductivity	µmhos/cm	825.5	1832	926.5	1470	1112	858.9	-
3	Odor	-	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE
4	Turbidity	NTU	<1	<1	<1	<1	<1	<1.0	5.0
5	Total Hardness as CaCO ₃	mg/L	84	420	180	521	307	439	600
6	Calcium Hardness CaCO ₃	mg/L	73	205	154	321	240	208	-
7	Magnesium Hardness CaCO ₃	mg/L	11.5	215	26.9	200	67.2	231	-
8	Calcium Ca	mg/L	29.2	82.0	61.4	129	96	83.1	200
9	Magnesium Mg	mg/L	2.8	51.6	6.5	48.0	16.1	55.5	100
10	Alkalinity CaCO ₃	mg/L	452	323	492	223	314	314	600

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	W 1	W 2	W 3	W 4	W 5	W 6	*Permissible Limits
11	Chloride Cl ⁻	mg/L	103.7	362	106	276	147	56.7	1000
12	Sulphate SO ₄ ²⁻	mg/L	21.7	268	24.3	167	129	173	400
13	Iron Fe	mg/L	BDL(D.L-0.01)	0.07	0.05	0.05	BDL(D.L-0.01)	0.14	0.3
14	Nitrate NO ₃	mg/L	BDL(D.L-1.0)	3.45	2.3	10.9	1.61	BDL (D.L – 1.0)	45
15	Fluoride F	mg/L	0.14	0.44	0.18	0.63	0.32	0.66	1.5
16	Total Dissolved Solids	mg/L	496	1100	560	870	666	520	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.

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

LANDUSE STUDY WITHIN 10 KM RADIUS

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 & Uncultivable 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,Rajapalayam Sub-District, Virudhunagar District													
1	1	Chokkanathaputtur	278.63	0	18.19	1.22	2.02	0	0.47	20.57	164.79	0	71.37
		total (A)	278.63	0	18.19	1.22	2.02	0	0.47	20.57	164.79	0	71.37
2-5 km,Rajapalayam Sub-District, Virudhunagar District													
2	1	Muthusamipuram	1043.43	0	257.17	54.3	0	55.65	2.14	52.26	0	49.41	572.5
3	2	Vadakkudevadanam	867.08	0	101.81	0	0	0	0	199.42	0	1.19	564.66
4	3	Terku Devadanam	563.85	2.15	139.26	0	0	0	3.48	49.74	0	35.18	334.04
5	4	Kovilur	698.28	0	6.46	128.29	0	0	32.09	0.05	0	0	531.39
Sivagiri Sub-District,Tirunelveli District													
6	1	Viswanathapperi	3546.22	0	677.03	87.37	0	22.9	4.11	211.26	165.91	181.16	2196.48
		total (B)	6718.86	2.15	1181.73	269.96	0	78.55	41.82	512.73	165.91	266.94	4199.07
5-10 km,Rajapalayam Sub-District, Virudhunagar District													
7	1	Ayan Kollankondan	1127.06	0	73	260.29	6.5	0	211.25	62.63	0	178.84	334.55
8	2	Tiruchalur	236.54	0	43.52	9.93	0	0	0	48.98	0	17.76	116.35
9	3	Kollankondan	583.84	0	149.13	0.27	0	0	1.03	149.2	0	35.3	248.91
10	4	Sundararajapuram	2286.35	1082.82	12.13	3.16	0	0	0	188.04	373.79	67.27	559.14
11	5	Solaicheri	952.08	0	159.89	4.32	0	0	0.21	39.43	0	12.28	735.95
12	6	Ilandiraikondan	906.64	0	12.67	2.3	0.86	0	451.68	184.07	0	205.01	50.05
13	7	Nallamangalam	184.13	0	61.35	0	0	0	0	46.01	0.12	1.07	75.58
14	8	Puthur	1805.21	0	27.43	396.39	1.22	0	939.2	22.6	0	63.27	355.1
Sivakasi Sub-District, Virudhunagar District													
15	1	Kilanmarinadu	2765	0	586.05	0	6	20	5.8	1764.53	76.3	277.7	28.62
Virudhunagar Sub-District, Virudhunagar District													
16	1	Ellinganayakkampatti	785.78	0	56.72	0	0	0	0	302.26	76.38	341.02	9.4
Sivagiri Sub-District,Tirunelveli District													
17	1	Inam Kovilpatti	346.76	0	86.64	0	0	0	1.12	102.29	43.15	0.74	112.82
18	2	Rayagiri	1268.73	0	280.32	28.02	0	1.19	0.29	41.45	3	10.39	904.07
19	3	Thenmalai	3549.95	0	585.22	191.41	0	0	508.73	273.03	983.31	319.73	688.52
20	4	Gudalur	1193.1	0	235.04	210.25	0	1.02	3.69	50.12	217.76	106.27	368.95
21	5	Ramanathapuram	504.49	0	76.14	11.97	0	0.39	0.16	88.69	10.81	10.5	305.83
22	6	Tirumalapuram	1978.49	0.9	287.44	23.74	0	2.4	1.72	387.19	118.61	54.99	1101.5
23	7	Sivagiri Reserve Forest	203.52	203.02	0.23	0	0	0	0	0	0	0	0.27
Sankarankoil Sub-District,Tirunelveli District													
24	1	Perumalpatti	1252.09	0	304.31	0	0	0.17	18.14	628.85	60.97	7.11	232.54
		total (C)	21929.76	1286.74	3037.23	1142.05	14.58	25.17	2143.02	4379.37	1964.2	1709.25	6228.15
		Grand Total (A+B+C)	28927.25	1288.89	4237.15	1413.23	16.6	103.72	2185.31	4912.67	2294.9	1976.19	10498.59

*Source: District Primary Census Abstract, Virudhunagar & Tirunelveli District of Tamilnadu State-2011

MINING PLAN

ROUGH STONE and GRAVEL QUARRY

(PREPARED UNDER RULE 12 OF MINOR MINERAL CONSERVATION & DEVELOPMENT RULES, 2010 & AS PER AMENDMENT UNDER RULE No. 41 & 42 of TAMILNADU MINOR MINERAL CONCESSION RULES, 1959)

(Lease Period – Five years)

LOCATION OF THE QUARRY LEASE AREA

EXTENT : 1.10.5 Hectares
SURVEY Nos. : 293/1A (p) & 293/2B(p)
VILLAGE : MELUR-DURASAMPURAM
TALUK : RAJAPALAYAM
DISTRICT : VIRUDHUNAGAR

APPLICANT

K.A.RAJAGOPAL.
S/o. ARJUNARAJA
24E, GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK
VIRUDHUNAGAR DISTRICT - 626 117.

PREPARED BY

R.GURURAMACHANDRAN, M.Sc.,
RQP/MAS/224/2010/A
Valid upto 24.11.2020.

99

J. A. Rajagopal

K.A.RAJAGOPAL
S/o. ARJUNARAJA
24E, GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK
VIRUDHUNAGAR DISTRICT - 626 117.



CONSENT LETTER OF THE APPLICANT

I hereby give my consent to prepare the Mining Plan for the grant of Quarry Lease for quarrying Rough Stone & Gravel over a total extent of 1.10.5 Hectares in SF. Nos.: 293/1A (part) & 293/2B (part) of Melur-Duraisampuram Village, Rajapalayam Taluk, Virudhunagar District vide District Collectors letter No. Na.Ka.KV1/932/2018 - Mineral dated 01.06.2019 and submit for approval before the Competent Authority by

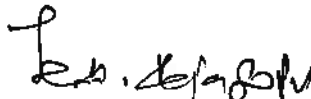
Mr. R. Gururamachandran, M.Sc.,
Recognized Qualified Person - RQP/MAS/224/2010/A.,

I request the Deputy Director Geology and Mining, Virudhunagar to make further correspondence regarding the modification of the Mining Plan if any with said Recognized Qualified Person in the following address :

No. 2/770-3, VOC Nagar,,
Soolakkarai West,
Virudhunagar - 626 003.
Cell :9443434288 / 9750309288
email : gruram@gmail.com

I hereby undertake that all the modifications, if any, made in the Mining Plan by the Recognized Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable by me and binding on me in all respect.

Place : Virudhunagar
Date : 10-06-2019


K.A.Rajagopal
Signature of the Applicant.



K.A.RAJAGOPAL
S/o. ARJUNARAJA
24E, GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK
VIRUDHUNAGAR DISTRICT - 626 117.



DECLARATION OF THE APPLICANT

The Mining Plan in respect of the grant of quarry lease for quarrying of Rough Stone & Gravel over a total extent of 1.10.5 Hectares in SF. Nos.: 293/1A (part) & 293/2B (part) of Melur-Duraisampyram Village, Rajapalayam Taluk, Virudhunagar District has been prepared and submitted for approval in full consultation with me.

I understand its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to quarry Rough Stone and Gravel.

Place : Virudhunagar
Date : 10-07-2019

K.A. Rajagopal
K.A.Rajagopal
Signature of the Applicant.

This Mining Plan 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. KV. 1932/2018...
Dated 15.10.2019 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]
Deputy Director of Geology & Mining
Virudhunagar

S. Rajagopal

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

Letter Roc. No. KV. 1932/2018 Dated 15.10.2019

K.A. Rajagopal

R.Gururamachandran, M.Sc.,
No. 2/770-3, VOC Nagar,,
Soolakkarai West,
Virudhunagar - 626 003.
Cell : 9443434288 / 9750309288.




CERTIFICATE FROM THE RECOGNIZED QUALIFIED PERSON

I, R.Gururamachandran (recognised by the Indian Bureau of Mines under Rule 22c of Mineral Concession Rules, 1960 to prepare Mining Plan) certify that the Provisions of Rule 12 of Minor Mineral Conservation and Development Rules, 2010 & as per Amendment Rules under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed and incorporated in this Mining Plan prepared for **Thiru.K.A.Rajagopal** of Rajapalayam Town for the grant of Quarry Lease for quarrying Rough Stone and Gravel over an extent of 1.10.5 Hectares in SF. Nos.: 293/1A (part) & 293/2B (part) of **MelurDuraismypuram Village, Rajapalayam Taluk, Virudhunagar District** for a period of 5 years.

I hereby certify that the provisions of the Mines Act, Rules and Regulations etc., made there under have been observed and incorporated while preparing the Mining Plan. Where ever necessary permissions / exemptions / relaxations and approvals are required, the applicant would approach the concerned authorities of Director General of Mines Safety (DGMS).

Place : Virudhunagar .
Date : 10.07.2019


R.GURURAMACHANDRAN, M.Sc.,
RQP/MAS/224/2010/A.
R.GURURAMACHANDRAN, M.Sc.,
Recognized Qualified Person
Reg.No: RQP / MAS / 224 / 2010 / A

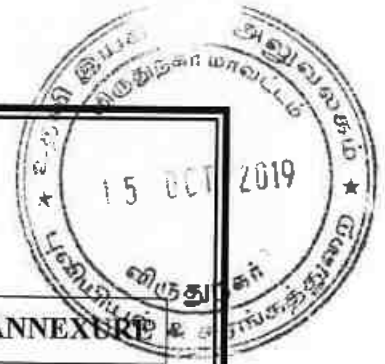


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11.0	ANY OTHER INFORMATION	22

LIST OF ANNEXURES



S.NO	DESCRIPTION	ANNEXURE
1	Copy of Precise Area Communication	I
2	Assistant Geologist Inspection Report	II
3	Copy of RDO & Tahsildhar Reports	III
4	Copy of Id Proof of Applicant	IV
5	Copy of FMBs	V
6	Copy of Patta, Adangal, A-Register	VI
7	List of quarries within 500 mts radius.	VII
8	VAO certificate along with site photo.	VIII
9	Agreement for Explosive & Blasting with license copies	IX
10	Copy of RQP Certificate	X

LIST OF PLATES

S.NO	DESCRIPTION	PLATE No.	SCALE
1	LOCATION PLAN	I	Not to Scale
2	KEY MAP	I A	Not to Scale
3	KEY PLAN	II	1 : 50,000
4	MINING LEASE AREA PLAN	III	1 : 1000
5	SURFACE & GEOLOGICAL PLAN & SECTIONS	IV	1 : 1000
6	YEARWISE PRODUCTION PLAN & SECTIONS	V	1 : 1000
7	CONCEPTUAL PLAN & SECTIONS	VI	1 : 1000
8	ENVIRONMENTAL PLAN	VII	1 : 5000
9	VILLAGE MAP SHOWING ENVIRONMENTAL FEATURES	VII A	1 : 10000
10	PROGRESSIVE MINE CLOSURE PLAN	VIII	1 : 1000

L. A. Rajagopal



MINING PLAN

for
ROUGH STONE & GRAVEL QUARRY
OVER an EXTENT of 1.10.5 Hectares
in SF.Nos.293/1A (part) and 293/2B (part)
of MELUR-DURASAMPURAM VILLAGE,
RAJAPALAYAM TALUK, VIRUDHUNAGAR DISTRICT

(Prepared Under Rule 12 of Minor Mineral Conservation and Development Rules, 2010 and as per Amendment under Rule 41& 42 of Tamil Nadu Minor Mineral Concession Rules, 1959)

INTRODUCTION and EXECUTIVE SUMMARY :

This Mining Plan is prepared for Quarrying of Rough Stone and Gravel by systematic and scientific quarrying and to obtain Environment Clearance under District level Environmental Impact Assessment Authority (DEIAA) / State level Environmental Impact Assessment Authority (SEIAA). The applicant **Thiru.K.A.Rajagopal** of Rajapalayam Town is an individual having skill on Rough Stone and Gravel Quarrying and having one quarry for Rough Stone & Gravel in SF.No.301 of Melur-Druaisampuram and stone crusher also. The Rough Stone is mainly used for crushing blue metal stone aggregates of various sizes for concrete mixing for building, road, bridges, etc., and Gravel for filling purposes for road and buildings.

The applicant applied fresh for quarrying & transportation of Rough Stone and Gravel over an extent of **1.10.5 Hectares** in **SF.Nos. 293/1A (part) and 293/2B (part)** of **Melu-Duraisampuram Village, Rajapalayam, Taluk, Virudhunagar District** under **Rule 19 of Tamil Nadu Minor Mineral Concession Rules 1959** and Virudhunagar District Collector asked to submit the mining plan vide letter no : **KV1/932/2018-Minerals** dated **01.06.2019** for a period of **5 years**. Hence this mining plan is prepared for approval.

Thiru.K.A.Rajagopal



Executive Summary :

- i. Village - **Melur-Duraisampuram**
Taluk - **Rajapalayam**
- ii. Total extent of the lease area - **1.10.5 hectares**
- iii. The Total mineable Reserves are - **64,390 M³ of Rough stone**
45,468 M³ of Gravel
- iv. Topography of the area = The area is plain terrain.
- v. Existing Depth of the quarried pit = **Nil**
- vi. Proposed Depth of mining = **26.0m (Below ground level)**
- vii. Proposed period of mining = **5 years**
- viii. It is a new/Existing quarry lease = **New Fresh Area**
- ix. Method of mining / level of mechanization = **Opencast semi- mechanized method,**
the quarry operation involves shallow jack hammer drilling, slurry blasting.
- x. Type of machineries proposed to be deployed in the quarrying operation.
Excavator of 0.90Cbm bucket capacity
(with Rock breaker attachment)
Jack hammers 30-32mm dia.
- xi. Tractor mounted compressor (2 jack hammer capacity).
- xii. No trees are uprooted due to quarrying operation.
- xiii. The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for transport.
- xiv. There is No Export of the Rough stone.
- xv. The lease area is about 1.10.5 Hectares which is bounded by four corners and the Co — boundaries are clearly marked in the drawing enclosed as Plate No III.
- xvi. The diagram of proposed mining area showing the dimensions of the pit, its proposed Depth of mining, proposed area is enclosed as Plate No V.
- xvii. There is no wastages anticipated during this quarry operation and the top soil will be stacked along the boundary barrier and safety zones for afforestation purpose in the lease area.
- xviii. Around 10 employees are proposed to be deployed for quarrying operation.
- xix. Total Cost of the project.
- | | | | |
|-----------------------------------|---|-----------|--------------------|
| A. Investment cost | = | Rs | 2,50,000/- |
| B. Mining cost | = | Rs | 41,49,380/- |
| C. EMP Cost | = | Rs | 3,13,000/- |
| Total Project Cost (A+B+C) | = | Rs | 47,12,380/- |



1. GENERAL INFORMATION :

1.1	a)	Name of the applicant	Thiru.K.A.Rajagopal
	b)	Address of the applicant (with phone No. & e-mail)	Address : 24E, Gundoomurthy Street, Rajapalayam Town Rajapalayam Taluk. District : Virudhunagar Pin Code : 626 117. Mobile No : 9442210207
	c)	Status of the applicant (Individual / Company / Firm)	Individual.
1.2	a)	Mineral which the applicant intends to mine	Rough Stone and Gravel.
	b)	Precise area communication letter details received from the Competent authority of the Government	District Collector, Virudhunagar letter No. Na.Ka.KV1/932/2018-Minerals dated 01.06.2019.
	c)	Period of permission / lease to be granted	Period of lease applied for 5 years as per Rule 19 & 20 laid down in Tamil Nadu Minor Mineral Concession Rules -1959.
	d)	Name and address of the RQP / Authorized person preparing the mining plan	Name : R.Gururamachandran M.Sc., Address : No. 2/770-3, VOC Nagar,, Soolakkarai West, Virudhunagar – 626 003. Cell : 9443434288 / 9750309288. Registration No : RQP/MAS/224/2010/A Valid up to : 24.11.2020 Email : gruram@gmail.com

Thiru K.A. Rajagopal



2. LOCATION :

2.1	a)	Details of the area with location map	<p>There are no villages within the radius of 500m. The area bounded by following villages - refer Plate-IA & Plate-II</p> <table border="1"> <thead> <tr> <th>DIRECTION</th> <th>VILLAGE</th> <th>POPULATION</th> <th>DISTANCE</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Devathanam</td> <td>1,200</td> <td>3.0Km</td> </tr> <tr> <td rowspan="2">South</td> <td>Sivagiri</td> <td>3,500</td> <td>3.0 Km</td> </tr> <tr> <td>Viswanathperi</td> <td>1,200</td> <td>3.5 Km</td> </tr> <tr> <td rowspan="2">East</td> <td>Sokkanathanputhur</td> <td>2,000</td> <td>2.5 Km</td> </tr> <tr> <td>Melur-Duraisampuram</td> <td>1,000</td> <td>3.0 Km</td> </tr> <tr> <td>West</td> <td>Devipattanam</td> <td>1,500</td> <td>1.5 Km</td> </tr> </tbody> </table>	DIRECTION	VILLAGE	POPULATION	DISTANCE	North	Devathanam	1,200	3.0Km	South	Sivagiri	3,500	3.0 Km	Viswanathperi	1,200	3.5 Km	East	Sokkanathanputhur	2,000	2.5 Km	Melur-Duraisampuram	1,000	3.0 Km	West	Devipattanam	1,500	1.5 Km
DIRECTION	VILLAGE	POPULATION	DISTANCE																										
North	Devathanam	1,200	3.0Km																										
South	Sivagiri	3,500	3.0 Km																										
	Viswanathperi	1,200	3.5 Km																										
East	Sokkanathanputhur	2,000	2.5 Km																										
	Melur-Duraisampuram	1,000	3.0 Km																										
West	Devipattanam	1,500	1.5 Km																										
	i)	District, Taluk and Village	<p>District : Virudhunagar Taluk : Rajapalayam Village : Melur-Duraisampuram</p>																										
	ii)	Survey Nos.	<p>SF. Nos. : 293/1A (part) (0.53.0 Hc.) & 293/2B (part) (0.57.5 Hc.)</p>																										
	iii)	Total Extent in Ha.	<p>1.10.5 Hectares (Ryotwari)</p>																										
2.2	b)	Classification of the area (Ryotwari/ Poramboke/ others)	<p>Patta lands (Ryotwari)</p>																										
2.3	c)	Ownership / Occupancy of the applied area (surface right)	<p>As per village accounts the land stands in the name of the applicant Thiru.K.A.Rajagopal S/o Arjunaraja vide Patta No. 443 of Melur-Duraisampuram revenue village and as such the applicant has got surface rights over the lands applied for the grant of quarry lease for Rough Stone and Gravel.</p>																										
2.4	d)	Topo sheet No. with latitude and longitude	<p>Topo Sheet No. : 58 G/7 Latitude Between : 09° 21' 50.40" to 09° 21' 53.70" N Longitude Between : 77° 26' 26.00" to 77° 26' 31.33" E</p>																										
2.5	e)	Existence of public road / Railway line, if any nearby and approximate distance	<p>The area is located 1.0 km west of Devipattinam junction located in the NH-744 Highway at 15 kms south of Rajapalayam town. The site is connected by village panchayat road between Devipattinam village and NH-744 junction. The existing road from the quarry area will be used and maintained for transportation and trees will be planted on either side of the road to prevent dust and noise to the nearby areas. The Nearest Railway station is Rajapalayam town towards north at about 13 Kms distance.</p>																										

J. Rajagopal



PART — A

3. GEOLOGY AND MINERAL RESERVES :

3.1 Brief description of the Topography and general Geology of the area (with plans)

The area applied for quarry lease is plain terrain with very gentle slope towards south and covered by reddish brown sandy soil followed by weathered rock formation and massive Charnockite rock formation. The massive rock formation is noticed / occurred at an average depth of 6.0 mts from the surface i.e. below top soil and weathered rock formation.

The top reddish brown sandy soil mixed with weathered rock formation are also used for formation of Roads, filling the low lying areas, etc.,. The massive charnockite occur below the weathered zone is hard, medium to coarse grained with intrusions. The charnockite is played a vital role in construction and road formation civil works.

Water table is found at a depth of 60m below ground level. Average annual rainfall is about 835mm during SW and NE monsoons.

Peninsular gneiss forms the oldest rock formations of Archean age, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite formations trends along NE-SW with a dip of 70° towards SE.

The general geological sequences of the rocks in this area are given below.

AGE	FORMATION
Recent	- Quaternary weathered Rock Formation
.....Unconformity.....	
Archean	- Charnockites Peninsular Gneiss complex.

[Handwritten Signature]



3.2	Details of exploration already carried out if any	No exploration was carried out. Massive Rough stone formation visible from the existing pits in the nearby quarry in operation and dry open wells.
3.3	<p>Estimation of reserves</p> <p>a) Geological reserves with geological sections on a scale of 1:1000 / 1:2000</p>	<p>The practical method of the systematic geological mapping and delineation of Rough stone (Charnockite) within the field was done and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,</p> <p>Totally three sections have been drawn, one section along Length wise as (A-A') and the other two sections drawn across the Width as (B-B') & (C-C') to cover the maximum area considered.</p> <p>The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in 1:1000 scale and the estimated balance Geological Reserves as 2,16,160 CuM of Rough Stone and 64,848 CuM of Gravel. Please refer the Geological plan and sections Plate No- IV.</p>

Geological Resources (Plate No. IV)

The geological reserves have been calculated based on the cross section method. Availability of Geological Resources is given below.

Table-1

SECTION	LENGTH (M)	WIDTH (M)	HEIGHT (M)	ROUGH STONE VOLUME (M ³)	GRAVEL VOLUME (M ³)
A-A' & B-B'	54	60	6.0	-	19,440
	54	60	20.0	64,800	-
A-A' & C-C'	88	86	6.0	-	45,408
	88	86	20.0	1,51,360	-
TOTAL GEOLOGICAL RESERVES				2,16,160	64,848

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Available Mineable Reserves (Plate No. VI)

The available mineable reserves are calculated for the proposed lease period of 5 years based on the total minable reserves calculated by deducting 7.5m and 100m distances to the boundary & government poramboke of the area and Bench losses.

Table-2

SECTION	LENGTH (M)	WIDTH (M)	HEIGHT (M)	ROUGH STONE VOLUME (M ³)	GRAVEL VOLUME (M ³)
A-A' & B-B'	48	40	6.0	-	11,520
	41	26	5.0	5,330	-
	36	16	5.0	2,880	-
	31	6	5.0	930	-
A-A' & C-C'	82	69	6.0	-	33,948
	75	55	5.0	20,625	-
	70	45	5.0	15,750	-
	65	35	5.0	11,375	-
	60	25	5.0	7,500	-
TOTAL MINEABLE RESERVES				64,390	45,468

The available mineable reserves have been computed as 64,390 m³ of Rough Stone and 45,468 m³ of Gravel up-to the depth of 26.0 meters from the ground level.

4. MINING :

4.1	Method of mining (opencast / underground)	Open cast Semi-Mechanized Mining with one 6.0 meter bench for Top soil & Gravel followed by 5.0 meter vertical bench with a bench width not less than the bench height. However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mines Act - 1952.
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4.2	Mode of working (mechanized, semi mechanized, manual)	<p>The Rough Stone is proposed to quarry at 5m bench height & width with conventional Opencast Semi-Mechanized Method. The quarry operation involves shallow jack hammer drilling, slurry blasting, loading and transportation of Rough stone and Gravel to the needy nearby crusher units / road formation works. The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.</p> <p>Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, by manually braking and loading the Rough Stone from pithead to the needy crushing units/ civil works for the needy sectors.</p>
4.3	Proposed bench height & width	Height 5.0m & Width 5.0m.
4.4	Indicate the overburden / mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.)	<p>The overburden is in the form of top soil and weathered rock formation, it will be removed during the quarrying operation the same was preserved all along the boundary barrier for afforestation. Hence there is no waste anticipated during the Rough stone quarry operation, The excavated rough stone will be directly loaded into the tippers for selling purpose locally.</p> <p>The Year wise and production Development plan and section indicating the Pit lay out, Green belt development are shown in Plate No-V and presented in the Table-3 as follows.</p>

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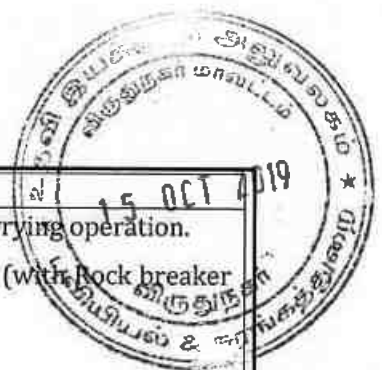


Year wise Production - Table-3

SECTION	YEAR	LENGTH (M)	WIDTH (M)	HEIGHT (M)	ROUGH STONE VOLUME (M ³)	GRAVEL VOLUME (M ³)
A-A' & B-B'	I-Year	48	40	6.0	-	11,520
		41	26	5.0	5,330	-
		36	16	5.0	2,880	-
		31	6	5.0	930	-
A-A' & C-C'	I-Year	17	69	6.0	-	7,038
		10	55	5.0	2,750	-
		5	45	5.0	1,125	-
I - YEAR PRODUCTION					13,015	18,558
A-A' & C-C'	II-Year	17	69	6.0	-	7,038
		17	55	5.0	4,675	-
		17	45	5.0	3,825	-
		17	35	5.0	2,975	-
		12	25	5.0	1,500	-
II - YEAR PRODUCTION					12,975	7,038
A-A' & C-C'	III-Year	16	69	6.0	-	6,624
		16	55	5.0	4,400	-
		16	45	5.0	3,600	-
		16	35	5.0	2,800	-
		16	25	5.0	2,000	-
III - YEAR PRODUCTION					12,800	6,624
A-A' & C-C'	IV-Year	16	69	6.0	-	6,624
		16	55	5.0	4,400	-
		16	45	5.0	3,600	-
		16	35	5.0	2,800	-
		16	25	5.0	2,000	-
IV - YEAR PRODUCTION					12,800	6,624
A-A' & C-C'	V-Year	16	69	6.0	-	6,624
		16	55	5.0	4,400	-
		16	45	5.0	3,600	-
		16	35	5.0	2,800	-
		16	25	5.0	2,000	-
V - YEAR PRODUCTION					12,800	6,624
TOTAL PRODUCTION FOR FIVE YEARS					64,390	45,468

The applicant has proposed to carry out **64,390 m³** of Rough Stone and **45,468 m³** of Gravel production for the period of **FIVE** years.

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4.5	Machineries to be used a) For mining	Type of machineries proposed for quarrying operation. Excavator of 0.90Cbm bucket capacity (with rock breaker attachment) Jack hammers 30-32mm dia Tractor mounted compressor (2 jack hammer capacity).												
	b) Loading equipment	Excavator of 0.90Cbm bucket capacity (with bucket attachment)												
	c)Transportation (includes within the mine and mine to destination)	Tipper 1 No of 10/20 tons capacity (from quarry to needy peoples & local crushers).												
4.6	Disposal of overburden / waste	The overburden is in the form of top soil and weathered rock formation. It will be quarried for filling purposes to nearby end users and part of soil will be preserved all along the boundary as barrier for afforestation.												
4.7	Brief note on conceptual mining plan for the entire lease period base on the geological, mining and environmental considerations	Conceptual mining plan is prepared with an object of long term systematic development of benches, layouts, selection of permanent structures, depth of quarrying and ultimate pit dimensions, selection of sites for construction of infrastructure, etc., The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc., The ultimate pit limit (dimension) at the end of lease period is given below: <p style="text-align: center;">Table-4</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Description End of the lease period</th> <th>Length (Max) (m)</th> <th>Width (Max) (m)</th> <th>Depth (Max) (m)</th> </tr> </thead> <tbody> <tr> <td>A-A' & B-B'</td> <td>48</td> <td>40</td> <td>21.0</td> </tr> <tr> <td>A-A' & C-C'</td> <td>82</td> <td>69</td> <td>26.0</td> </tr> </tbody> </table>	Description End of the lease period	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)	A-A' & B-B'	48	40	21.0	A-A' & C-C'	82	69	26.0
Description End of the lease period	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)											
A-A' & B-B'	48	40	21.0											
A-A' & C-C'	82	69	26.0											

Jan. 2019



		<p>Afforestation has been proposed in the 7.5m and 10 m safety barrier by planting Neem, Poovarasu, Tamarind & Pungan trees of native species. All the base-line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out as per the MOEF Norms.</p> <p>Please refer plate No. V & VI.</p>
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5. BLASTING :

5.1	Blasting pattern	<p>The quarrying operation will be carried out by Semi Mechanized Opencast Method in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.</p> <p>Drilling and Blasting :</p> <p>Drilling and blasting parameters are as follows</p> <p>Depth of Each hole : 1.2m-1.5m</p> <p>Diameter of hole : 30-32mm</p> <p>Spacing between holes : 0.5m</p> <p>Burden for hole : 0.5m</p> <p>Pattern of hole : Zigzag</p> <p>Inclination of holes : 80°from horizontal</p> <p>Use of delay detonators : 25 milli-second delays</p> <p>Detonating fuse : "Detonating" Cord</p> <p>Hole pattern : Staggered in two to three rows</p>
5.2	Type of explosives to be used	<p>Small Dia. 25mm Slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. No deep hole drilling or primary blasting is proposed.</p>

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5.3	Measures proposed to minimize ground vibration due to blasting	<p>The quarry is situated more than 1Km from the nearby Villages. Controlled blasting measures will be adopted for minimizing ground vibration and fly of rock. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly of rock.</p> <p>No of Holes = 32Holes Yield = 96Tons Powder factor = 6 tons/Kg of explosives Total explosive required = 16Kg-Slurry explosives Charge/ hole = 0.5 Kg Blasted at day time = 4.30 to 5.30 P.M (or whenever required)</p>
5.4	Storage and safety measures to be taken while blasting	<p>The lessee will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory Foreman/Permit Mines Manager</p>

6. MINE DRAINAGE :

6.1	Depth of water table (based on nearby wells and water bodies)	<p>The quarry operation is proposed up to a depth of 26.0mts below the ground level. The water table is below 60 mts from ground level which is observed from the nearby bore wells and the data obtained from existing panchayat and Private boreholes. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease period.</p>
6.2	Arrangements and places where the mine water is finally proposed to be discharged	<p>Quarry operations are confined well above the water table during the five year plan period or entire lease period.</p> <p>If water is encountered during quarrying inside the pit due to rain water and seepage, the same will be pumped out by 5HP water pumps to the afforestation and Green belt development areas. Besides the water will also be used for dust suppression on haul roads during Haulage of machineries.</p>

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7. OTHER PERMANENT STRUCTURES (also shown in the map) :

7.1	Habitations / village natham	There are no habitations within the Radius of 500m. The nearby village habitations are tabulated in Table - 5- as below.
7.2	Power lines (HT/ LT)	There are no Electric Power line within 50 mts distance from the lease area.
7.3	Water bodies (river, pond, lake, odai, canal etc.,)	There are no water bodies like river, lake, etc., within 50m radius.
7.4	Archaeological / historical monuments	There are no Archaeological / historical monuments within 500m radius from the area.
7.5	Road (NH, SH others)	The approach kutcha road from the quarry lease area connects the village panchayat road between Devipattinam village and NH-744 road south of Devathanam village at a distance of about 1 km south.
7.6	Places of worship	There are no place of worships within the Radius of 500m.
7.7	Reserved forest / forest / social forest / wild life sanctuary etc.	There is no reserved forest or wild life sanctuary with in 10 km radius.

Table-5

SL. NO	DIRECTION	VILLAGE	POPULATION	DISTANCE
1	North	Devathanam	1,200	3.0Km
2	South	Sivagiri Viswanathperi	3,500 1,200	3.0 Km 3.5 Km
3	East	Chokkanathanputhur Melur-Duraisampuram	2,000 1,000	2.5 Km 3.0 Km
4	West	Devipattanam	1,500	1.5 Km

For Ref: PV



Table-6

Nearest infrastructures :

Sl. No	Name of infrastructure	Name of village	Distance from area applied for M.L
1	Post office	Chokkanathanputhur S.O Pin:626 121.	2.5 Km
2	Police station	Seithur	5.0 Km
3	Town	Rajapalayam	13.0 Km
4	DSP office	Rajapalayam	13.0 Km
5	Union	Rajapalayam	13.0 Km
6	Hospital	Chokkanathanputhur Sivagiri	2.5 Km 3.0 Km
7	School	Chokkanathanputhur	2.5 Km
8	Railway station	Rajapalayam	13.0 Km
9	Panchayat	Chokkanathanputhur	2.5 Km
10	Airport	Madurai	100 Km
11	Sea Port	Thoothukudi	120 Km

8. EMPLOYMENT POTENTIAL & WELFARE MEASURES :

8.1	Employment potential (skilled, semi skilled, unskilled)	<p>a. Skilled labour</p> <p>Mine Foreman/ Permit Mines Manager : 1</p> <p>Jack hammer operator : 2</p> <p>Blaster/ mate : 1</p> <p>b. Unskilled- helper : 6</p> <p>Total 10</p> <p>The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations. It is been ensured that no labour will employed less than 21 years (child labours) or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period.</p>
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8.2	Welfare measures	
	a) Drinking water	Packaged drinking water is available from the nearby water vendors in Chokkanathanputhur village which is about 2.5 Km east of the area.
	b) Sanitary facilities	Sanitary facilities are available and will be refurbished with in the quarry lease area as permanent structure and it will be maintained periodically.
	c) First Aid facility	First aid kits will be kept in Mines office room, in case of such eventualities, the victim will be given first aid immediately at the site and injured person will be taken to the hospital. Hospitals are available at distance of 2.5/3.0 Kms in Chokkanathanputhur / Sivagiri GH respectively. The competent and Statutory Foreman/ Permit Manager will be in charge of first aid.
	d) Labor Health	Periodically medical checkup related to occupational health safety will be conducted to all the workers in lessee's cost.
	e)Precautionary safety measures to the laborers	All the quarry workers will be provided with safety equipments like helmets, Mine Goggles, Ear plugs, Ear muffs, Dust mask, reflector jackets and Safety Shoes as personal protective device as per the specification approved by Director of Mines Safety. Periodically medical checkup will be conducted for all workers for any mine health related problems. Proper training and induction will be given by qualified and experienced safety officer to all employees about the safe and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically to carry out the quarrying operations scientifically to safe guard the men machinery and mineral and to create awareness of conventional opencast quarrying operations.

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PART — B

9. ENVIRONMENT MANAGEMENT PLAN :

9.1	Existing land use pattern	<p>The lease area is plain terrain with gentle undulations. There are mango, coconut, neem plantations south of the area with intermittent dry crops cultivation during rainy season available within 500 m radius and the proposed lease area.</p> <p>The land use pattern at present:</p> <table border="0"> <tr> <td>Mining / Excavation</td> <td align="right">- 0.00.0 Hectares</td> </tr> <tr> <td>Storage of top soil & weathered rock</td> <td align="right">- 0.00.0 "</td> </tr> <tr> <td>Stocking & Mineral Dressing Yard</td> <td align="right">- 0.00.0 "</td> </tr> <tr> <td>Infrastructure</td> <td align="right">- 0.01.0 "</td> </tr> <tr> <td>Mine Road</td> <td align="right">- 0.03.0 "</td> </tr> <tr> <td>Afforestation & Mine safety</td> <td align="right">- 0.36.5 "</td> </tr> <tr> <td>Future Mining</td> <td align="right">- 0.70.0 "</td> </tr> <tr> <td align="right">Total</td> <td align="right">1.10.5 Hectares</td> </tr> </table> <p>There are five other quarries existing within 500 mts radius from this proposed site. Please refer Annexure-IX.</p>	Mining / Excavation	- 0.00.0 Hectares	Storage of top soil & weathered rock	- 0.00.0 "	Stocking & Mineral Dressing Yard	- 0.00.0 "	Infrastructure	- 0.01.0 "	Mine Road	- 0.03.0 "	Afforestation & Mine safety	- 0.36.5 "	Future Mining	- 0.70.0 "	Total	1.10.5 Hectares
Mining / Excavation	- 0.00.0 Hectares																	
Storage of top soil & weathered rock	- 0.00.0 "																	
Stocking & Mineral Dressing Yard	- 0.00.0 "																	
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Mine Road	- 0.03.0 "																	
Afforestation & Mine safety	- 0.36.5 "																	
Future Mining	- 0.70.0 "																	
Total	1.10.5 Hectares																	
9.2	Water regime	<p>Ground water table in this area is below 60 mts from ground level. The quarrying is up to a maximum depth of 26 m below the ground level. Hence the quarry operation will not be affected by the ground water.</p>																
9.3	Flora and fauna	<p>There are no trees observed within the proposed lease area. Thorny bushes and few Palm trees are found in around the area. No plants of Botanical interest or Animals of zoological interest are noticed. There are dry crop cultivations like maize (mainly), pulses, grains etc., found within the 500 m radius.</p>																
9.4	Climatic conditions	<p>The area receives annual rainfall of about 835mm and the rainy season is mainly from Oct. - Dec. during North East monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 23°C.</p>																

For Ref. J.P.V



9.5	Human settlement	<p>There are few villages located in this area within 5km radius, the approximate distance and population are given in Table - 5 as above.</p> <p>Basic human welfare Amenities such as Health Center, Schools, Communication Facilities, and Commercial Centers etc are available at Chokkanathanputhur and Sivagiri villages located at a distance of 2.5 and 3.0 kms respectively.</p>
9.6	Plan for air, dust suppression	<p>The Air quality will be affected during the quarrying period due to blasting and jack hammer drilling, which will be within prescribed limits. Mist Water spraying will be carried out to suppress dust.</p>
9.7	Plan for noise level control	<p>Shallow holes of 32mm diameter and 1.5 feet depth will be drilled and conventional low power explosives such as Slurry Explosives, ordinary safety fuse only will be used for rough stone. Hence, ground vibration and noise pollution will be minimal and restricted within the quarry workings. Noise level monitoring and other Mitigation measures will be carried out to reduce Noise and Vibration. The drivers will be strictly instructed to move the vehicle during the transportation not exceeding 40 km per hour. Sentries with flags & whistle will be posted in village junction and regulate traffic.</p>
9.8	Environmental impact assessment statement describing impact of mining on the next five years	<p>The mining plan is for a small production of Rough stone without involving deep hole drilling and heavy blasting. Such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned. Anyhow periodical quarterly environmental impact studies will be conducted as per EIA notification issued by MOEF. This quarry comes under B2 Category mine.</p>
9.9	Proposal for waste management	<p>The Air quality will be affected during the quarrying period due to blasting and jack hammer drilling, which will be controlled by spraying Mist Water to suppress dust.</p>

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

Shallow holes of 32mm diameter and 1.5 feet depth will be drilled and conventional low power explosives such as Slurry Explosives, ordinary safety fuse only will be used for rock stone. Hence, ground vibration and noise pollution will be minimal and restricted within the quarry workings. The drivers will be strictly inducted to move the vehicle during the transportation not exceed 40 km per hour. Sentries with flags & whistle will posted in village junction and populated area to control and regulate traffic.

9.11 Programme of afforestation (indicate extend, number, name of species to be afforested)

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

Table - 6

Year	No. of trees proposed to be planted	Survival %	Name of the species
1	75	80%	Neem/Pungan
2	75	80%	Tamarind
3	75	80%	Poovarasu
4	75	80%	Neem/Pungan
5	75	80%	Tamarind

9.12 Proposed financial estimate / budget for (EMP) environment management:

(a) Project cost / Investment cost :

S. No	DETAILS	COST in Rs. /-
i)	Lease rent of Land Cost	Own patta land
ii)	Machinery to be used	Hired machinery
iii)	Fencing	1,50,000
iv)	Labourers Shed	40,000
v)	Sanitary facility	40,000
vi)	Other Items	20,000
TOTAL		2,50,000

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(b) Expenditure/ PRODUCTION COST. (1Unit= 2.83m³)

- i) Drilling and Blasting cost / unit production including loading & breaking. = Rs.140/-
 - ii) Mining cost for rough stone up to 5 Years planned production quantity
 Total Movable quantity in M³ - 64,390 M³ (22,753 Units)
 Total cost of mining Rough Stone = 22,753 X Rs. 140
 = Rs. 31,85,420/-
 - iii) Mining cost for gravel up to 3 Years planned production quantity
 Total Movable quantity in M³ - 45,468 M³ (16,066 Units)
 Total cost of mining - Gravel = 16,066 X Rs. 60/-
 = Rs. 9,63,960/-
- Total Cost for Mining - Rs. 41,49,380/-**

(HSD required for the entire project estimated as 30,800 lts)

(c) EMP Cost :

Sl. No.	DETAILS	COST per DAY (Rs.)	COST per MONTH (Rs.)	TOTAL COST for LEASE PERIOD (Rs.)
i)	Drinking Water facility for Labourers	50	-	75,000
ii)	Sanitary maintenance	-	600	36,000
iii)	Safety kits	-	500	30,000
iv)	Water Sprinkling	-	1,500	90,000
v)	Afforestation, Plantation & Maintenance	-	-	40,000
vi)	CER @1% of production cost	-	-	42,000
TOTAL				3,13,000

Investment Cost = Rs. 2,50,000/-
 Mining Cost up to lease period = Rs. 41,49,380/-
 Total EMP Cost = Rs. 3,13,000/-

GRAND TOTAL PROJECT COST = Rs. 47,12,380/-

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10. MINE CLOSURE PLAN :

10.1	Steps proposed for phased restoration, reclamation of already mined out areas	There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of the life of lease will be fenced to prevent inherent entry of public and cattle's and will be used for Rain Water harvesting.
10.2	Measures to be under taken on mine closure as per Act & Rules	Measure will be taken as per Act & Rules, there is no proposal for back filling, reclamation and rehabilitation. The quarry pit will be fenced by barbed wire to prevent inherent entry of public and cattle. The quarried out pit will be allowed to collect rain water which will act as a reservoir for storage and acts as recharge pit for ground water which will enhance the static water level of nearby wells.
10.3	MITIGATION MEASURE TO BE UNDERTAKEN FOR SAFETY AND RESTORATION / RECLAMATION OF THE ALREADY MINED OUT AREA.	
	AIR QUALITY: Air quality will be degrade due to the drilling, blasting, mining operation and transportation.	Mitigation measures: Drilling will be carried out by wet drilling mode to control the dust propagation into the air. Blasting will be carried out on limited scale. Mist Water spraying on haul road is proposed to prevent the dust propagation into the air.
	NOISE AND VIBRATION: The noise will be formed due to the drilling, blasting, loading and movement of Machineries.	The applicant has proposed to carry out the plantation all along the boundary to prevent Noise besides wet drilling will be practiced to prevent dust. All the machineries will be maintained in good conditions as per RTO and TNPCB Norms to prevent Noise, Smoke and vibration to maintain noise levels below 80dB.

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<p>WATER REGIME :</p>	<p>Drinking water (@5lts per person per day total 10 lts a day) will be purchased from nearby purified water suppliers at Chokkanathanputhur village and 200lts domestic use, for toilets, 1000 lts for haul road sprinklings and 500 lts for greenbelt area. Total water requirement of 1700 lts sourced from nearby bore wells. The quarry operation (26.0m depth below Ground level) is well above the water table (below 60 mts from ground level), hence the water table will not be affected in any manner. The seepage and rain water will be drained out from the pit by 5H.P motor pump and will be discharged through filter media to boundary barrier for afforestation and excess water will be sprayed on haul roads to prevent dust propagation in to the atmosphere.</p>
<p>HUMAN HEALTH & SAFETY: Dust will be limited due to the mine operation.</p>	<p>All the laborers will be provided with safety equipment's like helmet, Safety Goggles, Ear muff, Hand gloves, safety jacket, safety belt, and Mine boots etc., at applicant's cost, as per the specifications of Director of mines safety. The competent qualified person foreman/Permit Mines Manager will provide first aid and will take care of small & minor injuries. If any accident happens, the victim will be taken to the nearby hospital by the applicants van which is always kept in the mines office. The hospitals are at about 2.5 kms in Chokkanathanputhur village.</p>

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11. ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT:

This mining plan for Rough stone (Charnockite) is prepared as per the Draft Minor Mineral Conservation and Development Rules, 2010 and amendment by the Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied with, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.

Place : Virudhunagar
Date : 10.07.2019

R. Gururamachandran
RQP SIGNATURE
R.GURURAMACHANDRAN, M.Sc.,
Recognized Qualified Person
Reg.No: RQP / MAS / 224 / 2010 / A

[Signature]
ASSISTANT DIRECTOR
GEOLOGY AND MINING
VIRUDHUNAGAR DIST,
VIRUDHUNAGAR.

S. P. 15/10/19

126 *[Handwritten signature]*

புவியியல் மற்றும் சுரங்கத்துறை

ந.க. எண்: கேவி1/932/2018-கனிமம்,

மாவட்ட ஆட்சியர் அலுவலகம்

விருதுநகர்.

நாள்: 01.06.2019



குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம், இராஜபாளையம் வட்டம் - மேலூர்துரைச்சாமிபுரம் கிராமம் பட்டா எண்.443 புலஎண்கள்.293/1A(P) (0.53.0), 293/2B(P) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு நிலங்களில் 5 வருடங்களுக்கு உடைக்கல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக்கோரியுள்ளது - சுரங்கத்திட்டம் மற்றும் மாவட்ட அளவிலான சுற்றுச்சூழல் பாதுகாப்பு தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப்பெற்று சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:
1. திரு.கே.ஏ.இராஜகோபால் த/பெ.அர்ஜுனராஜா, 24E, குண்டூர்மூர்த்தி தெரு, இராஜபாளையம், விருதுநகர் மாவட்டம் என்பவரது விண்ணப்ப நாள்:27.12.2018
 2. இவ்வலுவலக கடிதம் எண் ந.க.கேவி1/932/2018, நாள்:31.12.2018
 3. சாத்தூர் வருவாய் கோட்டாட்சியர் கடிதஎண் மூ.மு.அ2/752/2019 நாள்:06.03.2019.
 4. உதவி புவியியலாளர் (கனிமம்) அவர்களின் புலத்தணிக்கை அறிக்கை நாள் : 18.03.2019
 5. தொடர்புடைய ஆவணங்கள்.

விருதுநகர் மாவட்டம், இராஜபாளையம் வட்டம் மற்றும் நகரம், 24E, குண்டூர்மூர்த்தி தெரு என்ற முகவரியைச் சேர்ந்த திரு.கே.ஏ.இராஜகோபால் த/பெ.அர்ஜுனராஜா என்பவர், விருதுநகர் மாவட்டம், இராஜபாளையம் வட்டம், மேலூர்துரைச்சாமிபுரம் கிராமம் பட்டா எண்.443 புலஎண்கள்.293/1A(P) (0.53.0), 293/2B(P) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு நிலங்களில் ஐந்து வருடங்களுக்கு உடைக்கல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி பார்வை 1-ல் காணும் மனுவில் விண்ணப்பம் செய்துள்ளார்.

சாத்தூர் வருவாய் கோட்டாட்சியர் மற்றும் உதவி புவியியலாளர் (கனிமம்) ஆகியோர் கீழ்க்காணும் நிபந்தனைகளுக்குட்பட்டு பரிந்துரை செய்துள்ளனர்.

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.

- 2) அருகிலுள்ள அரசு புறம்போக்கு நிலங்களுக்கு 10மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 3) அருகிலுள்ள குவாரிகளுக்கு போதுமான பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 4) குவாரி கழிவுகளை குத்தகை உரிமம் வழங்கப்படும் பகுதிக்கு உள்ளேயே இருப்பு வைக்க வேண்டும்.
- 5) வெடிமருந்தினை விதிகளின்படி பாதிப்பு ஏற்படா வண்ணம் பயன்படுத்த வேண்டும்.
- 6) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.

மேற்கூறிய அலுவலர்களின் பரிந்துரையினை ஏற்றும் நிபந்தனைகளுக்குட்பட்டும், விருதுநகர் மாவட்டம், இராஜபாளையம் வட்டம், மேலூர் துரைச்சாமிபுரம் கிராமம் பட்டா எண்.443 புலஎண்கள்-293/1A(P) (0.53.0), 293/2B(P) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு நிலங்களில் 1959ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் விதி எண்: 19 மற்றும் 20-ன்படி ஐந்து வருடகாலத்திற்கு உடைகல் மற்றும் கிராவல் குவாரி பணி செய்ய தகுதி வாய்ந்த நிலப்பரப்பாக கருதப்படுகிறது.

மேலும் தமிழ்நாடு சிறுகனிம சலுகை விதிகள்-1959 விதி எண்:41ன்படி குவாரி பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்கத் திட்டத்தினை (Mining Plan) 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், விதி எண்: 42-ன்படி மாவட்ட அளவிலான சுற்றுச்சூழல் பாதுகாப்பு தாக்க மதிப்பீட்டு ஆணையத்தின் (District Level Environmental Impact Assessment Authority Clearance) இசைவினைப் பெற்று சமர்ப்பிக்குமாறும் மனுதாரர் கேட்டுக் கொள்ளப்படுகிறார்.

ஆணைப்படி/அனுப்பப்படுகிறது

(ஓம்) அ. சிவஞானம்,
மாவட்ட ஆட்சியர்
விருதுநகர்

மாவட்ட ஆணையர்க்காக
விருதுநகர்

பெறுநர்
திரு.கே.ஏ.இராஜகோபால்
த/பெ.அர்ஜுனராஜா,
24E, குண்டுர்மூர்த்தி தெரு,
இராஜபாளையம்.

31/6/15

விருதுநகர் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர்
உதவி புவியியலாளர் தொழில்நுட்ப அறிக்கை



1)	குத்தகை உரிமம் கோரிய விண்ணப்பம் பெறப்பட்ட தேதி	:	27.12.2018			
2)	அ) புலத்தணிக்கை செய்த நாள்	:	18.03.2019			
	ஆ) புலத்தணிக்கையின்போது உடனிருந்த அலுவலர்கள் பற்றிய விவரம்	:	உதவி புவியியலாளர் (கனிமம்) புவியியல் மற்றும் சுரங்கத்துறை விருதுநகர்.			
3)	குத்தகை உரிமம் கோரும் விண்ணப்பதாரரின் பெயர் மற்றும் முகவரி	:	திரு.கே.ஏ.இராஜகோபால் த/பெ.அர்ஜுனராஜா, 24E, குண்டுமூர்த்தி தெரு, இராஜபாளையம்.			
4)	குத்தகை உரிமம் கோரும் கனிமங்களின் பெயர்	:	உடைகல் மற்றும் கிராவல்			
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 (ஹெக்டேர்)	குத்தகை உரிமம் கோரும் பரப்பு (ஹெக்டேர்)	வகைப்பாடு
1)	இராஜபாளையம்	மேலூர் துரைச்சாமிபுரம்	293/1A(P) 293/2B(P)	0.53.0, 0.57.5	0.53.0, 0.57.5	பட்டா
			மொத்தம்	1.10.5	1.10.5	
7)	அ) குத்தகை உரிமம் கோரும் புல எண்கள், விண்ணப்பதாரரின் பெயரில் பட்டா நிலங்களாக இருப்பின் அது பற்றிய விவரம்	:	குத்தகை உரிமம் கோரும் புலஎண்கள். 293/1A(P), 293/2B(P) பட்டா எண்.443-ல் கொட்டிமுக்கலூர் ஜி.அர்ஜுனராஜா மகன் கே.ஏ.இராஜகோபால் என்பவர் பெயரில் தாக்கலாகி உள்ளது.			
	ஆ) பட்டாதாரரிடமிருந்து குத்தகை ஒப்பந்தம் பெறப்பட்டிருப்பின் அதுபற்றிய விவரம்.	:	வினா எழவில்லை			
	இ) குத்தகை கோரும் புல எண்கள் தாழ்த்தப்பட்டோர்/ பழங்குடியினருக்கு ஒதுக்கீட்டின் அடிப்படையில் பட்டா வழங்கப்பட்டிருப்பின் அதுபற்றிய விவரம்.	:	-இல்லை-			
8	குத்தகை கோரும் கனிமங்களின் புவியியலமைப்பு பற்றிய விவரம்	:	குத்தகை கோரும் புலஎண்கள் மேடு பள்ளமாக உள்ளது.விண்ணப்பதாரர்			

		<p>அனுமதி கோரியுள்ள புலஎண்களில் சராசரியாக 1 மீட்டர் ஆழத்திற்கு மண் மற்றும் 5.00 மீட்டர் ஆழத்திற்கு கிராவல் இருப்பது தெரியவருகிறது. அதற்கு கீழே 20 மீட்டர் ஆழத்திற்கு சார்னகைட் வகை பாறை படிவம் அமைந்துள்ளது. மேற்படி புலஎண்களில் குத்தகை உரிமம் கோரி விண்ணப்பித்துள்ள புலஎண்களில் கிடைக்கும் கிராவல் சாலைகள் அமைப்பதற்கும் பள்ளங்களை நிரப்புவதற்கும், சார்னகைட்வகை பாறைகளிலிருந்து வெட்டி எடுக்கப்படும் ஜல்லி, உடைகல் மற்றும் கட்டுக்கற்கள் சாலைப் பணிகளிலும், கட்டுமானப் பணிகளிலும் பயன்படுத்த ஏதுவான பாறையாக இருப்பதால் அதற்கு மேற்படி கனிமங்களை உபயோகப்படுத்த வாய்ப்புள்ளது. கிராவல் மற்றும் உடைகற்கள் விண்ணப்பித்துள்ள புலஎண்களில் பாதுகாப்பு இடைவெளி நீங்களாக கீழ்க்கண்ட பரப்பளவில் வெட்டி எடுக்கலாம் என கணக்கீடு செய்யப்பட்டுள்ளது. அதன் விவரம் வருமாறு. உடைகல் மற்றும் ஜல்லி 10000 ச.மீ. (1.10.5 x 20மீ =2,21,000 மீ) கிராவல் 10000 ச.மீ. (1.10.5x5மீ=5,52,50 மீ)</p>															
9	குத்தகை உரிமம் கோரும் புல எண்களின் நான்கு எல்லைகள் பற்றிய விவரம்.																
	<table border="1"> <thead> <tr> <th>புல எண்கள்</th> <th>வடக்கு</th> <th>தெற்கு</th> <th>கிழக்கு</th> <th>மேற்கு</th> </tr> </thead> <tbody> <tr> <td>293/1A(P)</td> <td>புலஎண். 294</td> <td>புலஎண்.293/2B</td> <td>புலஎண். 293/1B, 292</td> <td>புலஎண்.297</td> </tr> <tr> <td>293/2B(P)</td> <td>புலஎண்.293/1A</td> <td>புலஎண்.302</td> <td>புலஎண்.292</td> <td>புலஎண். 297</td> </tr> </tbody> </table>	புல எண்கள்	வடக்கு	தெற்கு	கிழக்கு	மேற்கு	293/1A(P)	புலஎண். 294	புலஎண்.293/2B	புலஎண். 293/1B, 292	புலஎண்.297	293/2B(P)	புலஎண்.293/1A	புலஎண்.302	புலஎண்.292	புலஎண். 297	
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293/1A(P)	புலஎண். 294	புலஎண்.293/2B	புலஎண். 293/1B, 292	புலஎண்.297													
293/2B(P)	புலஎண்.293/1A	புலஎண்.302	புலஎண்.292	புலஎண். 297													
10	குத்தகை உரிமம் கோரும் புல எண்களுக்கு ஏற்கனவே குத்தகை உரிமம் வழங்கப்பட்டிருப்பின் அது பற்றிய விவரம்.	-இல்லை-															
11	குத்தகை உரிமம் கோரும் புல எண்களுக்கு அருகில் பாதுகாப்பு இடைவெளிக்குள் அமைந்துள்ள நிரந்தர அமைப்புகள், ஒதுக்கப்பட வேண்டிய பாதுகாப்பு இடைவெளி பற்றிய விவரம்	புலஎண்.301 மற்றும் புலஎண்.302 செயல்படும் குவாரிகள் உள்ளது.															

12	அ) குத்தகை உரிமம் கோரும் புல எண்களிலிருந்து 300 மீட்டர் சுற்றளவுக்குள் குடியிருப்பு பகுதிகள் / அங்கீகரிக்கப்பட்ட வீட்டுமனைப்பிரிவுகள் மற்றும் புராதனச்சின்னங்கள் அமைந்துள்ள விவரம்.	300 மீட்டர் சுற்றளவுக்குள் குடியிருப்பு பகுதிகள் அங்கீகரிக்கப்பட்ட வீட்டுமனைப்பிரிவுகள் மற்றும் புராதனச்சின்னங்கள் ஏதும் இல்லை.
	ஆ) குத்தகை உரிமம் கோரும் பகுதிக்கு பாதை வசதி உள்ளது பற்றிய விவரம்	பாதை வசதி உள்ளது.
13	குத்தகை உரிமம் கோரும் புல எண்கள் அமைந்துள்ள கிராமம், மலையிடை பாதுகாப்பு குழுமத்தின் கீழ் வருவது மற்றும் தடையில்லா சான்று பெறவேண்டியது பற்றிய விவரம்.	-இல்லை-
14	குத்தகை உரிமம் கோரும் பகுதி வனவிலங்கு சரணாலயத்திலிருந்து அமைந்துள்ள தூரம், பெறப்பட வேண்டிய தடையில்லா சான்று பற்றிய விவரம்.	-இல்லை-
15	குத்தகை கோரும் புல எண்களில் தகுந்த அனுமதியின்றி ஏற்கனவே கனிமங்கள் எடுக்கப்பட்டு அபராதம் விதிக்கப்பட்டிருப்பின் அது பற்றிய விவரம்.	-இல்லை-
16	அ) குத்தகை உரிமம் கோரும் புலங்களின்பேரில் நிலம் கையகப்படுத்தும் நடவடிக்கைகள் இருப்பின் அதுபற்றிய விவரம்.	-இல்லை-
	ஆ) குத்தகை உரிமம் கோரும் புல எண்களின் பேரில் நீதி மன்றத்தில் வழக்குகள் இருப்பின் அதுபற்றிய விவரம்.	-இல்லை-
17	கிராம நிர்வாக அலுவலரின் வாக்குமூலம் பெறப்பட்டுள்ளதா?	கிராம நிர்வாக அலுவலரிடம் 22.01.2019 அன்று வாக்குமூலம் பெறப்பட்டுள்ளது.
18	குத்தகை உரிமம் வழங்குவது தொடர்பாக 'அ1' விளம்பரம் செய்யப்பட்டு பொதுமக்களிடமிருந்து ஆட்சேபனை ஏதும் பெறப்பட்டுள்ளதா?	"அ1" விளம்பரம் 11.01.2019 அன்று செய்யப்பட்டு ஆட்சேபனைகள் ஏதும் வரப்பெறவில்லை.
19	குத்தகை உரிமம் கோரும் புல எண்களின்பேரில் வருவாய் துறை பரிந்துரை செய்துள்ளதா?	இராஜபாளையம் வருவாய் வட்டாட்சியர், சாத்தூர் வருவாய் கோட்டாட்சியர் ஆகியோர் மனுதாரருக்கு குத்தகை உரிமம் வழங்க பரிந்துரை செய்துள்ளார்.



அனுப்புநர்:

திரு. ஆ.காளிமுத்து., எம்.ஏ.,
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சாத்துார்.

பெறுநர்:

மாவட்ட ஆட்சியர்,
விருதுநகர்.

மூ.மு. அ2 / 752 / 2019, நாள்: 03.2019.

அய்யா,

பொருள் :

கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம் -
இராஜபாளையம் வட்டம் - துரைச்சாமிபுரம் கிராமம் - பட்டா
எண். 443 - புல எண்கள். 293/1ஏ (ப) (0.53.0), 293/2பி (ப)
(0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு
நிலங்களில் 5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல்
கற்குவாரி உரிமம் வழங்கக் கோரியுள்ளது - கருத்துரு
அனுப்புதல் - தொடர்பாக

பார்வை:

1. விருதுநகர் மாவட்ட ஆட்சித்தலைவர் அவர்களின்
கடிதம் எண் ந.க கேவி1/932/2018, நாள்: 31.12.2018.
2. இராஜபாளையம், வட்டாட்சியர் கடித எண். ந.க.
அ1/296/2018, நாள்: 09.02.2019.

இராஜபாளையம் வட்டம் மற்றும் நகரம், குண்டூர் மூர்த்தி தெரு என்ற முகவரியைச் சேர்ந்த
திரு.கே.ஏ.இராஜகோபால் என்பவர், இராஜபாளையம் வட்டம், மேலூர் துரைச்சாமிபுரம் கிராமம், பட்டா
எண்.443, புல எண்கள்.293/1ஏ (ப) (0.53.0), 293/2பி (ப) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு
நிலங்களில் 5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி
விண்ணப்பித்துள்ளது தொடர்பாக 27.02.2019 அன்று புலத்தணிக்கை செய்து எனதறிக்கையினை
கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

இராஜபாளையம் வட்டம், மேலூர் துரைச்சாமிபுரம் கிராமம், பட்டா எண்.443, புல எண்.293/1A(P)
- 0.53.0, 293/2B(P) - 0.57.5 ஆக மொத்தம் 1.10.5 ஹெக்டேர் பரப்பு நிலங்களில் உள்ள புலங்கள்
கிராமக் கணக்கில் கீழ்க்கண்டவாறு தூக்கலாகியுள்ளது.

புல எண்	விஸ்தீரணம் (ஹெக்டேர்ஸ்)	பட்டா எண் மற்றும் பட்டாதாரர் பெயர்
293/1ஏ	1.59.0	443, கொட்டி முக்கலூர் ஜி.ஆர்ஜீனாராஜா மகன் கே.ஏ.இராஜகோபால்
293/2பி	0.91.0	

மேற்படி புலம் அமைந்துள்ள இடத்தினை பார்வையிடப்பட்டதில், மேற்படி புலத்தை சுற்றி 300
சுற்றளவில் குடியிருப்பு பகுதிகள் ஏதும் இல்லை. 500 மீட்டர் சுற்றளவில் மேற்படி புலத்தின் மேற்கு
பகுதியில் புல எண்.301 மற்றும் தெற்கு பகுதியில் புல எண்.302 ல் செயல்படும் குவாரிகள் உள்ளது.
உட்புற வரைபடத்தில் அவற்றை குறிப்பிடப்பட்டுள்ளது. இந்த புலத்திற்கு வரும் பாதை மேற்படி புலத்தின்
மேற்கு பகுதியில் மனுதாரருக்கு சொந்தமான புல எண்.297-ல் அமைந்துள்ளது. மேலும், 50 மீட்டர்
சுற்றளவில் சாலைகள், இரயில் இருப்பு பாதைகள், கோவில்கள் மற்றும் புராதானச் சின்னங்கள், மின்
தொடர் கம்பிகள், நீரிநிலை ஆதாரங்கள் மேலும் நிரந்தர அமைப்புகள் ஏதுமில்லை. இது குறித்து பொது
மக்களிடம் "அ1" நோட்டீஸ் விளம்பரம் செய்யப்பட்டதில் ஆட்சேபனை ஏதும் வரப்பெறவில்லை என

கிராம நிர்வாக அலுவலர் அறிக்கை செய்துள்ளார். மேற்படி புலத்தில் உள்ள உடைகல் மற்றும் கிராவல் குவாரி செய்தால் அருகில் உள்ள நிலங்களுக்கு பாதிப்பு ஏற்படும் வாய்ப்பு இல்லை. மேலும் புலத்தின் அருகில் புறம்போக்கு / பட்டா ஒடை எதுவும் கிராமக் கணக்கின்படி இல்லை. எனவே, மேற்படி புல எண்கள் மேலூர் துரைச்சாமிபுரம் கிராமம், இராஜபாளையம் ஊராட்சி ஒன்றியத்தினை சேர்ந்தது ஆகும்.

எனவே, இராஜபாளையம் வட்டம், மேலூர் துரைச்சாமிபுரம் கிராமம், பட்டா எண்.443, புல எண்கள்.293/1ஏ (ப) (0.53.0), 293/2பி (ப) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர் நிலத்தில் அருகில் உள்ள பட்டா நிலங்களுக்கு போதிய பாதுகாப்பு தூரம் விடுத்து 1959-ம் வருடத்திய தமிழ்நாடு சிறுகணிம விதிகளின்படி திரு.கே.ஏ.இராஜகோபால் என்பவருக்கு மேற்படி நிலங்களில் 5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கலாம் என்பதைப் பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு: தொடர்புடைய ஆவணங்கள்.

வருவாய்க்கோட்டாளியர்
சாத்தூர்

சாத்தூர்

சாத்தூர்



புலத்தணிக்கைக்குறிப்பு

புலத்தணிக்கை அலுவலர் பெயர் மற்றும் பதவி	திரு. ஆ.காளிமுத்து, எம்.ஏ., வருவாய் கோட்டாட்சியர், சாத்தூர்.
தணிக்கை செய்த இடம்	இராஜபாளையம் வட்டம், மேலூர் துரைச்சாமிபுரம் கிராமம்
புல எண்கள்	புல எண்கள். 293/1ஏ (ப) (0.53.0), 293/2பி (ப) (0.57.5) ஹெக்.
தணிக்கை நாள்	27.02.2019
புலத்தணிக்கையின் நோக்கம்	5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரியது தொடர்பாக.

இராஜபாளையம் வட்டம் மற்றும் நகரம், குண்டூர் மூர்த்தி தெரு என்ற முகவரியைச் சேர்ந்த திரு.கே.ஏ.இராஜகோபால் என்பவர், இராஜபாளையம் வட்டம், மேலூர் துரைச்சாமிபுரம் கிராமம், பட்டா எண்.443, புல எண்கள்.293/1ஏ (ப) (0.53.0), 293/2பி (ப) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு நிலங்களில் 5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி விண்ணப்பித்துள்ளது தொடர்பாக 27.02.2019 அன்று புலத்தணிக்கை செய்து எனத்தணிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

இராஜபாளையம் வட்டம், மேலூர் துரைச்சாமிபுரம் கிராமம், பட்டா எண்.443, புல எண்.293/1A(P) - 0.53.0, 293/2B(P) - 0.57.5 ஆக மொத்தம் 1.10.5 ஹெக்டேர் பரப்பு நிலங்களில் உள்ள புலங்கள் கிராமக் கணக்கில் கீழ்க்கண்டவாறு தாக்கலாகியுள்ளது.

புல எண்	விஸ்தீரணம் (ஹெக்டேர்ஸ்)	பட்டா எண் மற்றும் பட்டாதாரர் பெயர்
293/1ஏ	1.59.0	443, கொட்டி முக்கலூர் ஜி.ஆர்ஜீனராஜா மகன் கே.ஏ.இராஜகோபால்
293/2பி	0.91.0	

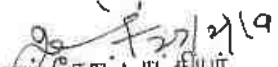
மேற்படி புலம் அமைந்துள்ள இடத்தினை பார்வையிடப்பட்டதில், மேற்படி புலத்தை சுற்றி 300 சுற்றளவில் குடியிருப்பு பகுதிகள் ஏதும் இல்லை. 500 மீட்டர் சுற்றளவில் மேற்படி புலத்தின் மேற்கு பகுதியில் புல எண்.301 மற்றும் தெற்கு பகுதியில் புல எண்.302-ல் செயல்படும் குவாரிகள் உள்ளது. கூட்டு வரைபடத்தில் அவற்றை குறிப்பிடப்பட்டுள்ளது. இந்த புலத்திற்கு வரும் பாதை மேற்படி புலத்தின் மேற்கு பகுதியில் மனுதாரருக்கு சொந்தமான புல எண்.297-ல் அமைந்துள்ளது. மேலும், 50 மீட்டர் சுற்றளவில் சாலைகள், இரயில் இருப்பு பாதைகள், கோவில்கள் மற்றும் புராதானச் சின்னங்கள், மின் தொடர் கம்பிகள், நீரிநிலை ஆதாரங்கள் மேலும் நிரந்தர அமைப்புகள் ஏதுமில்லை. இது குறித்து பொது மக்களிடம் "அ1" நோட்டீஸ் விளம்பரம் செய்யப்பட்டதில் ஆட்சேபனை ஏதும் வரப்பெறவில்லை என கிராம நிர்வாக அலுவலர் அறிக்கை செய்துள்ளார். மேற்படி புலத்தில் உள்ள உடைகல் மற்றும் கிராவல் குவாரி செய்தால் அருகில் உள்ள நிலங்களுக்கு பாதிப்பு ஏற்படும் வாய்ப்பு இல்லை. மேலும் புலத்தின்

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செ. சிவசுப்பிரமணியன்

அருகில் புறம்போக்கு / பட்டா ஓடை எதுவும் கிராமக் கணக்கின்படி இல்லை. எனவே, மேற்படி புல
எண்கள் மேலூர் துரைச்சாமிபுரம் கிராமம், இராஜபாளையம் ஊராட்சி ஒன்றியத்தினை சேர்ந்தது ஆகும்.

எனவே, இராஜபாளையம் வட்டம், மேலூர் துரைச்சாமிபுரம் கிராமம், பட்டா எண்.443, புல
எண்கள்.293/1ஏ (ப) (0.53.0), 293/2பி (ப) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர் நிலத்தில் அருகில்
உள்ள பட்டா நிலங்களுக்கு போதிய பாதுகாப்பு தூரம் விடுத்து 1959-ம் வருடத்திய தமிழ்நாடு சிறுகணிப்பு
விதிகளின்படி திரு.கே.ஏ.இராஜகோபால் என்பவருக்கு மேற்படி நிலங்களில் 5 வருடங்களுக்கு உடைகல்
மற்றும் கிராவல் குவாரி உரிமம் வழங்கலாம் என்பதைப் பணிவுடன் தெரிவித்துக்கொள்கிறேன்.


வருவாய் கோட்டாட்சியர்
சாத்தூர்.

அனுப்புநர்

திரு. பா. இராமச்சந்திரன், பி.ஏ. பி.எல்.,
வருவாய் வட்டாட்சியர்,
இராஜபாளையம்

பெறுநர்

மாவட்ட ஆட்சியர்,
விருதுநகர் மாவட்டம்,
விருதுநகர்.



ந.க.அ1/296/2018, நாள்: 09.02.2019

ஐயா,

- பொருள்: கனிமங்களும் குவாரிகளும் - இராஜபாளையம் வட்டம் - மேலூர் துரைச்சாமிபுரம் கிராமம் - பட்டா எண். 443 புல எண்கள் 293 /1A(P) (0.53.0), 293/2B(P) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு நிலங்களில் 5 வருடங்களுக்கு உடைக்கல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரியுள்ளது - கருத்துரு அனுப்பக் கோருதல் - தொடர்பாக.
- பார்வை: 1. விருதுநகர் மாவட்ட ஆட்சியர் அலுவலக கடிதம் எண். ந.க.கேவி1/932/2018, நாள்: 31.12.2018.
2. சேத்துார் வருவாய் ஆய்வாளர் அறிக்கை நாள்: 25.01.2019.

பார்வையில் காணும் விருதுநகர் மாவட்ட ஆட்சியர் அவர்கள் கடிதத்தில், இராஜபாளையம் வட்டம் மற்றும் நகரம், குண்டுர் மூர்த்தி தெரு என்ற முகவரியைச் சேர்ந்த திரு. கே.ஏ. இராஜகோபால் என்பவர், இராஜபாளையம் வட்டம், மேலூர் துரைச்சாமிபுரம் கிராமம் - பட்டா எண். 443 புல எண்கள் 293 /1A(P) (0.53.0), 293/2B(P) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு நிலங்களில் 5 வருடங்களுக்கு உடைக்கல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி மனு செய்துள்ளார் எனவும், மேற்காணும் நிலத்தினை புலத்தணிக்கை செய்து உரிய ஆவணங்களுடன் அறிக்கை சமர்ப்பிக்குமாறும் தெரிவிக்கப்பட்டுள்ளது.

அதனடிப்படையில், மேற்படி புலம் அமைந்துள்ள இடத்தினை புலத்தணிக்கை செய்து எனத்தறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

இராஜபாளையம் வட்டம், மேலூர்துரைச்சாமிபுரம் கிராமம், பட்டா எண். 443, புல எண். 293/1AD - 0.53.0, 293/2B(P) - 0.57.5 ஆக மொத்தம் 1.10.5 ஹெக்டேர் பரப்பு நிலங்களில் உள்ள புலங்கள் கிராம கணக்கில் கீழ்க்கண்டவாறு தாக்கலாகியுள்ளது.

புல எண்.	விஸ்தீரணம் (ஹெக்டேர்ஸ்)	பட்டா எண். மற்றும் பட்டாதாரர் பெயர்
293-1ஏ	1.59.0	443, கொட்டி முக்கலூர் ஜி. அர்ஜுனராஜா மகன் கே.ஏ. இராஜகோபால்
293-2பி	0.91.0	

மேற்படி புலம் அமைந்துள்ள இடத்தினை பார்வையிட்டதில், மேற்படி புலத்தை சுற்றி 300 மீட்டர் சுற்றவில் குடியிருப்பு பகுதிகள் ஏதும் இல்லை. 500 மீட்டர் சுற்றளவில் மேற்படி புலத்தின் மேற்குபகுதியில் புல எண்.301 மற்றும் தெற்கு பகுதியில் புல எண். 302-ல் செயல்படும் குவாரிகள் உள்ளது. கூட்டு வரைபடத்தில் அவற்றை குறிப்பிடப்பட்டுள்ளது. இந்த புலத்திற்கு வரும் பாதை மேற்படி புலத்தின் மேற்கு பகுதியில் மனுதாரருக்கு சொந்தமான புல எண். 297-ல் அமைந்துள்ளது. மேலும், 50 மீட்டர் சுற்றளவில் சாலைகள், இரயில் இருப்புபாதைகளை, கோவில்கள் மற்றும் புராதான சின்னங்கள்,

மின் தொடர் கம்பிகள், நீர்நிலை ஆதாரங்கள் மேலும் நிரந்தர அமைப்புகள் ஏதுமில்லை. இது குறித்து பொதுமக்களிடம் ஏ1 நோட்டீஸ் விளம்பரம் செய்ததில் ஆட்சேபனை எதுவும் வரப்பெறவில்லை என கிராம நிர்வாக அலுவலர் அறிக்கை செய்துள்ளார். மேற்படி புலத்தில் உள்ள உடைகல் மற்றும் கிராவல் குவாரி செய்வதால் அருகிலுள்ள நிலங்களுக்கு பாதிப்பு ஏற்படும் வாய்ப்பு இல்லை. மேலும் புலத்தின் அருகில் புறம்போக்கு / பட்டா ஒடை எதுவும் கிராம கணக்கின்படி இல்லை. எனவே மேற்படி புல எண்கள் மேலூர்துரைச்சாமிபுரம் கிராமம், இராஜபாளையம் ஊராட்சி ஒன்றியத்தினை சேர்ந்தது ஆகும். மேற்படி புலங்களில் உடைகல் மற்றும் கல்குவாரி உரிமம் அரசு விதிகளுக்கு உட்பட்டு வழங்கலாம் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.


வட்டாட்சியர்,
இராஜபாளையம்

நகல்: சாத்தூர் வருவாய் கோட்டாட்சியர் அவர்களுக்கு பணிநிறுப்பப்படுகிறது.



புலத்தணிக்கை குறிப்பு

வட்டம்	:	இராஜபாளையம்
கிராமம்	:	மேலூர்துரைச்சாமிபுரம்
புல எண்.	:	293/1A(p) (0.53.0) 293/2B(P) (0.57.5)
நோக்கம்	:	5 வருடங்களுக்கு உடைக்கல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரியது தொடர்பாக.
புலத்தணிக்கை நாள்	:	08.02.2019



இராஜபாளையம் வட்டம் மற்றும் நகரம், குண்டுர் மூர்த்தி தெரு என்ற முகவரியைச் சேர்ந்த திரு. கே.ஏ. இராஜகோபால் என்பவர், இராஜபாளையம் வட்டம், மேலூர் துரைச்சாமிபுரம் கிராமம் - பட்டா எண். 443 புல எண்கள் 293 /1A(P) (0.53.0), 293/2B(P) (0.57.5)-ல் மொத்தம் 1.10.5 ஹெக்டேர்ஸ் பரப்பு நிலங்களில் 5 வருடங்களுக்கு உடைக்கல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி மனு செய்துள்ளார்.

அதனடிப்படையில், மேற்படி புலம் அமைந்துள்ள இடத்தினை 08.02.2019 அன்று புலத்தணிக்கை செய்து எனத்தணிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

இராஜபாளையம் வட்டம், மேலூர்துரைச்சாமிபுரம் கிராமம், பட்டா எண். 443, புல எண். 293/1AD - 0.53.0, 293/2B(P) - 0.57.5 ஆக மொத்தம் 1.10.5 ஹெக்டேர் பரப்பு நிலங்களில் உள்ள புலங்கள் கிராம கணக்கில் கீழ்க்கண்டவாறு தாக்கலாகியுள்ளது.

புல எண்.	விஸ்தீரணம் (ஹெக்டேர்ஸ்)	பட்டா எண். மற்றும் பட்டாதாரர் பெயர்
293-1ஏ	1.59.0	443, கொட்டி முக்கலூர் ஜி. அர்ஜுனராஜா மகன் கே.ஏ. இராஜகோபால்
293-2பி	0.91.0	

மேற்படி புலம் அமைந்துள்ள இடத்தினை பார்வையிட்டதில், மேற்படி புலத்தை சுற்றி 50 மீட்டர் சுற்றவில் குடியிருப்பு பகுதிகள் ஏதும் இல்லை. 500 மீட்டர் சுற்றளவில் மேற்படி புலத்தின் மேற்குபகுதியில் புல எண்.301 மற்றும் தெற்கு பகுதியில் புல எண். 302-ல் செயல்படும் குவாரிகள் உள்ளது. கூட்டு வரைபடத்தில் அவற்றை குறிப்பிடப்பட்டுள்ளது. இந்த புலத்திற்கு வரும் பாதை மேற்படி புலத்தின் மேற்கு பகுதியில் மனுதாரருக்கு சொந்தமான புல எண். 297-ல் அமைந்துள்ளது. மேலும், 50 மீட்டர் சுற்றளவில் சாலைகள், இரயில் இருப்புபாதைகள், கோவில்கள் மற்றும் புராதான சின்னங்கள், மின் தொடர் கம்பிகள், நீர்நிலை ஆதாரங்கள் மேலும் நிர்ந்தர அமைப்புகள் ஏதுமில்லை. இது குறித்து பொதுமக்களிடம் ஏ1 நோட்டீஸ் விளம்பரம் செய்ததில் ஆட்சேபனை எதுவும் வரப்பெறவில்லை என கிராம நிர்வாக அலுவலர் அறிக்கை செய்துள்ளார். மேற்படி புலத்தில் உள்ள உடைக்கல் மற்றும் கிராவல் குவாரி செய்வதால் அருகிலுள்ள நிலங்களுக்கு பாதிப்பு ஏற்படும் வாய்ப்பு இல்லை. மேலும் புலத்தின் அருகில் புறம்போக்கு / பட்டா ஒடை எதுவும் கிராம கணக்கின்படி இல்லை. எனவே மேற்படி புல எண்கள் மேலூர்துரைச்சாமிபுரம் கிராமம், இராஜபாளையம் ஊராட்சி ஒன்றியத்தினை சேர்ந்தது ஆகும். மேற்படி புலங்களில் உடைக்கல் மற்றும் கல்குவாரி உரிமம் அரசு விதிகளுக்கு உட்பட்டு வழங்கலாம் என பரிந்துரை செய்கிறேன்.


வட்டாட்சியர்,
இராஜபாளையம்.

கோவில்கள் மற்றும் ஹரிஜன சிஸ்டைம்கள், மின் ஒதுக்கீடு கமிட்டி
 நீர் திட்ட ஆய்வகங்கள் மெய்யம் நிரந்தர அமைப்புகள் முதலிணை.
 இது குறித்து தபால் மக்களிடம் ரூ.1 செட்டிமன் அமைப்பதம்
 தேவத்தின் ஆட்சேபணை உரையுறவுகளை ஏன் கிராம நிர்வாக
 அலுவலர் அதிகை தேவத்தின்மல், மெய்யம் ஹத்தின் உடைகள்
 மற்றும் கிராமம் கோரி தேவத்தின் அதிகரிப்பின் நினைக்காதே
 பாதிப்பு ஏற்படும் வாய்ப்பு கிணை. மெய்யம் ஹத்தின் அருகில்
 ஹம்ஸாக்கே / மட்டா ஒடை தேவத்தின் கிராம கண்காணைய
 கிணை. ஏனவே மெய்யம் ஹம்ஸாக்கே மெய்யம் கிணைக்கையுடம்
 கிராமம் கிராமபாணியம் உடைக்கி ஒன்றியத்திணை கிராமத்தின்
 ஆகும். மெய்யம் ஹம்ஸாக்கே உடைகள் மற்றும் கிராமம்
 உரிமை அரசு அதிகாரிகளே உடம்பு உடைக்கிணை ஏனவே
 பணியுடன் தேவத்தின் கிராமத்திணை.

P. Annamalai
 REVENUE INSPECTOR
 SEITHUR FIRKA
 RAJAPALAYAM TALUK.


மேலூர் துரைசாமிபுரம் கிராம நிர்வாக அலுவலர் அறிக்கை:

இராஜபாளையம் வட்டம் மேலூர் துரைசாமிபுரம் கிராமம் பட்டா எண்:443 புல எண்:293-1A(P) (0.53.0), 293/2B(P) (0.57.5) ல் ஆக மொத்தம் 1.10.5 ஹெக்டேர் பரப்பு நிலங்களில் இது அருகில் வருடங்களுக்கு உடை கல் மற்றும் கிராவல் குவாரி உரிமம் வழங்க கோரி இராஜபாளையம் நகரம் குண்டுர் மூர்த்தி தெருவை சார்ந்த K.A.இராஜகோபால் மனு செய்ததின் பேரில் வரபெற்ற குறிப்பானை ந.க.அ/1/296/2018 என்படி விசாரணை செய்து அறிக்கை பின்வருமாறு சமர்ப்பிக்கப்படுகிறது.

மேற்படி குறிப்பானையில் குறிப்பிடப்பட்டுள்ள புலங்கள் கிராம கணக்கில் கீழ்க்கண்ட வாறு தாக்கல் ஆகியுள்ளது.

புல எண்	விஸ்தீரணம் (ஹெக்டேர்ஸ்)	பட்டா எண் மற்றும் ஆஜார் பட்டா தாரர் பெயர்
293-1A	1.59.0	443, கொட்டி முக்கலூர்
293-2B	0.91.0	ஜி. அர்ஜூனராஜா மகன் கே.ஏ. இராஜகோபால்

மேற்படி புலங்களை புலத்தணிக்கை செய்ததில் 300 மீட்டர் சுற்றளவில் குடியிருப்பு பகுதிகள் ஏதும் இல்லை. 500 மீட்டர் சுற்றளவில் மேற்படி புலத்தின் மேற்பகுதியில் புல எண்:301, மற்றும் தெற்கு பகுதியில் புல எண்:302ல் செயல்படும் குவாரிகள் உள்ளது. கூட்டு வரைப்படத்தில் அது குறிப்பிட்டுள்ளது. இந்த புலத்திற்கு வரும் பாதை மேற்படி புலத்தின் மேற்கு பகுதியில் மனுதாரருக்கு சொந்தமான புல எண்: 297ல் அமைந்துள்ளது. 50 மீட்டர் சுற்றளவில் சாலைகள், இரயில் இருப்புபாதைகள், கோவில்கள் மற்றும் புரதான சின்னங்கள், மின்கம்பிகள், நீர்நிலை ஆதாரங்கள், மேலும் நிரந்திர அமைப்புகள் ஏதுமில்லை. இது குறித்து பொது மக்களிடம் ஏ.1 நோட்டீஸ் விளம்பரம் செய்ததில் ஆட்சேபனை வரபெறவில்லை. மேற்படி புலத்தில் உடை கல் மற்றும் கிராவல் குவாரி செய்வதால் அருகிலுள்ள நிலங்களுக்கு பாதிப்பு வாய்ப்பு இல்லை. மேலும் புலத்தின் அருகில் புறம்போக்கு/பட்டா ஓடை எதுவும் கிராம கணக்கின் படி இல்லை. எனவே, மேற்படி புலங்களில் உடை கல் மற்றும் கல்குவாரி உரிமம் அரசு விதிகளுக்கு உட்பட்டு வழங்க பரிந்துரை செய்கிறேன். மேற்கண்ட புல எண்கள் மேலூர் துரைசாமிபுரம் கிராமம் இராஜபாளையம் ஊராட்சி ஒன்றியத்தினை சார்ந்ததது என்பதனை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.


 02/01/19
 Village Development Officer
 147, Street, Madhavapuram
 Madhavapuram, Madhavapuram

ஏ.1 நோட்டீஸ் விளம்பர அறிவிக்கை



இராஜபாளையம் வட்டம் மற்றும் நகரம் குண்டுர் மூலத்தி தெருவை சேர்ந்த ஜி.அர்ஜுனராஜா மகன் கே.ஏ. இராஜகோபால் என்பவர் பட்டா எண்: 443 புல எண்: 293-1A(P) (0.53.0), 293/2B(P) (0.57.5) ல் ஆக மொத்தம் 1.10.0 புலத்தில் குவாரி உரிமம் கோரி விண்ணப்பித்துள்ளார். மேற்படி பொருள் தொடர்பாக யாருக்கேனும் ஆட்சேபனை இருப்பின் இந்த விளம்பரம் கண்ட 10 நாட்களுக்குள் ஆட்சேபனை தெரிவிக்குமாறு இதன் தெரிவித்துக்கொள்ளப்படுகிறது.

நான்குமால் விவரம்

ஜி. காமராஜ் கிராதிசு கோடு
 ராஜகோபால், குண்டுர் கோபால்
 கிராதிசு கிராதிசு
 302, அரசு புறம் லாக்டு கிராதிசு 22க்டு
 கிராதிசு ராஜகோபால், கைமல-257
 கிராதிசு - 755க்டு


1. கிராதிசு கோடு R. கிராதிசு
2. V. Mathy S/o C. Rajanathan
3. G. Ramasamy S/o S. S. Ramasamy
4. கிராதிசு கோபால் கிராதிசு
5. கிராதிசு கோபால் கிராதிசு

143

J. S. Rajan

- 6 V. ~~...~~ & ...
- 7 B. ...
- 8 L. ...
- 9 M. ...
- 10 P. ...

...


 22/01/19
 Village Administrative Officer
 14/1, Mellur Duraisamipuram.
 Rajapalayam Taluk.

பெயர்: சீமாச்சாரியார்

பெயர்: சீமாச்சாரியார்

(கனம் சீமாச்சாரியார்)



கட்டிடம் கட்டிடம்
யாரு

புறக்காலம்
புறக்காலம்

சீமாச்சாரியார்

சீமாச்சாரியார்
147, Mellur Kuraisaminuram,
Kannalagam Taluk.

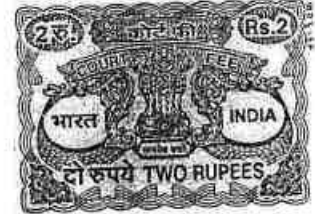
சீமாச்சாரியார்

APPENDIX-VI**(Rule 19 of the Tamil Nadu Minor Mineral Concession Rules, 1959)****QUARRY APPLICATION**

Dated day of December, 2018

From

K.A.Rajagopal
S/o. Arjunaraja
24-E, Gundoomurthy Street,
Rajapalayam Town - 626117.
Virudhunagar District.



To

THE COLLECTOR,
VIRUDHUNAGAR DISTRICT

Sir,

I/We submit this application under rule 19 of the Tamil Nadu Minor Minerals Concession Rules 1959 in respect of District Gazette Notification No. Nil dated Nil or news papers advertisement dated Nil.

I/We request that a quarrying lease under rule 19 of the Tamil Nadu Minor Mineral Concession Rules 1959 may be granted to me/as.

(Strike out whichever is not applicable)

The Tamil Nadu Minor Mineral Concession Rules, 1959.

The required particulars are given below:

- 1 Name of the applicant with Full Address : **K.A.Rajagopal**
S/o. Arjunaraja
24-E, Gundoomurthy Street,
Rajapalayam Town - 626117.
Virudhunagar District.
- 2 a. Is the applicant is an individual : Indian
specify his nationality and
- b. Is the applicant is an individual : Individual
or a private company, firm or
association

- c. If the applicant is a private company, firm or association name of Directors, Partners, Members (Documentary evidence should be produced) : Not applicable
- 3 Particulars of remittance of application fee, furnish the number and date : **Chalan No. 12 dated. 06-12-2018**
Paid at SBI Rajapalayam
- 4 Has the applicant filed an affidavit stating that the applicant
- a. Has filed up to date Income-tax return : } Affidavit Enclosed
- b. Has filed the income-tax assessed on him, and : }
- c. Has paid the income-tax on the basis of self assessment as prescribed in the Income-Tax Act 1961 : }
- 5 Minor Mineral which the applicant intends to quarry with decoration : Rough Stone & Gravel
- 6 Period for which quarrying lease is required : Five Years
- 7 Total extent of the area applied for : 2.61.0 Hectares
- 8 Details of the area for which of tender application/application is made :

District	Taluk	Village	Survey Nos.	Extent in Hectares
Virudhunagar	Rajapalayam	Melur-Duraisamy puram	293/1A(p)	0.53.0
			293/2B(p)	0.57.5
			Total	1.10.5

- 9 Maximum tender amount the applicant is willing to offer of getting the quarrying leases (specify both in figures and word) (Not applicable to applications made under rule 19) : Not applicable
10. Particulars of the areas already held under quarrying lease in Tamil Nadu : Affidavit Enclosed

11. a. Whether mining dues clearance Certificate towards payment of quarrying dues, if any enclosed :
 b. If on the date of application the applicant does not held any quarrying lease, mining lease whether an affidavit to this effect is furnished :

Affidavit Enclosed



12. Any other particulars which the applicant wishes to furnish : The area applied for quarry lease is patta land and stands registered in my name as per the Village accounts. I have invested a reasonable amount towards the purchase of the land.

I/We do hereby declare that the particulars was furnished above are correct and am/are ready to furnish any other details and security Deposit as may be required by the Government or District Collector or District Forest officer. I have swear and state that I know very well about the provisions contained in the Tamil Nadu Minor Minerals Concession Rules 1959 in respect of granted of quarry lease applied for and other conditions stipulated in connection with the quarrying operations. I also swear and state on no circumstances. I will produce any rough blacks or slabs or any other form of stone from the area applied for lease either for export purpose in the form of raw blocks, slab, etc., or for using them in an cutting and polishing industry.

Place: Virudhunagar.

Date:

Yours faithfully

(K.A.Rajagopal)
(Signature of Applicant)

- Encl: 1) Original Challan for Rs.1500/-
 2) Affidavit towards no Mining Dues
 3) Affidavit towards Income Tax
 4) Affidavit towards existing lease particulars.
 5) Xerox copies of PAN card, Aathaar Card
 6) Copies of Village accounts viz FMB, Village map, Chitta, 'A' Register and Adangal.

சென்னை மாநகராட்சி கண்காணகம்
 சென்னை மாநகராட்சி கண்காணகம்



	2	3	4	5	6	7	8	9	10		
289	3	289-3	ர	4	...	8-3	5	1 38	1 39.5	1 93	800 தி. பிள்ளை யாராஜா.
	4	-4	ர	4	...	8-3	5	1 38	0 53.5	0 74	1052 சா. ராமசாமி.
	5	5	ர	ந B	...	7-3	9	12 35	0 24.5	3 00	1052 சா. ராமசாமி.
									3 76.0	16 03	
290	1	290-1	ச	4	...	...	...	...	0 39.0	...	...
	2	-2	ர	4	...	8-3	5	1 38	0 56.5	0 78	800 தி. பிள்ளை யாராஜா.
									0 95.5	0 78	
291	...	291	ச	4	...	...	...	...	0 43.5	...	...
292	1	292-1	ர	4	...	8-3	5	1 38	1 82.5	2 53	1053 வெ. ராமச்சந்திரநாயுடு
	2A	-2A	ர	4	...	8-3	5	1 38	0 81.0	1 12	1293 கி. சுப்பம்மாள்(1), ரர. சீதாலைட் சுமியம்மாள்(2).
	2B	-2B	ர	4	...	8-3	5	1 38	0 80.5	1 11	1050 சி. ராமசாமி.
									3 44.0	4 76	
293	1	293-1	ர	4	...	8-3	5	1 38	1 81.5	2 51	1053 வெ. இராமச்சந்திரநாயுடு.
	2	-2	ர	4	...	8-3	5	1 38	1 63.5	2 26	1053 வெ. இராமச்சந்திரநாயுடு.
									3 45.0	4 77	
294	...	294	ச	4	...	...	...	...	0 35.5	...	...
295	1	295-1	ர	ந C	...	8-3	11	9 88	0 22.0	2 16	248 ரா. காளியம்மாள்.
	2	-2	ர	4	...	8-3	5	1 38	0 16.0	0 22	248 ரா. காளியம்மாள்.
	3	-3	ர	மா	...	8-3	5	2 00	0 10.0	0 20	248 ரா. காளியம்மாள்.
									0 48.0	2 58	

B--ராயம்பேரி கண்மாய் மூன்றாவது வகுப்பு
 C--செம்போடை கண்மாய் மூன்றாவது வகுப்பு

செ. பொருட்கள் 150

10/18
 Administration Office
 M. J. Duraisamy
 Mainulayam Taluk.

(Mandhi wainchayuki 6-96)

99

TALUK: RAJAPALAYAM

Village: Mellur Duraisamipuram,



[Signature]
Village Administrative Officer
14/1, Mellur Duraisamipuram,
Rajapalayam Taluk.

153

[Signature]



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : விருதுநகர்

வட்டம் : இராஜபாளையம்

வருவாய் கிராமம் : மேலூர்துரைச்சாமிபுரம்

பட்டா எண் : 443



உரிமையாளர்கள் பெயர்

1. கொட்டிமுக்கலூர் ஜி. அர்ஜுனராஜா

மகன்

கே.ஏ. இராஜகோபால்

புல எண்	உட்பிரிவு	நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை
293	1A	--	--	1 - 59.00	2.20	--	--
293	2B	--	--	0 - 91.00	1.30	--	--
301	2D	--	--	0 - 53.00	0.74	--	--
				3 - 3.00	4.24		

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 26/01/034/00443/40441 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 03-10-2018 அன்று 02:05:05 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

Handwritten signature



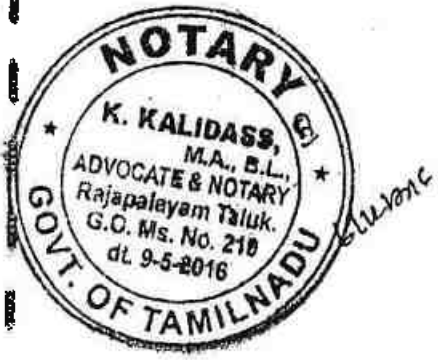
தமிழ்நாடு தமில்நாடு TAMIL NADU W
 3/12/18 K.A. Rajagopal
Arjunaraja

49AA 637773
 ம. அனாந்த இய்யாள்
 நகர முத்திரைத்தாள் நிற்பனையாளர்
 விருதுநகர் - தமிழ்நாடு
 உரிமம் எண்: 486/30-3-1973

AFFIDAVIT for MINING DUES CLEARANCE

I K.A.Rajagopal S/o. Arjunaraja residing at 24-E, Gundoomurthy Street, Rajapalayam Town - 626117 Virudhunagar District do hereby solemnly affirm and state as follows :-

I hold one quarry lease for Rough Stone & Gravel in my name over an extent of 1.58.0 hectares in SF.Nos. 301/1, 2A, 2C, & 2D of MelurDuraisampuram village, Rajapalayam Taluk vide Virudhunagar District Collectors' Proceedings



K.A. Rajagopal

K.A. Rajagopal



தமிழ்நாடு தமில்நாடு TAMIL NADU

3/12/18

K.A. [Signature]

49AA 637774

ம. அனறமது இக்பால்
நகர முத்திரைத்தாள் விநிப்பனையாளர்
விருதுநகர் - தமிழ்நாடு
உரிமம் எண்: 486 / 30-3-1973

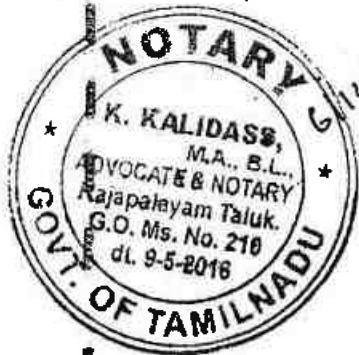


No. KV1/5931/2017 dated 17.02.2018 valid for the period from 13.04.2018 to 12.04.2023 and there is no other quarries / Mining leases at present in any Districts of the Tamil Nadu and I have paid the seignorage and other fees time to time and do not have any arrears towards Royalty and Seignorage fee to be paid by me to the Government of Tamil Nadu.

[Signature]

DEPONENT.

Solemnly affirmed and executed before me on this the 3 day of December 2018.



Declared, executed, and signed and sealed by the executant, having read the contents in admitting the same to be true and correct on this 3-12-2018 before me.

[Signature]
K. KALIDASS, M.A., B.L.,
Advocate & Notary Public
No. 153 A/9, Railway Feeder Road,
Near A.K.D. Chatram,
Rajapalayam - 626 117



[Signature]



தமிழ்நாடு தமில்நாடு TAMIL NADU

3/12/18 K.A. Rajagopal
Arjunaraja

49AA 637775

ம. அருண்ராஜா இக்மால்
நகர முத்திரைத்தாளி வெற்பலையாணி
வெருதுநகர் - தமிழ்நாடு
உரிமம் எண்: 486/30 3-1973



AFFIDAVIT - QUARRY LEASE PARTICULARS

I K.A.Rajagopal S/o. Arjunaraja residing at 24-E, Gundoomurthy Street, Rajapalayam Town - 626117 Virudhunagar District do hereby solemnly affirm and state as follows :-

1. I hold one quarry lease for Rough Stone & Gravel in my name over an extent of 1.58.0 hectares in SF.Nos. 301/1, 2A, 2C, & 2D of MelurDuraismampuram village, Rajapalayam Taluk vide Virudhunagar District Collectors' Proceeding No.KV1/5931/2017 dated 13.04.2018 valid for the period from 13.04.2018 to 12.04.2023. I am not applying simultaneously for any other quarry lease.



K.A. Rajagopal



தமிழ்நாடு தமில்நாடு TAMIL NADU

3/12/18

K.A. Jayaraman
(Handwritten signature)

49AA 637776
 A. அனையது இப்பால்
 நகர முத்திரைத்தளம் விற்பனையாளர்
 விநாயகன் - தமிழ்நாடு
 உரிமம் எண்: 486/30-3-1973

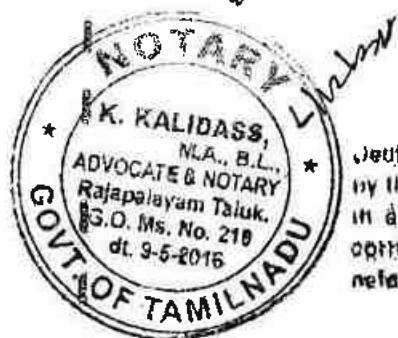
: 2 :

2. There are no other quarry lease in any Districts of the States of Tamil Nadu and not applying for any quarry leases simultaneously.

(Handwritten signature)

DEPONENT.

Solemnly affirmed and executed before me on this the 6 day of December 2018.



Declared, executed, and signed and sealed by the executant, having read the contents in admitting the same to be true and correct on this 6-12-18 at Rajapalayam before me.

(Handwritten signature)
K. KALIDASS, M.A., B.L.,
 Notary Advocate & Notary Public
 No. 153 A/9, Railway Feeder Road,
 Near A.K.D. Chatram,
 Rajapalayam - 626 117

NOTARIAL REGISTER
 Sl No. 1259 Date 6-12-2018

(Handwritten signature)



காடிர்ப்டாடு தமிழ்நாடு TAMIL NADU 10

3/12/18

K.A. Jaganathan
Jaganathan

49AA 637778
பிரதிபலிப்பு இலாகா
புகழ முத்தையாத்தாள் விற்பனையாளர்
வீடுதருகர் - தமிழ்நாடு
உரிமம் எண்: 486/30-3-1973



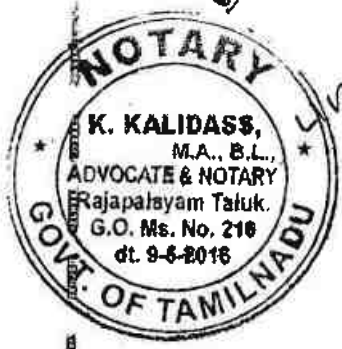
: 2 :

This affidavit is filed in lieu of Income Tax Clearance Certificate.

[Handwritten Signature]

DEPONENT.

Solemnly affirmed and executed before me on this the 6 day of December 2018.



Declared, executed, and signed and sealed by the executant, having read the content in admitting the same to be true and correct on this 6th day of December 2018 before me.

[Handwritten Signature]
K. KALIDASS, M.A., B.L.,
Advocate & Notary Public
No. 153 A/9, Railway Feeder Road
Near A.K.D. Chatram,
Rajapalayam - 626 117



[Handwritten Signature]

இந்திய அரசாங்கம்
Unique Identification Authority of India
Government of India

பதிவு எண்/Enroiment No.: 0000/00426/22327

To
ராஜகோபல்
Rajagopal
S/O, Arjunaraja
24e
Kundoomoorthyraja Street
Rajapalayam
Virudhunagar Rajapalayam
Tamil Nadu - 626117
9442210207

Download Date: 01/10/2017
Generation Date: 22/07/2017

Signature Not Verified

உங்கள் ஆதார் எண் / Your Aadhaar No. :
2578 2081 3966
எனது ஆதார், எனது அடையாளம்

இந்திய அரசாங்கம்
Unique Identification Authority of India
Government of India

ராஜகோபல்
Rajagopal
பிறந்த நாள்/ DOB: 27/02/1963
ஆண் / MALE

2578 2081 3966
எனது ஆதார், எனது அடையாளம்

15 OCT 2019

விருதுநகர் ஆதார்
Virudhunagar AADHAAR

தகவல்

- ஆதார் அடையாளத்திற்கான சான்று, குடியரிமைக்கு அல்ல.
- அடையாள சான்றை ஆன்லைன் ஆதன்ம கேள்ள் மூலமாகப் பெறவும்.
- இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட கடிதமாகும்.

INFORMATION

- Aadhaar is a proof of identity, not of citizenship.
- To establish identity, authenticate online.
- This is electronically generated letter.

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்
- வருங்காலத்தில் அரசு மற்றும் அரசு சாரா சேவைகளை பயன்படுத்திக் கொள்ள ஆதார் உதவிகரமாக இருக்கும்
- Aadhaar is valid throughout the country.
- Aadhaar will be helpful in availing Government and Non-Government services in future

இந்திய அரசாங்கம்
Unique Identification Authority of India
Government of India

முகவரி:
அர்கனராஜா, 24e,
கும்பகோணத்திராஜா தெரு,
ராஜபாளையம், விருதுநகர்,
தமிழ் நாடு - 626117

Address:
S/O, Arjunaraja, 24e,
Kundoomoorthyraja Street,
Rajapalayam, Virudhunagar,
Tamil Nadu - 626117

2578 2081 3966

1947 help@uidai.gov.in


162

சா. ராஜகோபல்

ANNEXURE IV



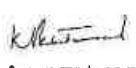
தொகுக்கப்பட்ட கணக்கு / PERMANENT ACCOUNT NUMBER
AESPR7794E



பெயர் / NAME
ARJUNA RAJA RAJAGOPAL

தந்தை பெயர் / FATHER'S NAME
ARJUNA RAJA

பிறந்த நாள் / DATE OF BIRTH
20-12-1964

கையொப்பம் / SIGNATURE


மாண்புமிகு வருமான வரித்துறை அதிகாரி
 COMMISSIONER OF INCOME TAX, MADURAI

இந்த அட்டை கிடைக்காமல் போனாலும், கண்டுபிடிக்கப்பட்டால்
 இவ்வட்டையை விடுவதைத் தடுக்கவும் அதைக் க்கு தலைவர்
 அனுப்புவதை அல்லது திருப்பி அனுப்புவதை வேண்டுகிறேன்.
 வருமான வரி ஆணையர்
 மத்திய வருமானத்துறை அலுவலக வளகம்
 வி. பி. ரத்னசாமி நாதர் சாலை
 பிபிகுளம்
 மதுரை - 625 002

In case this card is lost/found, kindly inform/return to
 the issuing authority :
 Commissioner of Income-tax ,
 Central Revenue Buildings,
 V P Ratnasamy Nadar Road,
 Bibikulam, Madurai - 625 002

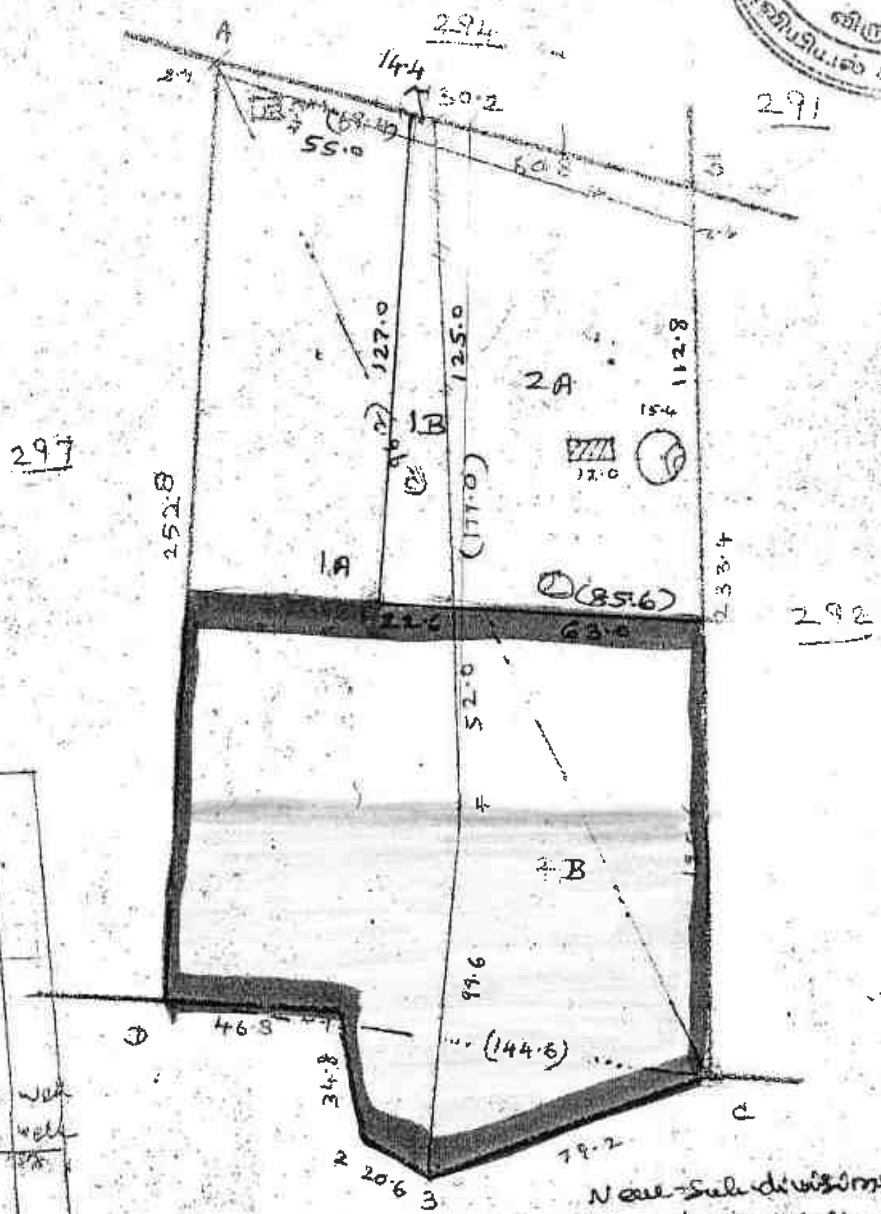
163

Arjuna Raja Rajagopal

பெரிய காலியல்
புது காலியல் 293

பரப்பு: மெட்டர்

3 ஏ. 45-0



		B	
		238.6	
22	21.2	165.4	
22	21.6	161.2	
22	16.2	161.2	
22	21.2	161.2	
		C	
		302.2	
		38.4	60 Well
		12.0	7.9 Well
		A	
		296.2	
		211.4	98.6 B
4	27.8	93.4	
		C	
		144.8	
		74.2	36.6 3
		55.0	29.6 2
1	4.2	46.6	
		D	

பெரிய காலியல் 302

New Subdivisions - 1A, 1B
2A and 2B plotted after
T.K. SA-582/1421 dt 18-1-12
B. Sivasubramanian
11-2-12
சுற்றுலா துறைமுகம்

[Signature]
22/10/19
Village Administrative Officer
14/1, Mellur Duraisampuram,
Rajapalayam Taluk.

சென்னை
N. சிவசுப்பிரமணியன்
1.9.83

சுற்றுலா துறைமுகம்

சுற்றுலா துறைமுகம்
19-11-19
30.8.83

[Signature]



தமிழக அரசு

வருவாய்த் துறை

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



மாவட்டம் : விருதுநகர்

வட்டம் : இராஜபாளையம்

வருவாய் கிராமம் : மேலூர்துரைச்சாமிபுரம்

பட்டா எண் : 443

உரிமையாளர்கள் பெயர்

1, கொட்டிமுக்கலூர் ஜி. அர்ஜுனராஜா மகன் கே.ஏ. இராஜகோபால்

நன்செய்		புன்செய்		மற்றவை			
பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை		
புல எண்	உட்பிரிவு	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை
293	1A	--	--	1 - 59.00	2.20	--	--
293	2B	--	--	0 - 91.00	1.30	--	--
301	2D	--	--	0 - 53.00	0.74	--	--
				3 - 3.00	4.24		

குறிப்பு2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 26/01/034/00443/40441 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 22-01-2019 அன்று 01:42:51 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

165

Handwritten signature

	2	3	4	5	6	7	8	9	10	11
									கு.உப. ஹெ.ஏர்ஸ் கு.உப.	
289	3	289-3	ர	ய	...	8-3	5	1 38	1 39.5	1 93
	4	-4	ர	ய	...	8-3	5	1 38	0 53.5	0 74
	5	-5	ர	ந B	...	7-3	9	12 35	0 24.5	3 00
									3 76.0	16 03
290	1	290-1	ச	யு	...	...	...	...	0 39.0	...
	2	-2	ர	ய	...	8-3	5	1 38	0 56.5	0 78
									0 95.5	0 78
291	...	291	ச	யு	...	...	...	...	0 43.5	...
292	①	292-1	ர	ய	...	8-3	5	1 38	1 82.5	2 53
	2A	-2A	ர	ய	...	8-3	5	1 38	0 81.0	1 12
	2B	-2B	ர	ய	...	8-3	5	1 38	0 80.5	1 11
									3 44.0	4 76
293	①	293-1	ர	ய	...	8-3	5	1 38	1 81.5	2 51
	②	-2	ர	ய	...	8-3	5	1 38	1 63.5	2 26
									3 45.0	4 77
294	...	294	ச	யு	...	...	...	...	0 35.5	...
295	1	295-1	ர	ந C	...	8-3	11	9 88	0 22.0	2 16
	2	-2	ர	ய	...	8-3	5	1 38	0 16.0	0 22
	3	-3	ர	மா	...	8-3	5	2 00	0 10.0	0 20
									0 48.0	2 58

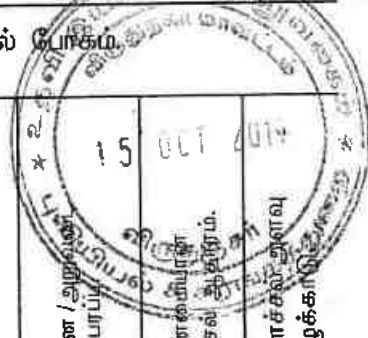
15 OCT 2019
800 தி. பிள்ளை யாரராஜா.
1052 சா. ராமசாமி.
1052 சா. ராமசாமி.

Village Administrative Officer
14/1, Mellur Duraisampuram,
Rajapalayam Taluk.

B-ராயம்பேரி கண்மாய் முன்றலத்து வகுப்பு.
செம்போடை கண்மாய் முன்றலத்து வகுப்பு.

1493 ஆம் பசலியில் 21ஆது 3ஆம் மாவட்டம் கைமாறைய வட்டம் சென்னை

நில வரித் திட்டத்தின்படி புலன்களின் விவரம்.					கைப்பற்று தாரருடைய பெயரும் எண்ணும் அல்லது அனுபோக தாரருடைய பெயர்.	சாகுபடி யாளரின் பெயர்.	முதல் போகம்					
(1) நில அளவை எண்.	(2) உட்பிரிவு எண்.	(3) பரப்பு.	(4) தீர்வை.	(5) ஒரு போகம் அல்லது இரு போகம்.			(7) நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளதா.	(8) எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது.	(9) பயிரின் பெயர்.	(10) பயிரான அறுவடையான பரப்பு.	(11) உண்மையான பாய்ச்சல் ஆற்றம்.	(12) விளைச்சல் அளவு விழுக்காடு.
293	1A	1590	2.20	443	K.A. தாரகமணி		7	அரிசி	0.75.0	கி.		
							7	கரும்பு	0.04.0	கி.		
							7/8	கரும்பு	0.20.0	கி.		
									0.80.0	கி.		
293	2B	0910	1.30	443	K.A. தாரகமணி		7	அரிசி	0.05.0	கி.		
							7	கரும்பு	0.05.0	கி.		



22/01/19
 Village Administrative Officer
 14/1, Mellur Duraisamipuram,
 Rajapalayam Taluk.

LIST OF QUARRIES WITHIN 500 Mtrs RADIUS

Sl. No.	LESSEE	VILLAGE	SF.Nos.	EXTENT in Hectrs.
I. EXISTING QUARRIES:				
1.	N.S.Satheesh Kumar Rajapalayam.	MelurDuraismampuram (KV1/148759/2013 dt.9.1.2017) 22.1.2022	304/5(p), 305/1(p) (patta Land)	1.21.0
2.	A.Kamaraj Rajapalayam	MelurDuraismampuram (KV1/38182/2014 dt.18.4.2017) 8.5.2022	304/3 & 304/4 (patta Land)	0.68.5
3.	K.A.Rajagopal, Rajapalayam	MelurDuraismampuram (KV1/5931/2017 dt.17.2.2018) 12.4.2023	301/1, 2A, 2C & 2D (patta Land)	1.58.0
4.	M.Sundaram, Srivilliputtur	MelurDuraismampuram (KV1/7427/2017 dt.15.3.2018) 18.4.2023	302 (p) (Govt. land)	2.00.0
5.	S.Victor Alphonse Raja, Rajapalayam	MelurDuraismampuram (KV1/7429/2017 dt.15.3.2018) 18.4.2023	302 (p) (Govt. land)	2.00.0
II. ABANDONED QUARRIES:			NIL	
III. PROPOSED QUARRIES :			NIL	
TOTAL				7.87.5

R. Gururamachandran
R.GURURAMACHANDRAN, M.Sc.,
 Recognized Qualified Person
 Reg.No: RQP / MAS / 224 / 2010 / A

கிராம நிர்வாக அலுவலர் சான்றிக்ம்



மேற்கண்ட புகைப்படம் விருதுநகர் மாவட்ட ஆட்சியர் ஆணை எண் ந.க.கேவி.1/932/2018—கனிமம் நாள் 01.06.2019ன் படி விருதுநகர் மாவட்டம், இராஜபாளையம் வட்டம், மேலூர்துரைச்சாமிபுரம் கிராமம் புல எண்கள் 293/1A (பகுதி) மற்றும் 293/2B மொத்த விஸ்திரணம் 1.10.5 ஹெக்டேர் உள்ள இடத்திற்கு விருதுநகர் மாவட்ட ஆட்சியர் அவர்களால் திரு.கே.ஏ.இராஜகோபால் என்பவருக்கு சாதாரண உடை கற்கள் மற்றும் கிராவல் வெட்டி எடுப்பதற்கு கல் குவாரி செய்ய அங்குகரிக்கப்பட்ட இடம் என்பதை இதன் மூலம் சான்றளிக்கின்றேன்.

மேற்படி இடத்திற்கு 500மீ சுற்றளவில் கோவில், பள்ளிக்கூடம், புராதனச்சின்னங்கள் ஏதும் இல்லை என்றும் மேற்படி இடத்திற்கு சாலை வசதி உள்ளது என்றும் சான்றளிக்கின்றேன்.

[Signature]
04/07/19
Village Administrative Officer
14/1, Mellur Duraisamipuram,
Rajapalayam Taluk.



தமிழ்நாடு தமில்நாடு TAMILNADU

04.07.2019

SSPR TRADERS
RAJAPALAYAM

M. Ayyanarsamy
M. AYYANARSAMY
Stamp Vendor
Licence No. 5730/A1/2010-20
53-B, Railway Feeder Road.
Rajapalayam-626117

AM 801477



DEED OF AGREEMENT

This Agreement is entered into at Kariapatti on this July 4, 2019 between **K.A. Rajagopal**, S/o Arjuna Raja, 24E Gundur Moorthy street, Rajapalayam, Virudhunagar district, herein after referred to as party of the First Part, and **D. Sriramji**, S/o Dharamaraj, M/s **SSPR TRADERS** having office at 15 A2/3 INTUC Nagar, Rajapalayam – 626117, Virudhunagar District herein after referred to as party of the Second part.

The party of the First part is operating quarry in Melu Duraisampuram village, Rajapalayam taluk, Virudhunagar District over an extent of 1.10.5 hectares in survey number 293/1A (0.53.0), 293/2B (0.57.5) as per Virudhunagar District Collector's Order No. **N.K.KV1/932/2018 - Minerals**.

K.A. Rajagopal

For SSPR TRADERS
[Signature]
Partner

K.A. Rajagopal



Whereas the party of the First part wants blasting to be done at quarry to extract the 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 the blasting works and also making his own arrangement for the explosives and exploding equipment 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. **E/SC/TN/22/709/E95179** at **D. Kadambankulam village, Kariapatti taluk, Virudhunagar district** and shot firer licenses issued by the Joint Chief Controller of Explosives, Chennai and 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 the time of the exploding equipment 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 months' notice. The agreement will expire with the expiry of quarry lease.

First Part

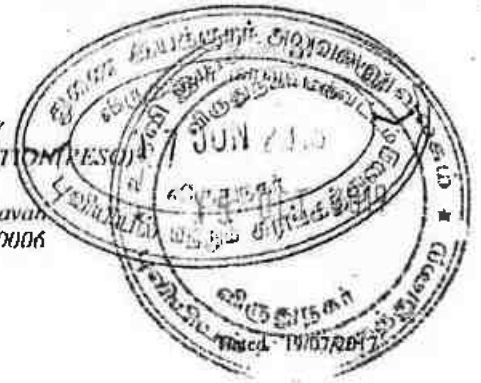
For SSPR TRADERS

Partner

Second Part



GOVERNMENT OF INDIA
 MINISTRY OF COMMERCE & INDUSTRY
 PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION (PESO)
 (Formerly Department of Explosives)
 A & D - Wing, Block 1-8, Hind Floor, Shastri Bhavan
 26 Haddous Road, Nungambakkam Chennai 600006
 Tele: 28281023 Fax: 28284848
 Email: jiceechennai@explosives.gov.in



No:ESC/TN/22/709(E95179)

To,
 M/s. SSPR Trailers,
 15-A/1 INTUC Nagar, Rajapalayam
 Town/Village - Rajapalayam
 Dist. VIRUDHUNAGAR, State, Tamil Nadu, Pincode-626117

Subject: Possession for Use of Explosives from magazine at Survey No.:100/2A, Village/Town. D.Kadambankulam Village, Distt. VIRUDHUNAGAR, State Tamil Nadu Licence No.: E/SC/TN/22/709(E95179) granted in Form I.E.-J of Explosives Rules, 2008 -Endorsement regarding

Sir(s),

Reference memo No.: E/SC/TN/22/709(E95179) Dated 19/07/2017 from Joint Chief Controller of Explosives, South Circle, Chennai and inspection of the subject premises by an officer of this organization on 25/06/2017.

The subject licence No. E/SC/TN/22/709(E95179) valid upto 31st March 2022 duly endorsed as required under Rule 107(3) of the Explosives Rules 2008 is forwarded herewith.

For further renewal of licence, please submit following documents so as to reach The Dy. Chief Controller of Explosives, Sivakasi on or before 31/03/2022.

- Application in Form RE-1 duly filled in and signed.
 - Licence fees for one to five years in the form of demand draft drawn on any Nationalized Bank in favour of Jt. Chief Controller of Explosives, Chennai payable at Chennai.
 - Original licence with approved plan.
 - In this connection, please also refer to Rule 112 of Explosives Rules, 2008.
- Indent for purchase of explosives shall be placed in RE-11 with the supplier and copy of the same shall be sent to this office.(Not applicable for fireworks store house)
 - Please submit quarterly returns of explosives in RE-7 at the end of every quarter so as to reach The Dy. Chief Controller of Explosives, Sivakasi by 10th of the succeeding quarter.(Not applicable for fireworks store house)
 - All blasting operations shall be carried out by a competent person holding a valid shot firer's permit granted under above rules. However, blasting operations in mines coming under the purview of the Mines Act 1952, the blaster shall have qualifications prescribed in the regulations framed under the said Act.

Yours faithfully,

(Signature)
 Deputy Chief Controller of Explosives
 For Joint Chief Controller of Explosives
 South Circle, Chennai

Copy Forwarded to:

1. District Magistrate, VIRUDHUNAGAR, Tamil Nadu with reference to his Noe No: R.DIS.(E4)22399/2016 Dated: 24/02/2017 (Forwarded to Dy. Chief Controller of Explosives, Sivakasi for onward transmission through a special messenger)

For Joint Chief Controller of Explosives
 South Circle, Chennai

[For more information regarding status, fees and other details, please visit our web site <http://explosives.gov.in>]

(Signature)

LICENCE FORM LE-3
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)

Licence to possess : (c) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

Licence No. : FSC/TN/22709(E95179)
Annual Fee Rs: 5400/-



- Licence is hereby granted to : **M/s. SSPR Traders (Occupier : D.Sriramji)**
15-A2/1 INTUC Nagar ,Rajapalayam, Town/Village - Rajapalaya...
District-VIRUDHUNAGAR, State-Tamil Nadu, Pincode - 626117
- Status of licensee : Partnership Firm
- Licence is valid only for the following purpose : possess for use of Nitrate Mixture, Safety Fuse, Detonating Fuse, Electric and/or Ordinary Detonators,
- (a) Licence is valid for the following kinds and quantity of explosives:

Sr. No.	Name and Description	Class & Division	Sub-division (If any)	Quantity at any one time
1.	Nitrate Mixture	2,0	0	1200 Ke
2.	Safety Fuse	6,1	0	5000 Mtrs
3.	Detonating Fuse	6,2	0	10000 Mtrs
4.	Electric and/or Ordinary Detonators	6,3	0	22000 Nos.

(b) Quantity of explosives to be purchased in a calendar month [applicable for licence under article 3(b) and (c)] : 10 times as above.

- The licensed premises shall conform to the following drawing(s):
Drawing No : FSC/TN/22709(E95179) Dated : 19/07/2017
- The licensed premises are situated at following address:
Survey No. 100/2A , Town/Village : D.Kadambankulam Village
Police Station : Aviyur District : VIRUDHUNAGAR State : Tamil Nadu
PinCode : 626117 Phone : E-Mail : Fax :
- The licensed premises consist of following facilities : One Explosives Storage shed, one lobby and a detonator storage shed.
- 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) Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
(2) Conditions and Additional Conditions of this licence signed by the licensing authority.
(3) Distance Form DE-2
- This licence shall remain valid till 31st day of March 2022

This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

The Date 19/07/2017

Joint Chief Controller of Explosives,
South Circle, Chennai

Endorsement for renewal of licence

Date of Renewal

Date of Expiry

Signature of licensing authority

Statutory Warning : Mis-handling and misuse of explosives shall constitute serious criminal offence under the law.

Handwritten signature



GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION (PESOI)

(Formerly Department of Explosives)
A & D - Wing, Block 1-8, 1st Floor, Shastri Bhavan
26 Haddous Road, Nungambakkam Chennai 600006
Tele: 28281023 Fax: 28284848
Email: jtecechennai@explosives.gov.in



No.: E/SC/TN/25/1127(E96180)

Dated: 16/02/2017

To,
D Sriramji,
15-A2/1, INTUC Nagar, Rajapalayam, Town/Village - RAJAPALAYAM
District-VIRUDHUNAGAR, State-Tamil Nadu, Pincode - 626117

Subject: Road Van for transport of Explosives by Vehicle Reg. No. : TN-67/AZ-5666 Licence No.: E/SC/TN/25/1127(E96180)
granted in Form LE-7 of Explosives Rules, 2008 -
Change in Licensee Name/Address/Status.

Sir(s),

Please refer to your letter No. NIL dated 23/07/2017 on the subject cited above.

The following changes are effected in licence No.: E/SC/TN/25/1127(E96180) with respect to the subject below
Change in Licensee Name/Address/Status.

The subject license is transferred from A. RAGUSANKAR to D Sriramji.

The names of the Authorized Signatory/Occupier in Licence records are noted below.

- | No | Name |
|----|------------------------------------|
| 1) | D. Sriramji (Occupier) |
| 2) | D. Sriramji (Authorized Signatory) |

This Licence shall remain valid till 31st day of March 2020.

For further renewal of licence, please follow the procedure under Rule 112 of Explosives Rules, 2008.
Receipt of this letter may please be acknowledged.

Enclosures :

(Signature)
(Dr Ashok Kumar, IAS)
Joint Chief Controller of Explosives
South Circle, Chennai

Copy Forwarded to:

1. The Dy. Chief Controller of Explosives, Sivakasi.
2. District Magistrate, VIRUDHUNAGAR, Tamil Nadu with reference to his Noc No: R.Dis. (D4)44505/2014 Dated: 26/01/2015.
3. Superintendent of Police, VIRUDHUNAGAR, Tamil Nadu

Joint Chief Controller of Explosives
South Circle, Chennai

[For more information regarding status, fees and other details, please visit our web site <http://pesoi.gov.in>]

अनुमति प्रारूप एनई - 7 / LICENCE FORM LE-7
(विस्फोटक नियम 2008 की अनुसूची 4 के भाग 1 का अनुच्छेद 7 देखें)
(See article no 7 of Part I of Schedule IV of Explosives Rules, 2008)



अनुमति : सड़क वैन में विस्फोटकों के परिवहन के लिए
Licence to : transport explosives in a road van

अनुमति संख्या / Licence No. : E/SC/TN/25/1127(E96180)
वार्षिक फीस रूप / Annual Fee Rs 2500/-



1. अनुमति एतद्वारा जारी की जाती है
Licence is hereby granted to **D Sriramji (Occupier : D. Sriramji)**
15-A2/1, INTUC Nagar, Rajapalayam,
District-VIRUDHUNAGAR, State-Tamil Nadu, Pincode-626117
2. अनुमतिधारी की प्रस्थिति / Status of licensee : Individual
3. सड़क वैन की विशेषताएँ / Particulars of the road van:

पंजीकरण संख्या / Registration No.
 यान का मेक एवं मॉडल / Make and model of vehicle
 लदान रहित वजन / Unladen weight
 लदान सहित अधिकतम वजन / Maximum laden weight
 परिवहन के लिए अनुमोद विस्फोटकों की अधिकतम मात्रा
 Maximum quantity of explosives permitted for transport
 इंजन संख्या / Engine No.
 चैसिस संख्या / Chassis No.
 अन्य फिटिंग्स का विवरण / Description of Other Fittings
 वाहन के लिए अनुमोद विस्फोटकों की मात्रा / Quantity of Explosives permitted to carry

TN-67/AZ-5666
 TATA ACL BS II 2009
 1095 Kgs(s)
 1550 Kg(s)
 400 Kg(s)
 2751D105AQZS03880
 445051AQZVO2998
 As per approved drawing attached
 400 Kgrs)

4. अनुमति परिसर निम्नलिखित आरेखण (आरेखणों) के अनुरूप होना चाहिए / The licensed premises shall conform to the following drawings
 आरेखण संख्या / Drawing No : E/SC/TN/25/1127(E96180) दिनांक / dated : 09/08/2016
5. समय समय पर यथा सरोचित विस्फोटक अधिनियम, 1884 और उसके अधीन बनाए गए विस्फोटक नियम, 2008 के उपबन्धों और शर्तों एवं निम्नलिखित अनुलग्नकों के अधीन अनुमति प्रदान 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 thereunder and the conditions and the following annexures
 (क) उपर्युक्त कम संख्या 4 में यथाकथित सड़क वैन का आरेखण / (a) Drawings of the road van as stated in serial no-4 above
 (ख) अनुज्ञापन प्राधिकारी द्वारा हस्ताक्षरित शर्तें / (b) Conditions signed by the licensing authority
6. यह अनुमति तारीख 31 मार्च 2020 तक विद्यमान रहेगी / This licence shall remain valid till 31st day of March 2020

यह अनुमति अधिनियम या उसके अधीन विरचित नियमों या इस अनुमति की शर्तों के अन्तर्गत अनुसूची 5 के भाग 4 में सम्बंधित जहाँ भी लागू हो, या यदि अनुमति परिसर आरेखण या उससे संलग्न उपायदो में दर्शाए गए विवरण के अनुरूप नहीं पाए जाने पर सिलसिले या प्रतिसंहत की जा सकती 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, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and annexure attached hereto.

दिनांक / Date: 09/08/2016

Transfers :
 • Change in Licensee Name/Address-Status dated 16.02.2017

संयुक्त मुख्य विस्फोटक नियंत्रक : Joint Chief Controller in Explosives
 दक्षिणार्धम, चेन्नई : South Arcot, Chennai

अनुमति के नवीनीकरण हेतु पृष्ठांकन / Endorsement for renewal of licence.		
नवीनीकरण की तिथि Date of Renewal	वैधता समाप्ति की तिथि Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर Signature of licensing authority

वैधानिक चेतावनी : विस्फोटकों का लापरवाही से प्रयोग या दुरुप्रयोग, विधि के अधीन गम्भीर दण्डित अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

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 [Handwritten signature]



GOVERNMENT OF INDIA
 MINISTRY OF COMMERCE & INDUSTRY
 PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION (PESO)
 (Formerly Department of Explosives)
 No.140, Rukmini Laxmipati Road,
 Marshalls Road, Egmore, Chennai 600008
 Tele: 28514848 Fax: 28514848
 Email: jtocechennai@explosives.gov.in



No: E/SC/TN/30/854(E53039)

Dated: 12/02/2014

To
 Shri D. Sriramji,
 D.No.46/215, Sankara Koll Soad, Rajapalayam, Virudhunagar-626117.
 Dist. VIRUDHUNAGAR, State. Tamil Nadu, Pincode-

Subject: Shot Firer's Certificate No.: E/SC/TN/30/854(E53039) granted in Form LE-10 of Explosives Rules 2008 - Revalidation regarding

Sir(s),

Reference to your letter No.: x dated: 16/01/2014, the subject certificate duly revalidated upto 31st March 2019 and issued in Form LE-10 of Explosives Rules, 2008 is forwarded herewith.

Conditions:

1) Blasting work in connection with well Sinking/Road Construction/Agricultural work etc.
 For further revalidation of certificate, please submit the following documents so as to reach The Dy. Chief Controller of Explosives, Sivakasi on or before 29/01/2019.

- Application in Form RE-1.
- Original Shot Firer's Certificate in Form LE-10.
- Scrutiny fee Rs. 100/- DD shall be drawn in favour of Jt. Chief Controller of Explosives, Chennai payable at Chennai.
- Six copies of colour passport size photographs duly signed by the occupier (as defined under Rule 2 (37) of Explosives Rules, 2008) 'in front' by 'black color indelible ink'.
- A physical fitness certificate from Registered medical practitioner.
- A consent letter from the present employer holding Licence in Form LE-3 and intending to hire the services of Certificate holder.
- The Shot Firer's Certificate holder has to present himself physically before reviewing/revalidating Authority.
- This Certificate is liable to be cancelled/withdrawn on contravention of provision of Explosive Rules, 2008 or dereliction of duty during working leading to loss of human life.

An amount of Rs. 500/- balance is in your credit, which may be utilized for future transaction by quoting this reference.

Enclosures :

Yours faithfully,

P. K. Rana

(Dr. P. K. Rana)

Controller of Explosives
 For Joint Chief Controller of Explosives
 South Circle, Chennai

Copy Forwarded to:

1. Police Station, Rajapalayam, VIRUDHUNAGAR, Tamil Nadu with reference to his Noc No: Nil Dated: 23/07/2009

For Joint Chief Controller of Explosives
 South Circle, Chennai

[For more information regarding status, fees and other details, please visit our web site <http://peso.gov.in>]



Form LE-10
Shot Firer's Certificate
(See article 10 of Part I of Schedule IV)
(see rule 107(5) of Explosives Rules, 2008)

(Certificate of competency to carry out blasting of explosives in area not coming under the Mines Act, 1952)



No.:E/SC/TN/30/854(E53039)

This is to certify that *Shri Shri D. Sriranjini*, born on ~~23/09/1982~~, resident of ~~D.No.46/215, Sankara Koil Soad, Rajapalayam, Virudhunagar~~, VIRUDHUNAGAR, Tamil Nadu passed the shotfirer's examination held on conducted by ,Chennai is authorised to conduct blasting operations as mentioned below using explosives in areas other than mines coming under the Mines Act 1952, subject to the provisions of the Explosives Act, 1884 and the rules framed thereunder.

Authorised class, category and type of blasting :

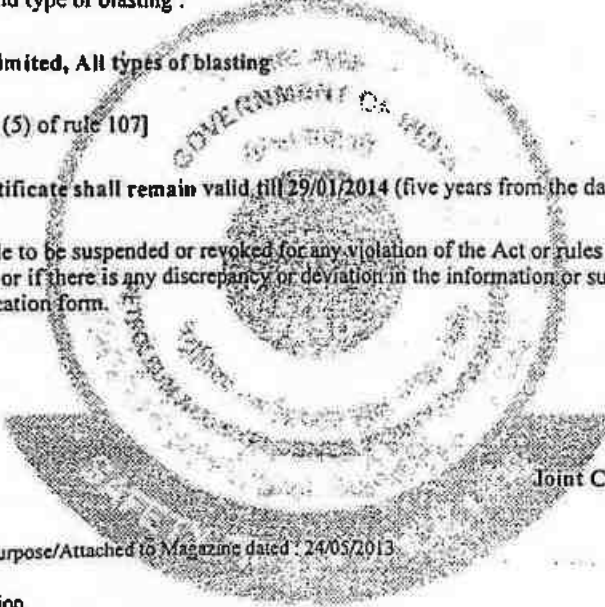
Class : (A), Category : Unlimited, All types of blasting

[See explanation of sub-rule (5) of rule 107]

This certificate shall remain valid till 29/01/2014 (five years from the date of issue)

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.

Place: Chennai
Date: 12/02/2014



Sd/-
Joint Chief Controller of Explosives
South Circle, Chennai

Amendments :
• Change in Postal Address/Purpose/Attached to Magazine dated : 24/05/2013

Endorsement for revalidation

Date of Revalidation	Date of Expiry	Signature of licensing authority
12/02/2014	29/01/2019	<i>[Signature]</i> J. Chief Controller of Explosives, South Circle, Chennai

Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

[Handwritten signature]

List of Licences Granted in LE 10 -> Form30, Explosives Rules, 2008,
As on dated 08-Jun-2019

Sr. No.	Old licence No.	New Licence No. (DocKey)	Name and Address (Correspondance)	Date of Grant Of Licence	Validity Of Licence	Current Status
1	NA	E/SC/TN/30/R54 (E53039)	Shri D. Sriramj D.No.46/215, Sankara Kol Soad.Rajapalayam,Virudhunagar-626117, VIRUDHUNAGAR, Tamil Nadu - 626117	29-01-2010	29-01-2024	Valid

179. *S. Rajas*



**CERTIFICATE OF RECOGNITION AS
QUALIFIED PERSON TO PREPARE MINING PLANS
(Under Rule 22 C of Mineral Concession Rules 1960)**

Shri R. Gururamachandran resident of G-2, Sree Apartments, 4, 29th Cross, Avvai Nagar, Lawspet, Puducherry – 605 008, son of Shri K. Rengasamy having given satisfactory evidence of his qualifications and experience is hereby granted recognition under Rule 22C of the Mineral Concession Rules, 1960 as a Qualified Person to prepare Mining Plans.

His registration number is

RQP/MAS/224/2010/A

recognition is valid for a period of ten years ending 24/11/2020.

[Signature]
25/11

Regional Controller of Mines
Indian Bureau of Mines
Chennai Region

Place : Chennai
Date : 25.11.2010

[Signature]
R. GURURAMACHANDRAN, M.Sc.,
Recognized Qualified Person
Reg.No: RQP / MAS / 224 / 2010 / A

[Signature]

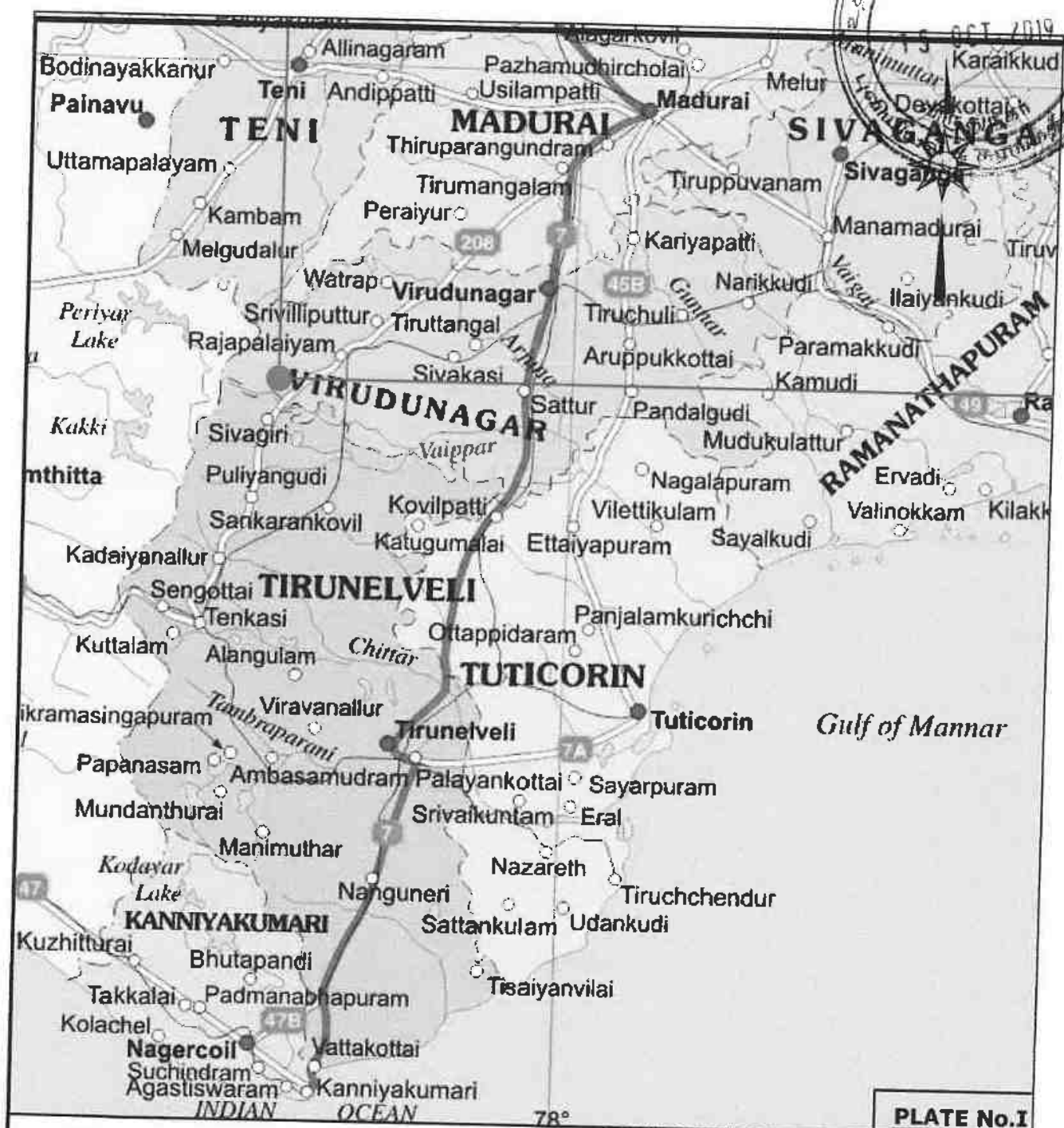


PLATE No.I

LOCATION OF THE APPLIED AREA:-
S.F.Nos. :293/1A(PART)&293/2B(PART)
EXTENT :1.10.5 HECTERS
VILLAGE :MELUR DURAISAMPURAM
TALUK :RAJAPALAYAM
DISTRICT :VIRUDHUNAGAR

NAME OF THE APPLICANT:-
THIRU. K.A.RAJAGOPAL,
S/O ARJUNA RAJA,
No.24E,GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR-DISTRICT,
PINCODE-626 117.

QUARRY APPLIED AREA

● State capital	— Golden Quadrilateral
● District headquarters	— North-South & East-West Corridors
○ Other town	— National Highway
45 National Highway number	— Railway

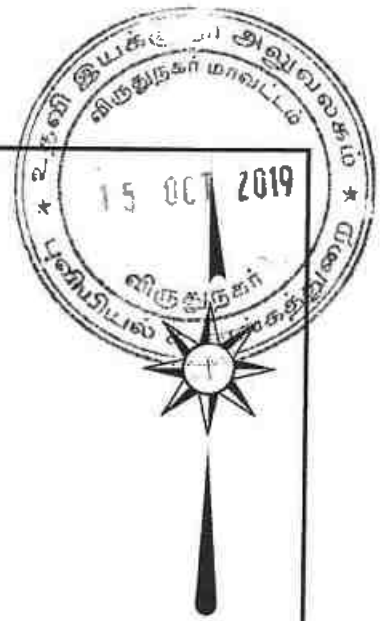
LOCATION PLAN
 (NOT TO SCALE)

PREPARED BY:-

R. Gururamachandran

R.GURURAMACHANDRAN, M.Sc.,
 Recognized Qualified Person
 Reg.No : RQP / MAS / 224 / 2010 / A

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S. Rajagan



RAJAPALAYAM

ZAMIN KOLLANKONDAN

NH-744

SETHUR

DEVADANAM

TERKU DEVADANAM

1KM

2KM

3KM

CHOKKANATHAN PUTHUR

SIVAGIRI

**TOWARDS
DEVIPATANAM
2KM**

PLATE No.IA

LOCATION OF THE APPLIED AREA:-

S.F.Nos. :293/1A(PART)&293/2B(PART)
EXTENT :1.10.5 HECTERS
VILLAGE :MELUR DURAISAMPURAM
TALUK :RAJAPALAYAM
DISTRICT :VIRUDHUNAGAR

NAME OF THE APPLICANT:-
THIRU. K.A.RAJAGOPAL,
S/O ARJUNA RAJA,
No.24E,GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR-DISTRICT,
PINCODE-626 117.

LEGEND

1	MINING LEASE AREA	
2	NATIONAL HIGH WAY	
3	OTHER ROAD	
4	APPROACH ROAD	

KEY MAP

(NOT TO SCALE)

PREPARED BY:-

R.GURURAMACHANDRAN, M.Sc.;
 Recognized Qualified Person

Reg.No: RQP/MAS/224/2010/A

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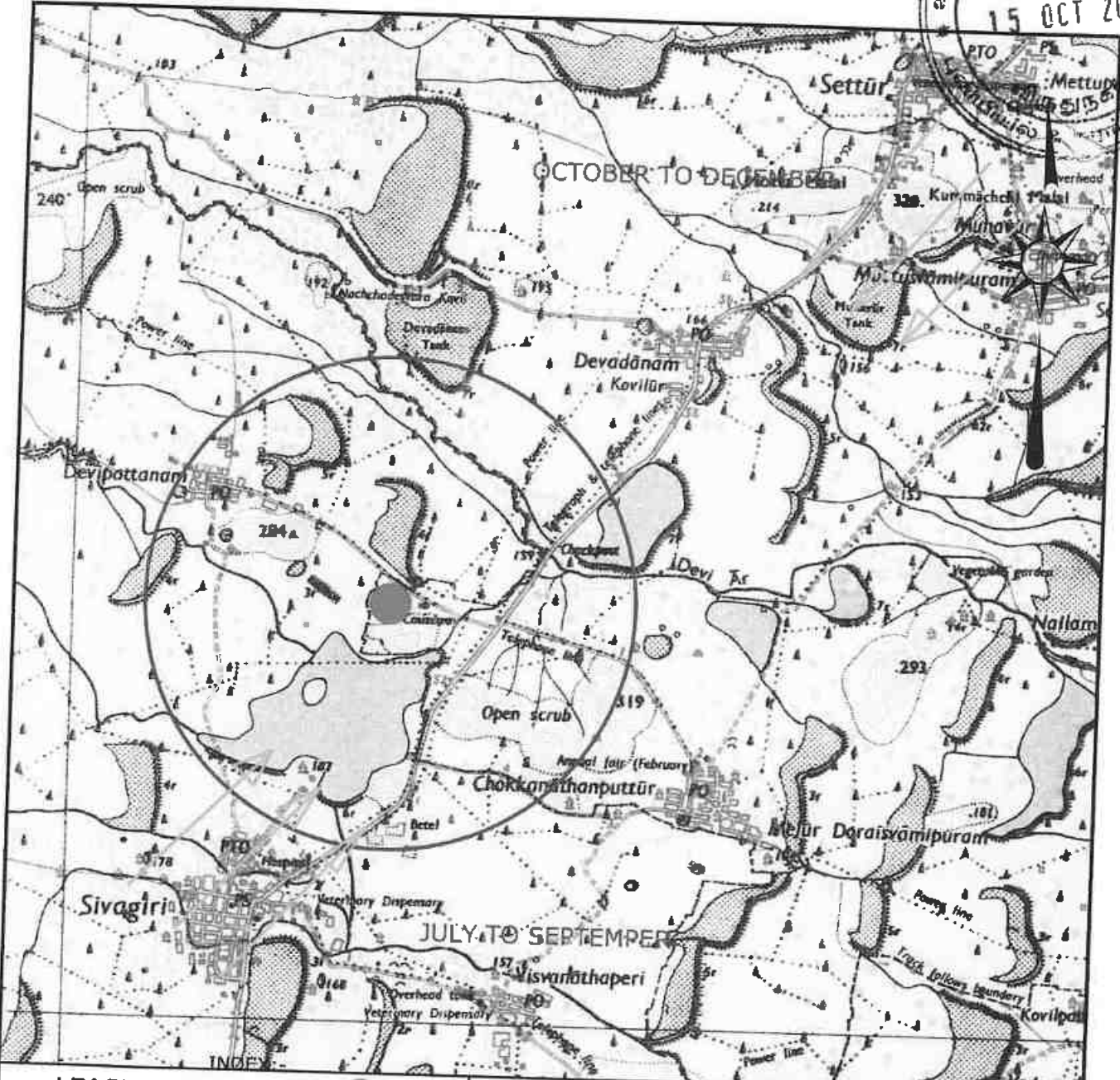


PLATE No. IA

LEASE AREA
APPROACH ROAD
2 KM RADIUS

CONVENTIONAL SYMBOLS

Express highway with toll, air bridge with distance scale	
Roads marked according to importance	
Roads, double carriage way, according to importance	
Canals with water, canals with flow without flow	
Drains with back filled, unfilled Canal	
Dams, masonry or rock filled, earthen Weir	
Flow, dry with water channels, with islands & rocks, tidal flow	
Water wheels, unlined Tubewell, Boring, Tanks, perennial, dry	
Breaker ground	
Highways, broad gauge, double, single with station under center	
Railways, other gauges, double, single with distance scale, do	
Mineral line of railway, Km. Cutting with haulage	

NAME OF THE APPLICANT:-
THIRU. K.A.RAJAGOPAL,
S/O ARJUNA RAJA,
No.24E,GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR-DISTRICT,
PINCODE-626 117.

TOPO SHEET No:-58 G/7
LATTITUDE :-09° 21'50" TO 08° 21'53.70"
LONGITUDE:-77° 26'26" TO 77° 26'31.33"

KEY PLAN
 (SCALE:-1:50,000)

PREPARED BY:-

R. Gururamachandran
R.GURURAMACHANDRAN, M.Sc.,
Recognized Qualified Person
 No. 100/RQP/MAS/224/2010/A

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Signature



R1 - 9° 21' 52.93" N 77° 26' 31.33" E
R2 - 9° 21' 51.00" N 77° 26' 31.20" E
R3 - 9° 21' 50.40" N 77° 26' 28.65" E
R4 - 9° 21' 50.70" N 77° 26' 28.00" E
R5 - 9° 21' 51.50" N 77° 26' 27.70" E
R6 - 9° 21' 51.80" N 77° 26' 26.00" E
R7 - 9° 21' 53.70" N 77° 26' 26.45" E

SAFETY DISTANCE FROM PATTA LANDS -7.5M
SAFETY DISTANCE FROM GOVT.PORAMBOKE-10M

S.F.Nos	EXTENT(Ha)
293/1A(P)	0.53.0
293/2B(P)	0.57.5
TOTAL	1.10.5

PLATE NO:III

NAME OF THE APPLICANT:-
THIRU. K.A.RAJAGOPAL,
S/O ARJUNA RAJA,
No.24E,GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR-DISTRICT,
PINCODE-626 117.

LOCATION OF THE APPLIED AREA:-
S.F.Nos. :293/1A(PART)&293/2B(PART)
EXTENT :1.10.5 HECTERS
VILLAGE :MELUR DURAISAMPURAM
TALUK :RAJAPALAYAM
DISTRICT :VIRUDHUNAGAR

INDEX:-

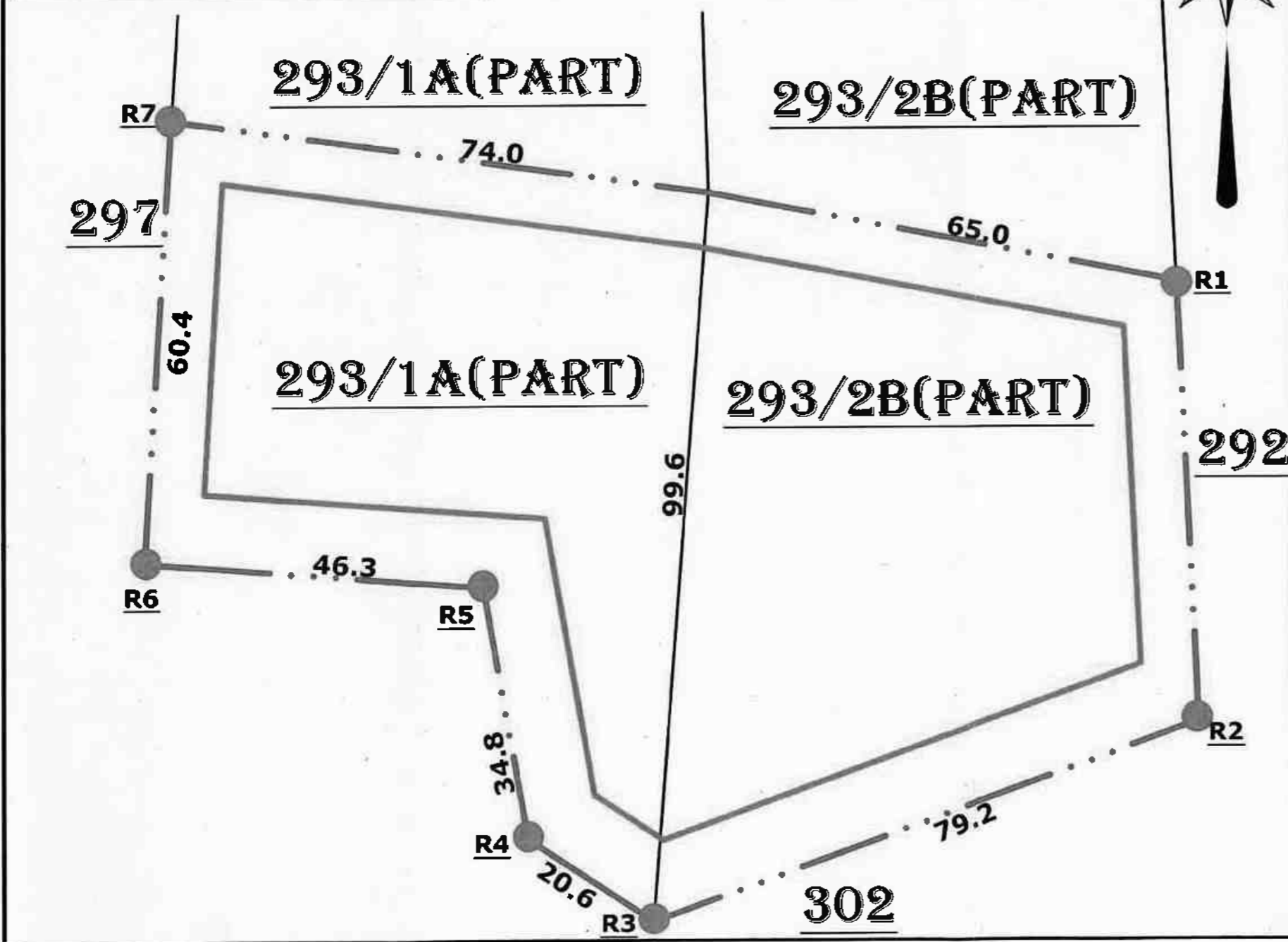
M.L.BOUNDARY	
SAFETY LINE	
BOUNDARY PILLARS	

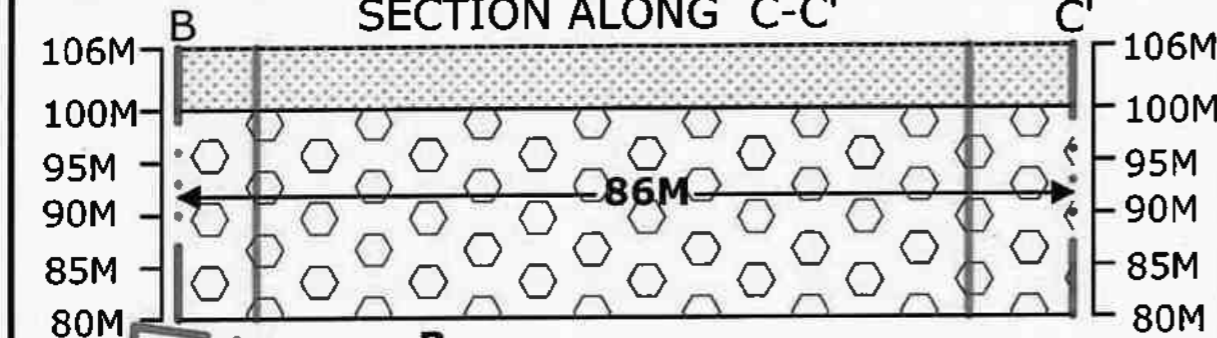
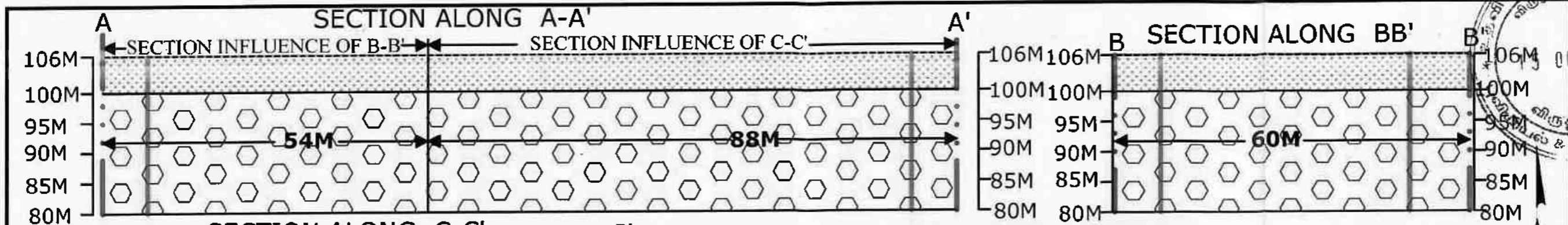
MINE LEASE PLAN

SCALE:- 1:1000

ALL PLANS AND SECTIONS ARE PREPARED BASED ON THE LEASE PLAN AUTHENTICATED BY THE STATE GOVERNMENT.

R. Gururamachandran
R.GURURAMACHANDRAN, M.Sc.,
 Recognized Qualified Person
 Reg.No: RQP / MAS / 224 / 2010 / A

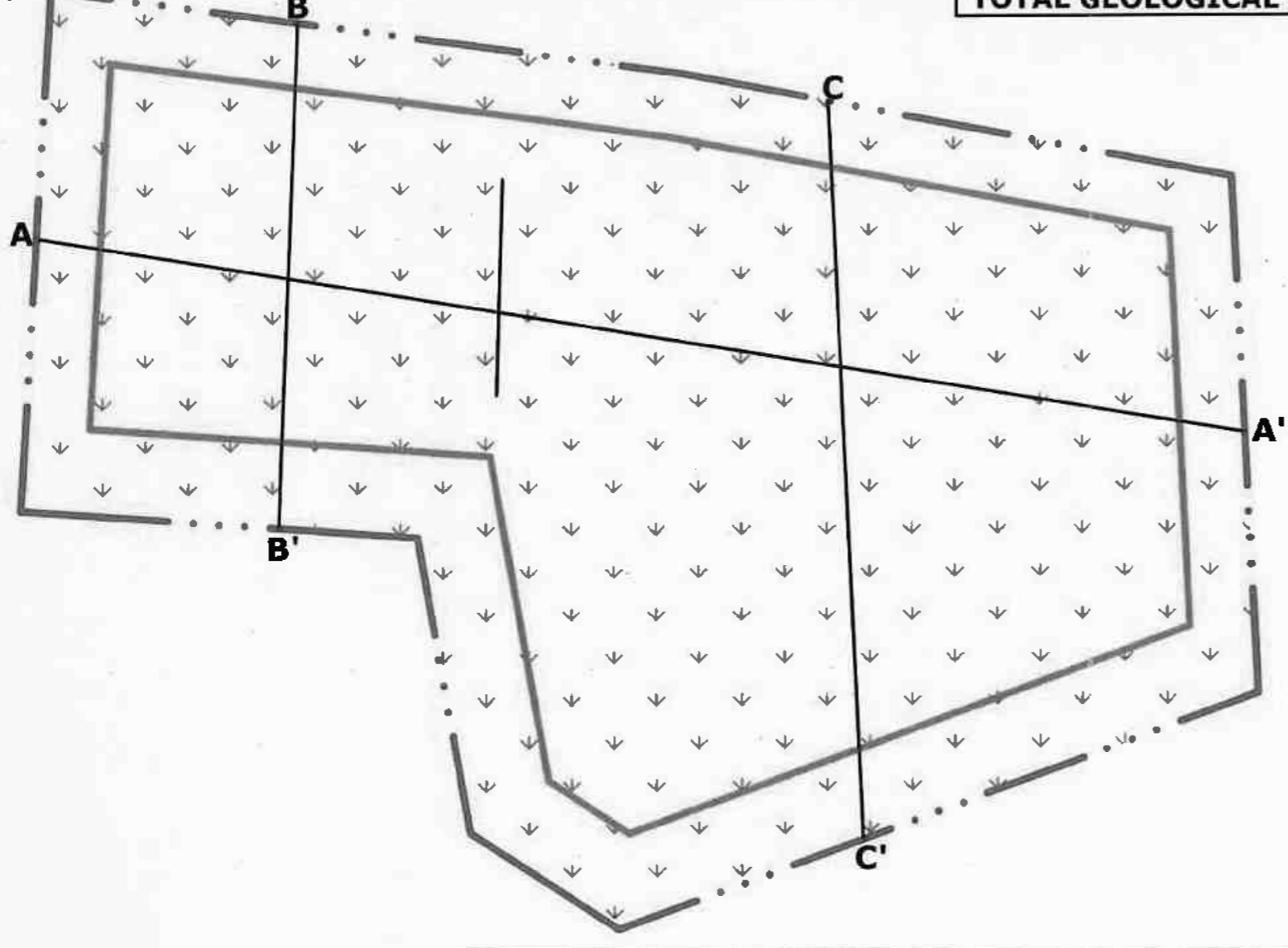




GEOLOGICAL RESERVES

SECTION	LENGTH	WIDTH	DEPTH	ROUGH STONE VOLUME M ³	TOP SOIL WITH GRAVEL VOLUME M ³
A A' & B B'	54M	60M	6.0M	-	19,440
A A' & C C'	54M	60M	20.0M	64,800	-
	88M	86M	6.0M	-	45,408
	88M	86M	20.0M	1,51,360	-
TOTAL GEOLOGICAL RESERVES				2,16,160	64,848

PLATE NO:IV



NAME OF THE APPLICANT:-
THIRU. K.A.RAJAGOPAL,
S/O ARJUNA RAJA,
No.24E,GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR-DISTRICT,
PINCODE-626 117.

INDEX:-

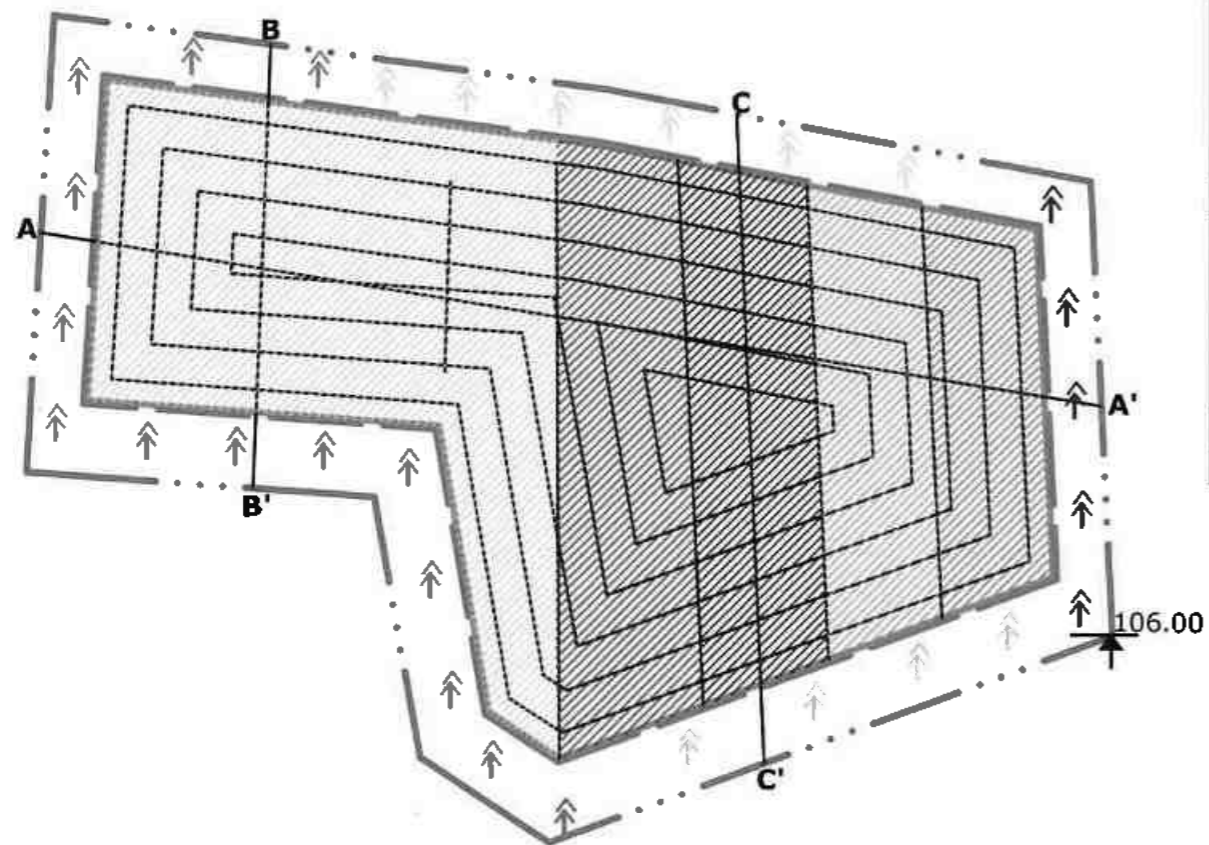
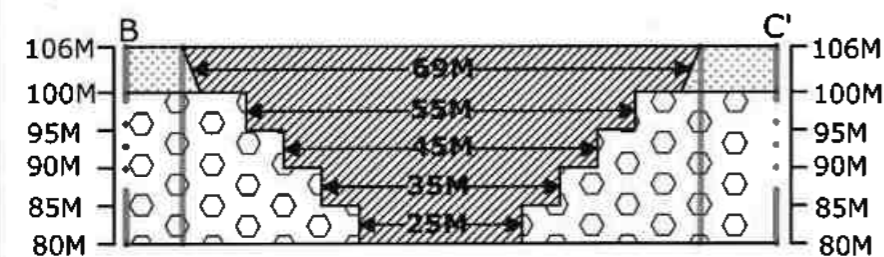
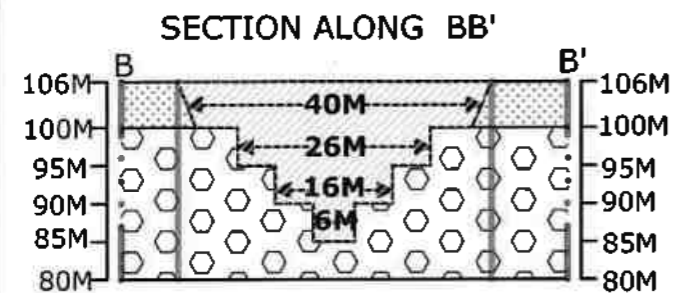
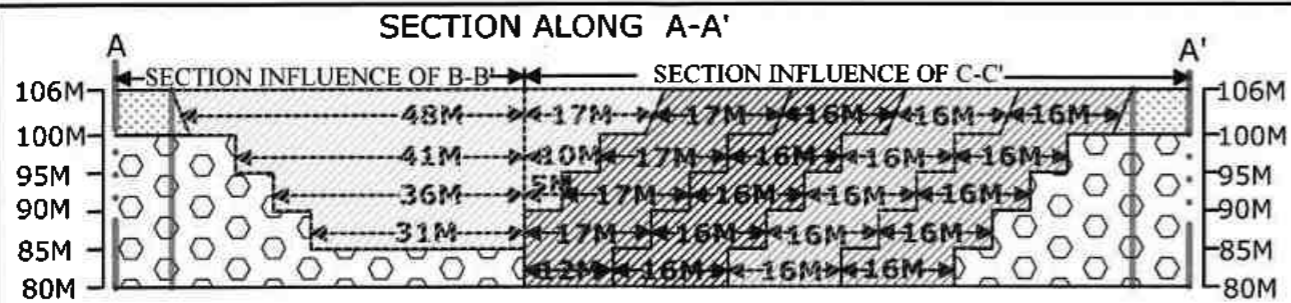
LEASE APPLIED AREA	
SAFETY DISTANCE	
TOP SOIL	
CHORNOCKITE	

SURFACE AND GEOLOGICAL PLAN AND SECTIONS

SCALE 1:1000

ALL PLANS AND SECTIONS ARE PREPARED BASED ON THE LEASE PLAN AUTHENTICATED BY THE STATE GOVERNMENT.

R.GURURAMACHANDRAN, M.Sc.,
 Recognized Qualified Person
 Reg.No: RQP/MAS/224/2010/A



YEAR WISE PRODUCTION SCHEDULE

SECTION	LENGTH	WIDTH	DEPTH	ROUGH STONE VOLUME M ³	TOP SOIL WITH GRAVEL VOLUME M ³
A A' & B B'	48M	40M	6.0M	-	11,520
	41M	26M	5.0M	5,330	-
	36M	16M	5.0M	2,880	-
	31M	6M	5.0M	930	-
	17M	69M	6.0M	-	7,038
A A' & C C'	10M	55M	5.0M	2,750	-
	5M	45M	5.0M	1,125	-
	I YEAR EXCAVATION			13,015	18,558
A A' & C C'	17M	69M	6.0M	-	7,038
	17M	55M	5.0M	4,675	-
	17M	45M	5.0M	3,825	-
	17M	35M	5.0M	2,975	-
	12M	25M	5.0M	1,500	-
II YEAR EXCAVATION			12,975	7,038	
A A' & C C'	16M	69M	6.0M	-	6,624
	16M	55M	5.0M	4,400	-
	16M	45M	5.0M	3,600	-
	16M	35M	5.0M	2,800	-
	16M	25M	5.0M	2,000	-
III YEAR EXCAVATION			12,800	6,624	
A A' & C C'	16M	69M	6.0M	-	6,624
	16M	55M	5.0M	4,400	-
	16M	45M	5.0M	3,600	-
	16M	35M	5.0M	2,800	-
	16M	25M	5.0M	2,000	-
IV YEAR EXCAVATION			12,800	6,624	
A A' & C C'	16M	69M	6.0M	-	6,624
	16M	55M	5.0M	4,400	-
	16M	45M	5.0M	3,600	-
	16M	25M	5.0M	2,000	-
V YEAR EXCAVATION			12,800	6,624	
TOTAL MINEABLE RESERVES			64,390	45,468	

AFFORESTATION PROGRAMME FOR FIVE YEARS

YEAR	No OF TREES	SURVIVAL	TYPE OF TREE
I-YEAR	25	80%	NEEM
II-YEAR	25	80%	NEEM
III-YEAR	25	80%	NEEM
IV-YEAR	25	80%	NEEM
V-YEAR	25	80%	NEEM



PLATE NO:V

NAME OF THE APPLICANT:-
THIRU. K.A.RAJAGOPAL,
S/O ARJUNA RAJA,
No.24E,GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR-DISTRICT,
PINCODE-626 117.

LOCATION OF THE APPLIED AREA:-
S.F.Nos. :293/1A(P)&293/2B(P)
EXTENT :1.10.5 HECTERS
VILLAGE :MELUR DURAISAMPURAM
TALUK :RAJAPALAYAM
DISTRICT :VIRUDHUNAGAR

INDEX:-

LEASE HOLD BOUNDARY	———
SAFETY DISTANCE	———
TOP SOIL	.....
CHORNOCKITE	.....
BENCH MARK	⬇️ TBM 106.00
I- YEAR EXCAVATION	.....
II YEAR EXCAVATION	.....
III YEAR EXCAVATION	.....
IV YEAR EXCAVATION	.....
V YEAR EXCAVATION	.....
EARTH BUND	———

LAND USE, PRODUCTION PLAN & SECTIONS

SCALE:-1:1,000

ALL PLANS AND SECTIONS ARE PREPARED BASED ON THE LEASE PLAN AUTHENTICATED BY THE STATE GOVERNMENT.

R. Gururamachandran
R.GURURAMACHANDRAN, M.Sc.,
Recognized Qualified Person

Reg.No: RQP / MAS / 224 / 2010 / A

K.A. Rajagopal



PLATE NO:VI

NAME OF THE APPLICANT:-
THIRU. K.A.RAJAGOPAL,
S/O ARJUNA RAJA,
No.24E,GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR-DISTRICT,
PINCODE-626 117.

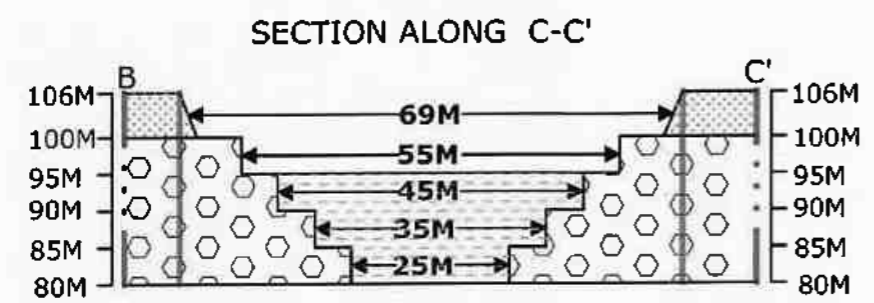
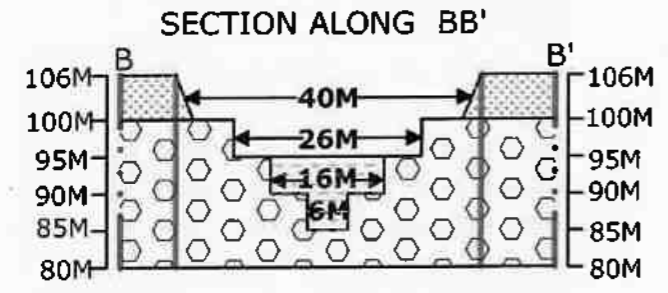
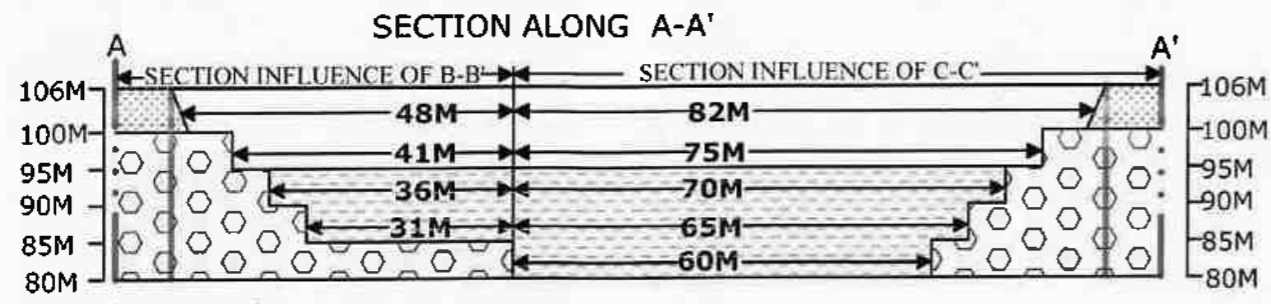
LOCATION OF THE APPLIED AREA:-
S.F.Nos. :293/1A(P)&293/2B(P)
EXTENT :1.10.5 HECTERS
VILLAGE :MELUR DURAISAMPURAM
TALUK :RAJAPALAYAM
DISTRICT :VIRUDHUNAGAR

- INDEX:-**
- LEASE HOLD BOUNDARY
 - SAFETY DISTANCE
 - PROPOSED EARTH BUND
 - TEMPORARY BENCH MARK
 - GREEN BELT
 - SITE SERVICES
 - WATER RESERVOIR
 - TOP SOIL WITH GRAVEL
 - CHORNOCKITE
 - PROPOSED BENCHES

**CONCEPTUAL
 PLAN AND SECTIONS
 SCALE:-1:1,000**

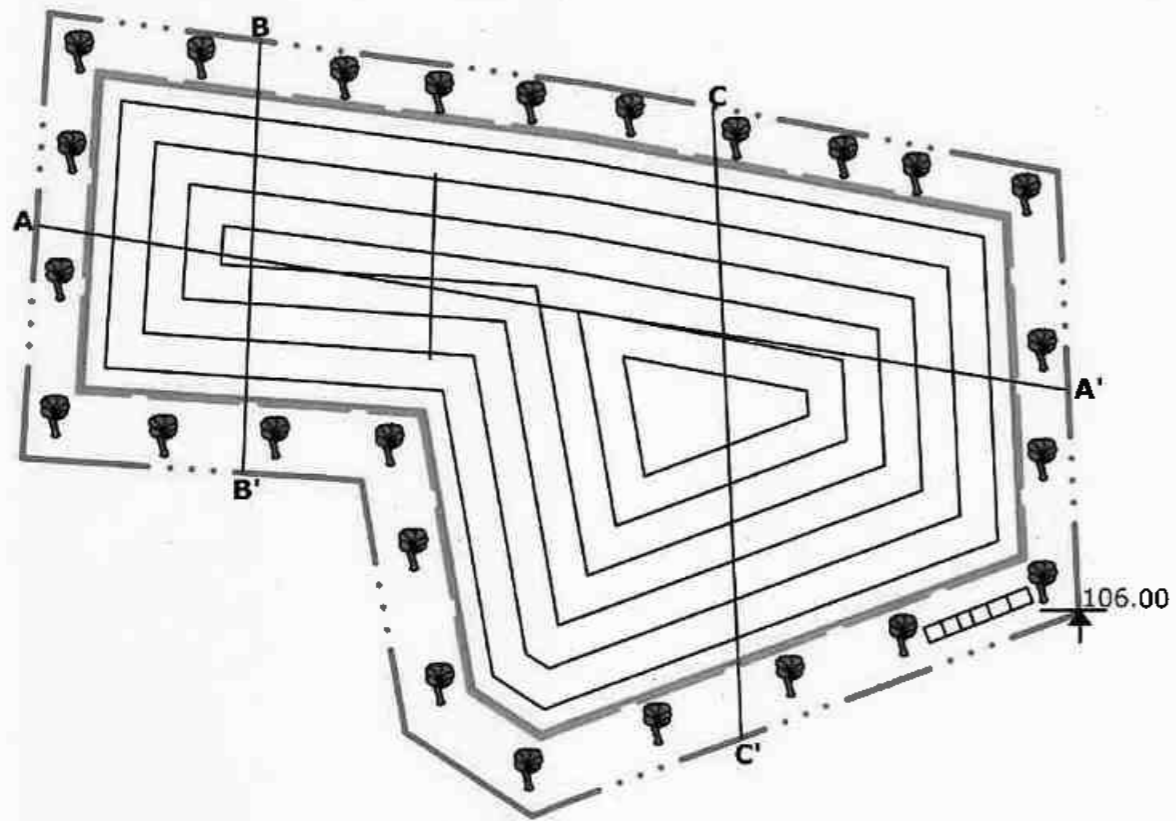
ALL PLANS AND SECTIONS ARE PREPARED
 BASED ON THE LEASE PLAN AUTHENTICATED
 BY THE STATE GOVERNMENT.

R. Gururamachandran
R.GURURAMACHANDRAN, M.Sc.,
 Recognized Qualified Person
 Reg.No. RQP/MAS/224/2010/A



MINEABLE RESERVES

SECTION	LENGTH	WIDTH	DEPTH	ROUGH STONE VOLUME M ³	TOP SOIL WITH GRAVEL VOLUME M ³
A A' & B B'	48M	40M	6.0M	-	11,520
	41M	26M	5.0M	5,330	-
	36M	16M	5.0M	2,880	-
	31M	6M	5.0M	930	-
A A' & C C'	82M	69M	6.0M	-	33,948
	75M	55M	5.0M	20,625	-
	70M	45M	5.0M	15,750	-
	65M	35M	5.0M	11,375	-
	60M	25M	5.0M	7,500	-
TOTAL MINEABLE RESERVES				64,390	45,468



ULTIMATE PIT SIZE

SECTION	LENGTH	WIDTH	DEPTH
A A' & B B'	48M	40M	21.0M
A A' & C C'	82M	69M	26.0M

K.A. Rajagopal

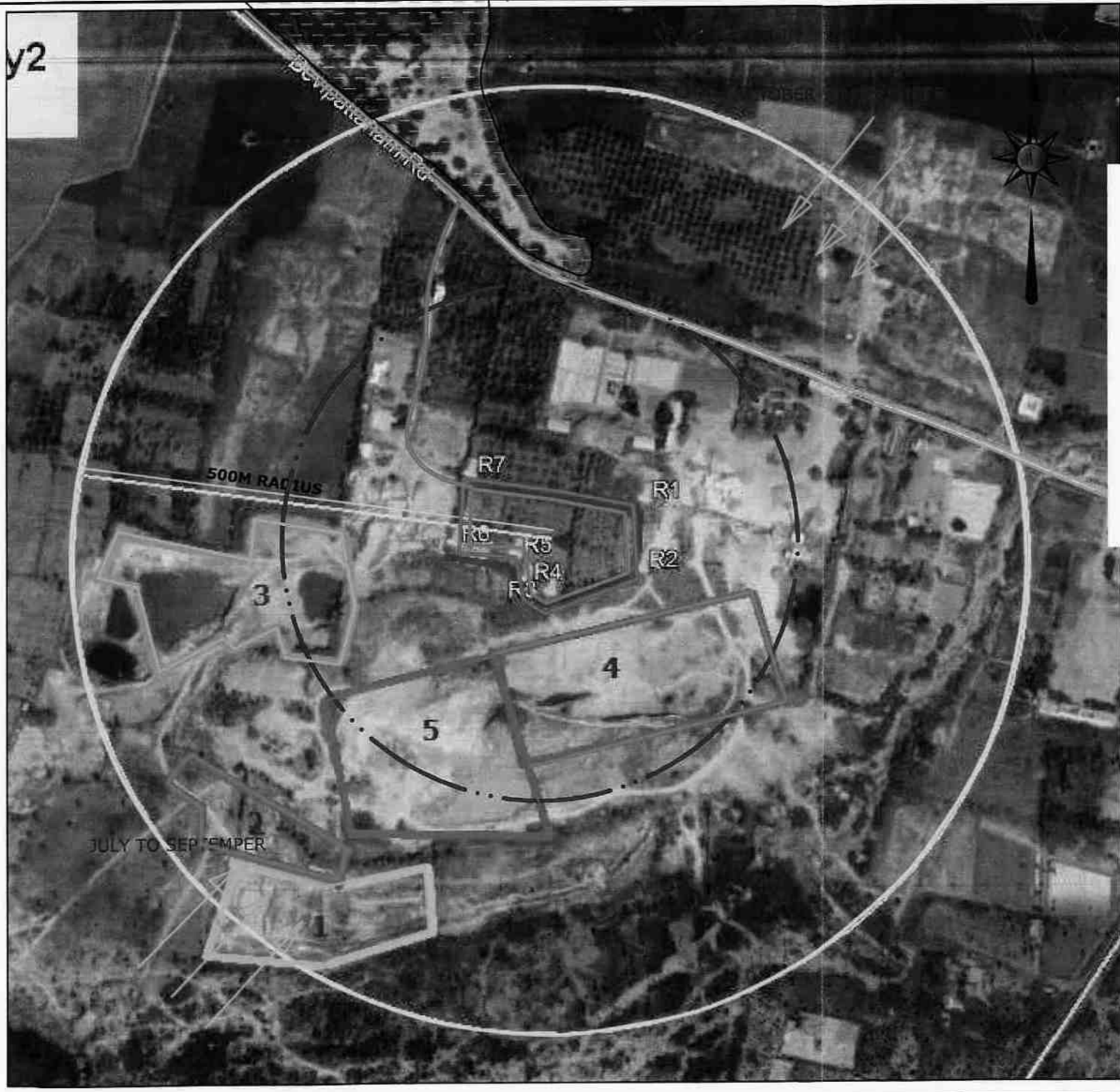


PLATE No. VII

NAME OF THE APPLICANT:-
THIRU. K.A.RAJAGOPAL,
S/O ARJUNA RAJA,
No.24E,GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR-DISTRICT,
PINCODE-626 117.



LIST OF QUARRIES WITHIN 500 Mtrs RADIUS

Sl. No.	LESSEE	VILLAGE	SF.Nos.	EXTENT in Hectrs.
I. EXISTING QUARRIES:				
1.	N.S.Satheesh Kumar Rajapalayam.	MelurDuraisampuram (KV1/148759/2013 dt.9.1.2017) 22.1.2022	304/5(p), 305/1(p) (patta Land)	1.21.0
2.	A.Kamaraaj Rajapalayam	MelurDuraisampuram (KV1/38182/2014 dt.18.4.2017) 8.5.2022	304/3 & 304/4 (patta Land)	0.68.5
3.	K.A.Rajagopal, Rajapalayam	MelurDuraisampuram (KV1/5931/2017 dt.17.2.2018) 12.4.2023	301/1, 2A, 2C & 2D (patta Land)	1.58.0
4.	M.Sundaram, Srivilliputtur	MelurDuraisampuram (KV1/7427/2017 dt.15.3.2018) 18.4.2023	302 (p) (Govt. land)	2.00.0
5.	S.Victor Alphonse Raja, Rajapalayam	MelurDuraisampuram (KV1/7429/2017 dt.15.3.2018) 18.4.2023	302 (p) (Govt. land)	2.00.0
II. ABANDONED QUARRIES:			NIL	
III. PROPOSED QUARRIES :			NIL	
TOTAL				7.87.5

INDEX:-

- APPLIED AREA
- 500 M RADIUS
- 300 M RADIUS
- ROAD
- APPROACH ROAD
- WIND DIRECTION
- POND

ENVIRONMENT PLAN

SCALE:-1:5000

ALL PLANS AND SECTIONS ARE PREPARED
 BASED ON THE LEASE MAP AUTHENTICATED
 BY STATE GOVERNMENT

R. Gururamachandran
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 Recognized Qualified Person
 Reg.No: RQP / MAS / 224 / 2010 / A

JCA Rajagan

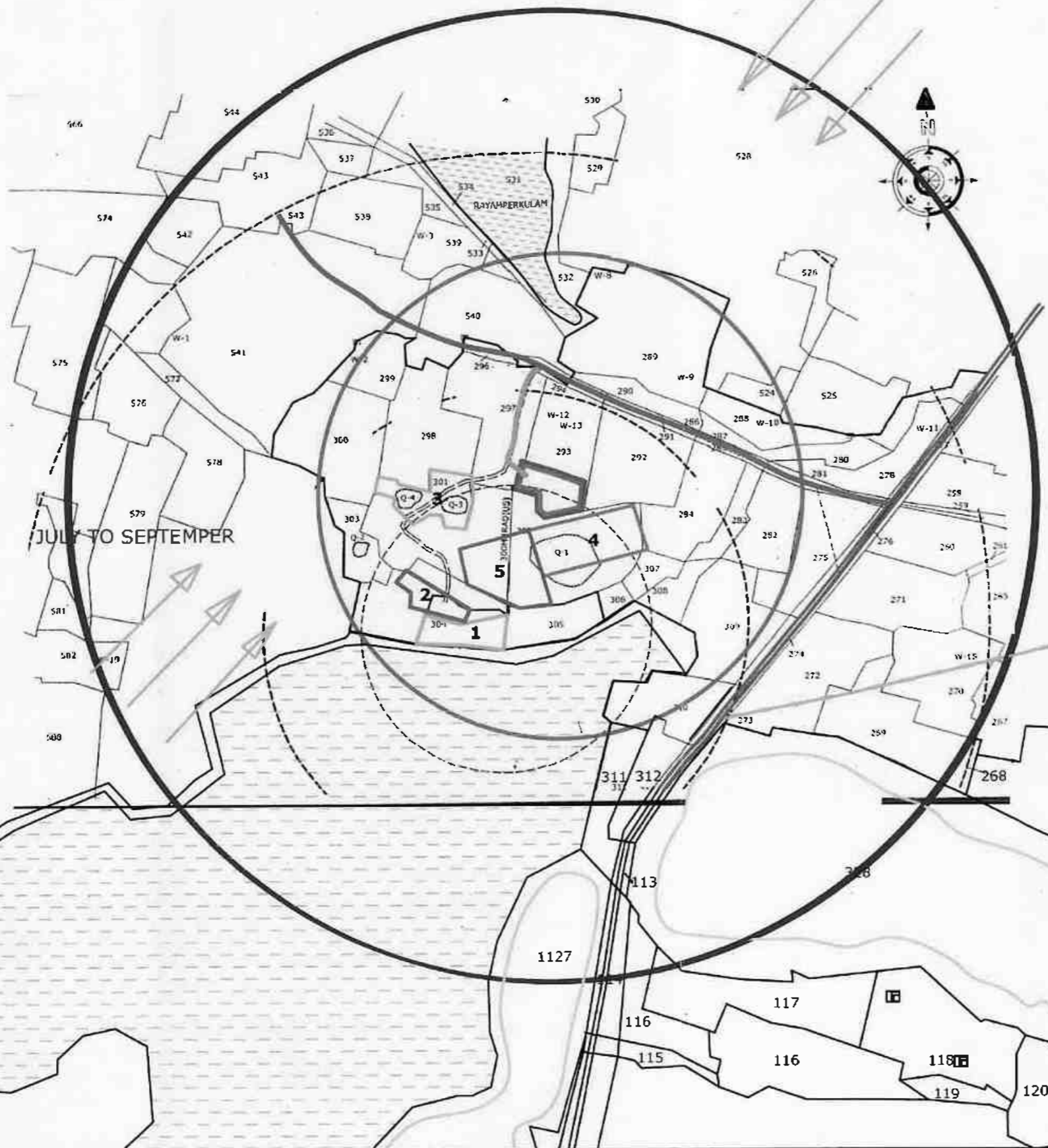


OCTOBER TO DECEMBER

NAME OF THE APPLICANT:-
THIRU. K.A.RAJAGOPAL,
S/O ARJUNA RAJA,
No.24E,GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR-DISTRICT,
PINCODE-626 117.

LIST OF QUARRIES WITHIN 500 Mtrs RADIUS

Sl. No.	LESSEE	VILLAGE	SF.Nos.	EXTENT in Hectrs.
I. EXISTING QUARRIES:				
1.	N.S.Satheesh Kumar Rajapalayam.	MelurDuraisa mypuram (KV1/148759/2013 dt.9.1.2017) 22.1.2022	304/5(p), 305/1(p) (patta Land)	1.21.0
2.	A.Kamaraj Rajapalayam	MelurDuraisa mypuram (KV1/38182/2014 dt.18.4.2017) 8.5.2022	304/3 & 304/4 (patta Land)	0.68.5
3.	K.A.Rajagopal Rajapalayam	MelurDuraisa mypuram (KV1/5931/2017 dt.17.2.2018) 12.4.2023	301/1, 2A, 2C & 2D (patta Land)	1.58.0
4.	M.Sundaram, Srivilliputtur	MelurDuraisa mypuram (KV1/7427/2017 dt.15.3.2018) 18.4.2023	302 (p) (Govt. land)	2.00.0
5.	S.Victor Alphonse Raja, Rajapalayam	MelurDuraisa mypuram (KV1/7429/2017 dt.15.3.2018) 18.4.2023	302 (p) (Govt. land)	2.00.0
II. ABANDONED QUARRIES:			NIL	
III. PROPOSED QUARRIES :			NIL	
TOTAL				7.87.5



JULY TO SEPTEMBER

- LEASE HOLD BOUNDARY
- SAFETY DISTANCE
- 1KM RADIUS
- 500 M RADIUS
- APPROACH ROAD
- ROAD
- WIND DIRECTION
- ODAI/CANAL
- WELL
- CART TRACK
- POND

VILLAGE MAP WITH ENVIRONMENTAL FEATURES
 SCALE:- 1:10,000

PLANS AND SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVERNMENT.

R. Gururamachandran
R.GURURAMACHANDRAN, M.Sc.,
 Recognized Qualified Person
 Reg.No: RQP / MAS / 224/2010/A

J. A. Rajagopal

PLATE No. VIII

NAME OF THE APPLICANT:-

**THIRU. K.A. RAJAGOPAL,
S/O ARJUNA RAJA,
No.24E, GUNDURMOORTHY STREET,
RAJAPALAYAM TOWN & TALUK,
VIRUDHUNAGAR-DISTRICT,
PINCODE-626 117.**

LOCATION OF THE APPLIED AREA:-

**S.F.Nos. : 293/1A(PART)&293/2B(PART)
EXTENT : 1.10.5 HECTERS
VILLAGE : MELUR DURAISAMPURAM
TALUK : RAJAPALAYAM
DISTRICT : VIRUDHUNAGAR**

INDEX:-

LEASE APPLIED AREA	---
LAYOUT OF MINE WORKING	▨
APPROACH ROAD	==
SAFETY DISTANCE	---
BENCH MARK	106.00
EARTH BUND	---

**PROGRESSIVE MINE
CLOSURE PLAN**
SCALE:- 1:1000

ALL PLANS AND SECTIONS ARE PREPARED
BASED ON THE LEASE PLAN AUTHENTICATED
BY THE STATE GOVERNMENT.

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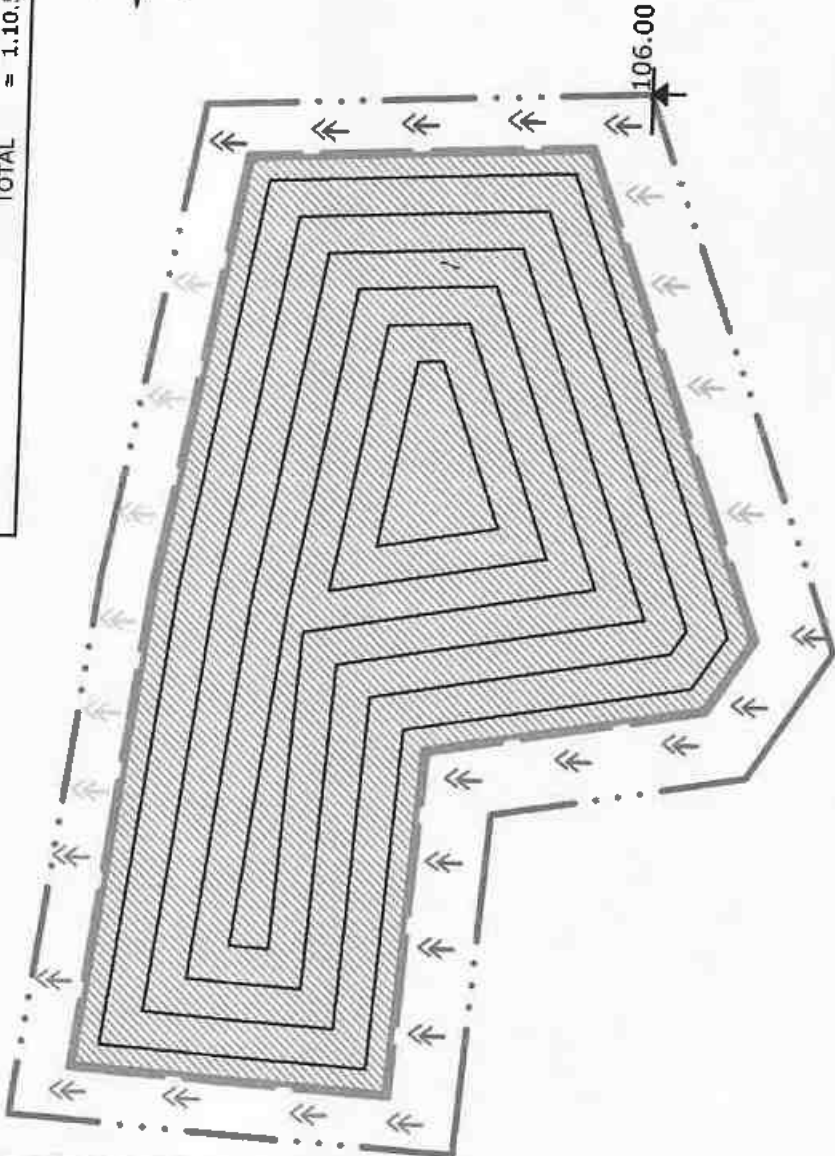
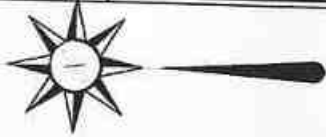
R. GURURAMACHANDRAN
Recognized Qualified Person

Reg.No: RQP / MAS / 224 / 2010 / 0000



MINE CLOSURE PLAN WITH LAND USE PATTERN

MINING / EXCAVATION	= 0.00.0 Ha
FUTURE MINING	= 0.70.0 Ha
STOCKING & MINERAL DRESSING YARD	= 0.00.0 Ha
FUTURE INFRASTRUCTURE	= 0.01.0 Ha
MINE ROAD	= 0.03.0 Ha
AFFORESTATION / MINE SAFETY	= 0.36.5 Ha
UNDISTURBED AREA	= 0.00.0 Ha
TOTAL	= 1.10.5 Ha



ULTIMATE PIT SIZE

SECTION	LENGTH	WIDTH	DEPTH
A A' & B B'	48M	40M	21.0M
A A' & C C'	82M	69M	26.0M

AFFORESTATION PROGRAMME FOR FIVE YEARS

YEAR	No of TREES	SURVIVAL	TYPE OF TREE
I-YEAR	75	80%	NEEM
II-YEAR	75	80%	NEEM
III-YEAR	75	80%	NEEM
IV-YEAR	75	80%	NEEM
V-YEAR	75	80%	NEEM

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