DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PLAN REPORT

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

FOR

OBTAINING

Environmental Clearance

Schedule Sl. No. 1 (a) (i): Mining Project

(Category B1 – Minor Mineral – Cluster – Non Forest Land)

Cluster Extent: 5.96.00 Ha

PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY

(3 PROPOSED QUARRIES)

STUDY PERIOD – December 2021 to February 2022

Located at

S.F.NOS. 180/4, 180/5, 180/8, 180/9, 180/10 AND 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHEEPURAM DISTRICT, TAMIL NADU

Project Proponent: Lessee

Thiru. S. Raju

S/o.Sivaji,

NO. 17/7, THOLKAPPIYAM STREET,

CHITLAPAKKAM, KANCHIPURAM,

TAMIL NADU STATE – 600 064

ENVIRO RESOURCES

(NABET Certificate No: NABET/EIA/1922/SA0133)

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MARCH 2022

UNDERTAKING BY CLIENT

I lessee as Thiru. S. Raju of Proposed Rough Stone Quarry at S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11, Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District, Tamil Nadu has an area of 2.50.0 Ha. While the total cluster area is 5.96.00 Ha give this undertaking is to the effect that the conditions laid down in Terms of Reference by SEIAA, Tamil Nadu vide Letter no. SEIAA/TN/F.No.8686/SEAC/ToR-1045/2022 dated 27.01.2022 for the proposed quarry.

The report has been complied with, the data submitted, and the information presented in the report is factually correct.

Date: 17/03/2022

Thiru.S.Raju,
S/o. Sivaji,
No. 17/7, Tholkappiyam Street,
Chitlapakkam, Kanchipuram,
Tamil Nadu State – 600 064.

Declaration by Expert

Declaration by Experts contributing to the EIA "Proposed Rough Stone Quarry at S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10, and 180/11, Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District, Tamil Nadu has an area of 2.50.0 Ha. While the cluster area is 5.96.00 Ha**. Project Proponent: Lessee Thiru. S. Raju**. **Study Period December 2021 to February 2022 (inter).**

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

EIA coordinator:
Name: **Dr. Milind P. Kundal**

Signature and Date: ……
Period of involvement: February 2021 to Till Date
Contact information:
Email id.: info@enviroresources.in
Tel. No. +91-9867898844

Functional area experts:

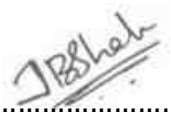
S. No.	Functional areas	Name of the expert/s	Involvement (Period and tas)	Signature and date
1.	AP*	Timir Shah	February 2021 to Till Date (Identification & Assessment of Impact, Suggestion Mitigation Measures)	
2.	WP*	Pritam Kadam	February 2021 to Till Date (Identification & Assessment of Impact, Suggestion Mitigation Measures).	
3.	SE*	Anil Shende	February 2021 to Till Date (Identification & Assessment of Impact, Suggestion Mitigation Measures)	
4.	EB*	Bhaskar Yengal	February 2021 to Till Date (Identification & Assessment of Impact, Suggestion Mitigation Measures)	

S. No.	Functional areas	Name of the expert/s	Involvement (Period and tas)	Signature and date
5.	HG*	Milind Kundal	February 2021 to Till Date (Identification & Assessment of Impact, Suggestion Mitigation Measures)	
6.	GEO*	Milind Kundal	February 2021 to Till Date (Identification & Assessment of Impact, Suggestion Mitigation Measures)	
7.	SC*	Bhaskar Yengal	February 2021 to Till Date (Identification & Assessment of Impact, Suggestion Mitigation Measures)	
8.	AQ*	Pritam Kadam	February 2021 to Till Date (Identification & Assessment of Impact, Suggestion Mitigation Measures)	
9.	NV*	Partho Mukherjee	February 2021 to Till Date (Identification & Assessment of Impact, Suggestion Mitigation Measures)	
10.	LU*	Milind Kundal	February 2021 to Till Date (Identification & Assessment of Impact, Suggestion Mitigation Measures)	
11.	RH*	Santosh Gupta	February 2021 to Till Date (Identification & Assessment of Impact, Suggestion Mitigation Measures)	

Declaration by the Head of the accredited consultant organi ation/ authori ed person

I, Timir Shah, hereby, confirm that the above-mentioned experts prepared the EIA Proposed Rough Stone Quarry at S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11, Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District, Tamil Nadu has an area of 2.50.0 Ha. While the cluster area is 5.96.00 Ha. ***Project Proponent: Lessee Thiru. S. Raju. Study Period December 2021 to February 2022 (Winter Season)***. I also confirm that the consultant organization shall be fully accountable for any misleading information mentioned in this statement.

It is certified that no unethical practices, plagiarism involved in carrying out the work, and external data / text have not been used without proper acknowledgment while preparing this EIA report.



Signature:… ……

Name: Mr. Timir Shah

Designation: Head of ACO & MD

Name of the EIA consultant organization: Enviro Resources, Mumbai .

NABET Certificate No. & Issue Date: **NABET/EIA/1922/SA 0133 and issue date une 12, 2021**

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ABBREVIATIONS

AAQ	:	Ambient Air Quality
AAQM	:	Ambient Air Quality Monitoring
AAQS	:	Ambient Air Quality Standards
AIS & LUS	:	All India Soil and Land Use Survey
AMSL	:	Above Mean Sea Level
ANFO	:	Ammonium Nitrate - Fuel Oil
BH	:	Business Head
BHs	:	Bore Holes
BIS	:	Bureau of Indian Standards
bgl	:	Below Ground Level
CC	:	Calcium Carbonate
CFM	:	Cubic Feet per Minute
CWC	:	Central Water Commission
CPCB	:	Central Pollution Control Board
CSR	:	Corporate Social Responsibility
DGMS	:	Directorate General of Mines Safety
DMP	:	Disaster Management Plan
DMG	:	Department of Mines and Geology
DTH	:	Down the Hole
E	:	East
EAC	:	Expert Appraisal Committee
EC	:	Environmental Clearance
EHS	:	Environmental, Health and Safety
EIA	:	Environmental Impact Assessment
EMC	:	Environment Management Cell
EMP	:	Environmental Management Plan
ESE	:	East of South East
ENE	:	East of North East
EPA	:	Environmental Protection Act
ERDAS	:	Earth Resources Data Analysis System
EPO	:	Emergency planning officer
FPS	:	Fine Particulate Sampler
FCC	:	False Color Composite
Govt.	:	Government
GCP	:	Ground Control Points
GLC	:	Ground Level Concentration
GOI	:	Government of India
GPS	:	Global Positioning System
GSI	:	Geological Survey of India
GWEC	:	Ground Water Estimation Committee
Ha	:	Hectare

HIV	:	Human Immunodeficiency Virus
IBM	:	Indian Bureau of Mines
IMD	:	India Meteorological Department
IS	:	Indian Standards
ISO	:	International Organization of Standardization
IUCN	:	International Union for Conservation of Nature
KLD	:	Kilo Litre Per Day
LOI	:	Letter of Intent
LU/LC	:	Land Use / Land Cover
mRL	:	Metre Reduced Level
MC	:	Magnesium Carbonate
ML	:	Mining Lease
MoEF	:	Ministry of Environment & Forests
MSL	:	Mean Sea Level
MT	:	Million Tonnes
MTPA	:	Metric Tonnes Per Annum
MW	:	Mega Watt
N	:	North
NAAQS	:	National Ambient Air Quality Standards
NABET	:	National Accreditation Board for Education & Training
NATMO	:	National Atlas & Thematic Mapping Organization
NABL	:	National Accreditation Board for Testing and Calibration Laboratories
NE	:	North East
NH	:	National Highway
NNE	:	North of North East
NGO	:	Non-Governmental Organization
NNW	:	North of North West
NRSA	:	National Remote Sensing Agency
NRSC	:	National Remote Sensing Centre
NW	:	North West
OB	:	Over Burden
OBC	:	Other Backward Classes
OHS	:	Occupational Health and Safety
OSHA	:	Occupational Safety and Health Administration
PFR	:	Pre-Feasibility Report
pH	:	Potential of Hydrogen
PHCS	:	Public Health Centers
PM	:	Particulate Matter
PPE	:	Personal Protective Equipment
PPV	:	Peak Particle Velocity
QCI	:	Quality Council of India

RSPM	:	Respirable Suspended Particulate Matter
SC	:	Scheduled Caste
SE	:	South East
SEIAA	:	State Environmental Impact Assessment Authority
SH	:	State Highway
SHE	:	Safety, Health & Environment
SI	:	Sustainability initiatives
SIA	:	Social Impact Assessment
SOI	:	Survey of India
TNPCB	:	State Pollution Control Board
SPM	:	Suspended Particulate Matter
SSW	:	South of South West
ST	:	Scheduled Tribe
SW	:	South West
TC	:	Total Carbonate
TDS	:	Total Dissolved Solids
ToR	:	Terms of Reference
TPD	:	Tonnes Per Day
UNFC	:	United Nations Framework Classification
USDA	:	United States Department of Agriculture
USEPA	:	United States Environmental Protection Agency
VT	:	Vocational Training
RF	:	Reserved Forest
PF	:	Protected Forest
W	:	West
WNW	:	West of North West
WSW	:	West of South West
µg/m^3	:	Micro gram per meter cube
µm	:	Micro Meter
cu. m	:	Cubic meter
dB	:	Decibel
gm/sec	:	Gram per second
gm/cc	:	Gram per cubic metre
hr/day	:	Hour per day
kg	:	Kilogram
Kg/hr	:	Kilogram per hour
Kg/ha	:	Kilogram per hectare
km	:	Kilometre
m	:	Metre
mg/l	:	Miligram per Litre
mm	:	Milimetre
Sq.km	:	Square Kilometre

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.8686/SEAC/ToR- 1045/2022 Dated: 27.01.2022

To

Thiru. S.Raju
S/o.Sivaji
No.17/7, Tholkappiyam Street
Chitlapakkam, Kanchipuram
Kanchipuram District-600064

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the proposed of Rough stone & Gravel Quarry lease over an extent of 2.50.0Ha in S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11 of Periyavenmani Village, Maduranthagam Taluk, Chengalpattu District, Tamil Nadu by Thiru.S.Raju - 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/ 66125/2021, dated: 29.07.2021
2. Your application submitted for Terms of Reference dated: 02.08.2021
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.S.Raju has submitted application for ToR with public Hearing on 29.07.2021, in Form-I, Pre- Feasibility report for the proposed of Rough stone & Gravel Quarry lease over an extent of 2.50.0Ha in S.F.Nos.180/4, 180/5, 180/8, 180/9, 180/10 & 180/11 of Periyavenmani Village, Maduranthagam Taluk, Chengalpattu District, Tamil Nadu.

MEMBER SECRETARY
SEIAA-TN

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. 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.
2. A detailed study of the lithology of the mining lease area shall be furnished.
3. 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.
4. 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.
5. The proponent shall furnish the baseline data for the environmental and ecological

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parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.

6. 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.
7. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity.
8. 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.
9. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report.
10. 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.
11. 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).
12. 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

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close intervals 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.

13. 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 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.
2. 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.
3. 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.
4. Action should be specifically suggested for sustainable management of the area and restoration of ecosystem for flow of goods and services.

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A. STANDARD TERMS OF REFERENCE

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

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slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.

9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.

10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.

15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site

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Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

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

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

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

21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be

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shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the

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

29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.

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

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

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

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

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

35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical

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medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

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

37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

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

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

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

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

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

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

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

a) Executive Summary of the EIA/EMP Report

b) All documents to be properly referenced with index and continuous page numbering.

c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.

d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing

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reports should be available during appraisal of the Project.

e) Where the documents provided are in a language other than English, an English translation should be provided.

f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

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

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

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

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.

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5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies

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22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
b. All documents may be properly referenced with index, page numbers and continuous page numbering.
c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.

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

TOR COMPLIANCE

The point wise ToR compliances issued by SEIAA, Tamil Nadu for Proposed Rough stone mine of an area is 2.50.0 Ha, with cluster area 5.96.00 Ha, located in S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11, Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District, Tamil Nadu. Details of ToR issued by SEIAA is as follows.

LESSEE	PROPOSAL NO	TOR LETTER
Thiru. S. Raju	SIA/TN/MIN/66125/2021	SEIAA/TN/F.No.8686/SEAC/ToR-1045/2022 dated 27.01.2022

TERMS OF REFERENCE (ToR) for Thiru. S. Raju

Sr. No.	Condition	Compliance
SPECIFIC CONDITIONS		
1.	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.	No, Mining activity has been carried out after 15.01.2016. Previous EC Letter is Attached as **Annexure I, Page Nos. 216 225** Previous Collector Order is attached As **Annexure II. Page Nos. 226 247** Previous Lease Deed is attached As **Annexure III. Page Nos. 248 261**
2	A detailed study of the lithology of the mining lease area shall be furnished	Lithology details along with study map attached in the **Chapter 2, Page No. 45, Figure No. 2.4.**

Sr. No.	Condition	Compliance
3	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.	Shall be comply.
4	The Project Proponent shall furnish the details on the number of ground water pumping and open well, within 1 km (radius) along with the water levels for both monsoon and non-monsoon seasons. The proponent also shall collect the data of water level from the PWD/TWAD in this area in both monsoon and non-monsoon seasons.	Hydrogeological study furnished in the **Chapter3, Section 3.10.4, Page No. 84 to 91**
5	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.	Baseline details are given in Chapter-3.
6	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.	Cumulative impact is given **Section 7.4 of Chapter 7, Page Nos. 170 176.**
7	The Socio Economic studies should be carried out within 10km buffer zone of mine	Socio-Economic Studies were carried out covering 10km radius from the periphery of the project area and discussed in **Chapter 3, Para 3.12**, **Page No. 105 to 127**
8	A tree survey study shall be carried out (nos. name of the species, age) in the mining lease applied area & 300m buffer zone and its management during mining activity.	There are few species of Neem & Babool trees found in the project area. Most of the area is covered with Shurbs & Bushes.
9	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report.	Progressive Mine Closure Plan was approved by Department of Geology and

Sr. No.	Condition	Compliance
		Mining, Kancheepuram District. Mine Plan Approval letter is attached As **Annexure VI**, **Page Nos 267 269** while Mine Plan Report with Plates as **Annexure ., Page Nos. 280 365.**
10	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.	Shall be complied as part of Final EIA after the Public Hearing.
11	The recommendation for the issue Terms of Reference is subject to the final outcome of the Hon'ble NGT, Principal Bench, New Dehi 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.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).	Noted.
12	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 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.	Noted. Shall be comply

Sr. No.	Condition	Compliance
13	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.	Detail of green belt development plan is given in **Section 4.11 of chapter 4, Page no. 153 154**
ADDITIONAL CONDITIONS BY SEIAA		
1	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.	Yes will be part of FINAL EIA report.
2	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.	Detail of Emission and its mitigation measures is given in **Section 4.3.1 of Chapter 4. Page Nos. 128 to 134.**
3	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.	Detail of Biodiversity is given in **section 3.11 of Chapter 3, Page Nos. 96 to 104.**
4	Action should be specifically suggested for sustainable management of the area and restoration of ecosystem for flow of goods and services.	All action has been taken and given in EIA report.
STANDARD TOR		
.)	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	The Lease area was undermining the Lessee was Thiru. S. Kartikeyan. The mining had valid Environmnatal Clearance granted by SEIAA,TN vide LR. NO. SEIAA-TN/F.No.3188/EC/1(a)/1919/2014 dated 30.03.2015.

Sr. No.	Condition	Compliance
	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.	The copy of LOI i.e. Precise Area Communication Letter in the name of all Lessee is attached as **Annexure IV, Page Nos. 262 263.**
3)	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee	Noted & agreed.
4)	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	All corner coordinates of the mine lease area are superimposed on High Resolution Imagery **Figure 1.4** in **Chapter 1**, **Page No. 24**. The topo map showing mine lease area and land use and other ecological features of the study area (core and buffer zone)
5)	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Geological map of Lease area 10km, 5km radius is given**,** on **Chapter 2 Figure No.2.2, Page No. 43**
6)	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The applied area is inspected by the VAO, Revenue Inspector of Mines, Assistant Director and confirmed the land is suitable for Rough stone quarrying operation with the land use policy of the state. Inspection report is attached as **Annexure III, Page NoS 290 428**
7)	It should be clearly stated whether the proponent Company has a well laid down	The proponent has framed its Environmental Policy and the same is

Sr. No.	Condition	Compliance
	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.	Attached as **Annexure I, Page No. 366**
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.	It is an open cast mining project. Blasting details are incorporated in **Chapter 2, Section 2.16, Page No. 50**
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 comprise of 10 km zone around the mine lease from lease periphery as mentioned and the data contained in the EIA such as waste generation etc. are for the life of the mine. in **Chapter 2, Table No.2.7, Page No. 49**
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	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 is given in **Chapter 3, Section 3.5, Page No. 65 66.** There is no wildlife sanctuary and national

Sr. No.	Condition	Compliance
	submitted. Impact, if any, of change of land use should be given.	park, migratory routes of fauna in the study area. Ecological Study is part of Biological Environment of **Chapter 3, Section 3.11, Page Nos. 96 104**
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 proposal for use of land outside the mine lease area for OB dumps, etc. There are no R&R issues involved in the project.
12)	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	No forest land involved in the project.
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.	Not applicable since no forest land involved within mine 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 since no forest land involved in mine lease area.
15)	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No wildlife sanctuary, national park or biosphere reserve within 10 m radius of mine lease area.
16)	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the	Impact on Biological Environment is given in **Chapter 3, Section 3.11, Page**

Sr. No.	Condition	Compliance
	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.	**No. 96 104**
17)	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	Not Applicable since no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/ (existing as well as proposed) within 10 km radius.
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-l 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.	Details biological study (flora & fauna) within 10 km radius of the project site have been incorporated in **Chapter 3, Section 3.11, Page No. 96 104**
19)	Proximity to Areas declared as 'Critically	There is no critically polluted area

Sr. No.	Condition	Compliance
	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 TNPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	within 10 km radius of the mining area. Also, the project does not come under the 'Aravali Range'.
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).	The project does not fall under CRZ.
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.	There is no Rehabilitation and resettlement is involved. Land classified as Patta Land.
22)	One season (non-monsoon) [i.e. March-May	Baseline environmental monitoring was

Sr. No.	Condition	Compliance
	(Summer Season); October-December (Pre Monsoon season) , December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	conducted in the core zone and buffer zone during Summer **December 2021 to February 2022.** Site specific meteorological data was also collected during the study period. The monitoring location details and the monitoring results are discussed in **Chapter 3**.
23)	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Air quality modelling was carried out for the rough stone mining project using AERMOD as incorporated in **Chapter 4**, **Section 4.3, Page No. 128,** while Incremental due to mining is provided in **Table 4.2, Page No. 133**
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.	Water requirement for the project and source are given in detail in **Table No.2.2** in **Chapter 2, Page No. 36**

Sr. No.	Condition	Compliance
25)	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the project should be provided.	Not Applicable Water will be taken from nearby villages
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. 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.	Proposed water conservation measures including rainwater harvesting measures are discussed in **Chapter 4**
27)	Impact of the project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact of the project on the surface and ground water environment and necessary control measures are discussed in **Chapter 4**, **Section 4.5, Page No. 143**
28)	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished The Report inter-alia. shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The mining activities will not intersect ground water during life of mine as per plan period and Conceptual Plan. Schematic Diagram of Mine Workings W.R.T. Ground Water Table is shown in **Chapter 4, Figure 4.6, Page No, 141**
29)	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	There is no seasonal stream or nallah flowing through the mining area.
30)	Information on site elevation, working depth,	Highest elevation: 67AMSL

Sr. No.	Condition	Compliance
	groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	Depth: 37m (2m Gravel + 35m Rough Stone)
31)	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	Progressive green belt development plan is prepared and attached mining Plate no. IV. It is shown in **Chapter 2, Figure 2.5, Page No. 50.** While details of Plantation are part of **Chapter 4, Section 4.11 Page No. 153**
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.	Impact on local transport infrastructure due to the project has been assessed. There shall not be much impact on local transport. Traffic density from the proposed mining activity has been incorporated in **chapter 4 section No.4.9, Page No. 148 150** EIA/EMP report.
33)	Details of the onsite shelter and facilities to be provided to the mine workers should be	Details of onsite facilities to be provided to the mine workers are given

Sr. No.	Condition	Compliance
	included in the EIA Report.	in **Section 2.19** in **Chapter 2**, **Page No. 54.**
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.	Conceptual Plan and Section of the mine lease area is given in chapter-2
35)	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Details of anticipated occupational health impacts and proposed preventive measures are discussed in **Section 4.8** in **Chapter 4, Page No. 144**
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.	The public health implications due to the project are discussed in **Section 4.8.3** in **Chapter 4, Page No. 145.**
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.	CSR Affidavit is attached as **Annexure , Page No. 277 279**
38)	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Environmental Management Plan for the project is discussed in detail in **Chapter 9**.
39)	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary	The draft EIA/EMP report is submitted for public hearing. Issues raised in the public hearing along with time bound

<table>
<tr><th>Sr. No.</th><th>Condition</th><th>Compliance</th></tr>
<tr><td></td><td>provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.</td><td>action plan will be incorporated in the final EIA/EMP report.</td></tr>
<tr><td>40)</td><td>Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.</td><td>There is no litigation pending against the project.</td></tr>
<tr><td>41)</td><td>The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.</td><td><table><tr><th>S.No.</th><th>Description</th><th>Cost</th></tr><tr><td>1</td><td>Operational cost</td><td>63,63,900</td></tr><tr><td>2</td><td>EMP Cost</td><td>3,80,000</td></tr><tr><td></td><td>Total</td><td>67,43,000</td></tr></table></td></tr>
<tr><td>42)</td><td>A Disaster management Plan shall be prepared and included in the EIA/EMP Report.</td><td>Disaster Management Plan is included in Section 7.3 of Chapter 7, Page No. 167</td></tr>
<tr><td>43)</td><td>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.</td><td>The Project benefits are clearly spelt out in Chapter 8.</td></tr>
<tr><td>44)</td><td>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</td><td>All general are followed while preparing EIA/EMP.</td></tr>
</table>

Sr. No.	Condition	Compliance
	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-11013/41/2006-1 A.ll (l)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. Changes if any made in the basic scope and project parameters (as submitted in Form-I and 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 to be altered. Post public hearing changes in structure and content of the draft EIA/EMP (Other the modifications arising out of the P.H. Process) will entail conducting the Ph again with the revised documentation. As per the circular no. J-11011/61S/2010-IA.ll(l) dated 30.5.2012, certified report of the status of compliance of the conditions	

Sr. No.	Condition	Compliance
	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. . 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.	

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

Environmental Impact Assessment (EIA) is the basic management tool to ensure the sustainable development with proposed project implementation. In the process of EIA anticipated environmental impacts due to proposed project identified including social and economic impacts, prior to decision making for the project implementation. EIA is the decision-making tool, which guides the decision maker to take appropriate decisions for proposed project. EIA study systematically examines both beneficial and adverse impact due to proposed project to ensure that anticipated impacts can be mitigating during operational phase of the project with resilience to climate.

The Report is prepared by considering Cumulative load of all proposed & existing quarries of Periya Venmani Rough Stone and Gravel Quarry Cluster Quarries consisting of Three Proposed Quarries with a total extent of Cluster of 5.96.00 Ha at Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District, Tamil Nadu State, cluster area is calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016.

1.2 HISTORY OF THE PRO ECT

Lessee Thiru. S. Raju has applied for TOR in order to prepare EIA report for grant of Environmental Clearance for proposed Rough stone mine with an new area of 2.50.0 Ha, with a cluster area of 5.96.00 Ha, located in Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District, Tamil Nadu.

The lessee has sought TOR (Terms of Reference) to prepare Draft EIA report for grant of environmental clearance as per EIA notification 2006. As the total cluster comes to 5.96.00 Ha (3 Proposed Quarries) as the cluster area more than 5 Ha but less than 100 Ha project falls in B Category.

Details of LOI and ToR of the mine are given in **Table 1.1** below.

TABLE 1.1: LOI & ToR DETAILS

Name of Lessee	LOI Letter No.	LOI Letter Date	Period of lease
Thiru. S. Raju	Rc.No.269/Q2/2017	18.11.2019	5 years
	ToR Letter No.	**Letter Date**	
	SEIAA/TN/F.No.8686/SEAC/ToR-1045/2022	27.01.2022	-

1.3 PURPOSE OF THE REPORT

The purpose of the EIA process is to inform decision-makers and the public of the environmental consequences of implementing a proposed project. The EIA document itself is a technical tool that identifies, predicts and analyses impacts on the physical environment, as well as social, cultural, and health impacts.

The purpose of this report is to assess the environmental and suggest mitigation measures and to assess the technical feasibility, economic viability and sustainable development of the new proposed Rough Stone and Gravel Quarry having an area of 2.50.0 Ha, while the total cluster area is of 5.96.00 Ha, located in Survey Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11, Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District, Tamil Nadu.

The mined stone will be used for the setting up of the basic infrastructure facilities, roads, housing, ports, railways, irrigation, etc. It will generate employment and the overall development of the state while contributing to the state and central income. The proposed product from the mine will be utilized for private and government projects in and around the surrounding districts in Tamil Nadu. The abundance of rough stone & gravel and its growing demand in the state has prompted the entrepreneur for the mining quarry in this area.

The EIA/EMP has been prepared in accordance with the Standard ToR. Further to assess the impact on environment, it is necessary to ascertain present status of environment prevailing at the project site and identification and Assessment of impact on the environment. Keeping these points and statutory requirement in view, this Environment Impact Assessment Report (EIA) and Environmental Management Plan (EMP) has been prepared. Environmental Study has been carried out within 10 km radius of proposed mine lease area for one season monitoring data from December 2021 to February 2022.

The application for TOR was submitted to prepare EIA report for grant of Environmental Clearance (Form-1, PFR and Approved Mine Plan) for this proposed mine was considered as per the provisions of EIA Notification dated 14th September 2006. The proposals were considered by the State Expert Appraisal SEAC. The proposal was recommended for TOR by SEAC, Tamil Nadu. The proposal was considered by SEIAA, Tamil Nadu in its meeting and granted Terms of Reference (ToR) in order to prepare the Environmental Impact Assessment and Environmental Management Plan. The cluster details are provided in **Table 1.2.**

TABLE 1.2: LIST OF QUARRIES WITHIN THE CLUSTER

Code	Name of the lessee	S.F.Nos	Extent Area (Ha)	Period of lease
Lease Expired Quarries				
E1.	A.Jeevanatham	172/3, 172/4	7.52.50	25.05.2007 to 24.05.2012
E2.	S.Ganasekaran	181/2	2.03.00	02.01.2012 to 01.01.2017
E3.	O.Ganesan	174/1, 174/2, 174/3	2.07.50	02.01.2012 to 01.01.2017
Proposed Quarries				
P1.	Thiru. S. Raju	180/4, 180/5, 180/8, 180/9, 180/10, 180/11	2.50.00	ToR obtained vide Lr. No. SEIAA-TN/F.No.8686/SEAC/ToR-1045/2022 Dated:27.01.2022
P2.	Thiru. S. Dharmaraj	180/1, 180/2, 180/3, 181/1	2.08.50	Under process with Department of geology and Mining
P3.	Thiru. S. Ravisundar	174/5, 174/6, 180/12	1.37.30	Under process with Department of geology and Mining
		Total Extent	**5.96.00**	

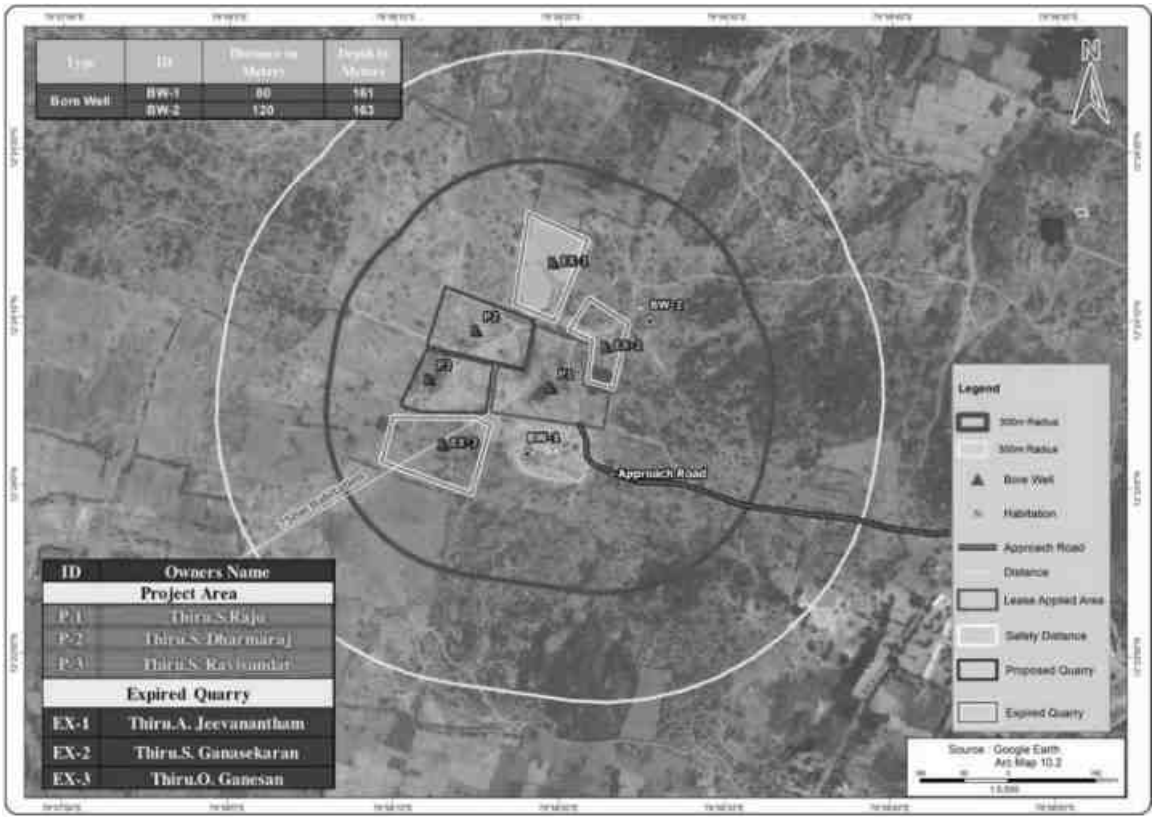


FIGURE 1.1: GOOGLE MAP OF CLUSTER MINES (E ISTING & PROPOSED)

The application for TOR was submitted to prepare EIA report for grant of Environmental Clearance (Form-1, PFR and Approved Mine Plan) for the rough stone mine was considered vide Application no. SIA/TN/MIN/66125/2021 by SEAC, as per the provisions of EIA Notification dated 14th September 2006. Rough stone mine was considered by the State Expert Appraisal SEAC. The proposal was recommended for TOR by SEAC, Tamil Nadu.

This Environmental Impact Assessment (EIA) report is prepared for obtaining Environmental Clearance (EC) from the State Environmental Impact Assessment Authority, Tamil Nadu for open cast Rough stone mine.

M/s. Enviro Resources, Mumbai has been allocated work to undertake Environmental Impact Assessment (EIA) studies as per the Terms of Reference (ToR) for assessing the impacts due to Minor Mineral cluster project in the districts of Kancheepuram. To assess the activities on various environmental parameters and prepare an Environment Management Plan for mitigating the adverse impacts of the project. The public hearing will be conducted in line with the EIA Notification dated 14th September 2006 and its amendments and as prescribed in ToR. The final report will be upgraded after public hearing incorporating concerns of public raised at the time of public hearing. As per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B - 1 and appraised by SEAC/ SEIAA as well as for cluster situation.

1.4 IDENTIFICATION OF PRO ECT & PRO ECT PROPONENT

- The lessee has applied for Rough Stone Quarry Lease Dated: 18.11.2019
- Precise Area Communication Letter was issued by the District Collector, Kancheepuram district, Rc.No.269/Q2/2017, Dated: 18.11.2019 .
- The Mining Plan was prepared by Recognized Qualified Person and approved by Assistant Director, Geology and Mining, Kancheepuram District, vide Rc.No.269/Q3/2017, Dated: 29.06.2021.
- The proposed project falls under “B1” Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018
- Proponent applied for ToR for Environmental Clearance vide. online Proposal No. SIA/TN/MIN/66125/2021 and ToR was granted by SEAC with letter no. SEIAA-TN/F.No.8686/SEAC/ToR-1045/2022, dated 27.01.2022.

A. Project Proposal

TABLE 1.3: PRO ECT DETAILS

Proposed Project	Rough Stone Quarry – 2.50.0 Ha
Location of the Project	Survey Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District.

B. Screening Category

As per EIA Notification dated 14th September 2006 & subsequent amendments on 1st December 2009 and 4th April 2011; the proposed mining project falls under Activity (1a), namely Mining of Minerals. Such activities are further divided into category "A" and "B". The said project is for mining rough stone of area 2.50.0 Ha such projects are listed as category "B" under the said notification, this project is categorized as 'B' category project as the total cluster area is 5.96.00 Ha. This project comes into B Category due to Cluster situation. As per latest amended EIA Notification, dated 14.08.2018 lease area upto 100 Ha now falls under B category. The project falls in B1 category vide OM No F. NO. L-11011/175/2018-IA-II (M) dated 12th December 2018 as per order dated 4th September 2018 and 13th September 2018 passed by Ho'ble NGT, New Delhi in O.A. NO. 173 of 2018 and O.A. NO. 186 of 2016.

C. Mining Lease Status

Lessee has obtained Letter of Intent from District Collector, Kancheepuram district, vide letter no. Rc.No.269/Q2/2017, Dated: 18.11.2019 for rough stone mine for a lease area of 2.50.0 Ha located at Survey Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District., Tamil Nadu for 5 years.

D. Status of approval of Mining Plan

Mining Plan for the proposed project has been approved for plan period 10 years by Assistant Geologist, Department of Geology and Mining, Kancheepuram, Tamil Nadu. Copy of approval letter is enclosed as **Annexure II.**

TABLE 1.4: MINING PLAN DETAILS

Name of Lessee	S.F. Nos.	Approved Mine Plan Letter No.
Thiru. S. Raju	180/4, 180/5, 180/8, 180/9, 180/10 and 180/11	Rc.No.269/Q3/2017, Dated: 29.06.2021

1.5 INTRODUCTION OF PRO ECT PROPONENT

Details of the lessee is given below.

TABLE 1.5: PRO ECT PROPONENT DETAILS

Lessee Name	Thiru. S. Raju, S/o. Sivaji
Address	No. 17/7, Tholkappiyam Street, Chitlapakkam, Kanchipuram, Tamil Nadu State – 600 064.
Mobile No	+919942984562
Email ID	ds.udhayamgroups@gmail.com

1.6 BRIEF DESCRIPTION OF THE PRO ECT

This is a case of proposed rough stone mine (Cluster Area is 5.96.00 Ha) located in Survey Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District., Tamil Nadu. The project proponent has applied for Environmental clearance as per EIA notification dated 14th September 2006 and its amendments. The cost of project **Rs. 63.63** lakhs. Details of mine is presented in **Table 1.6.**

TABLE 1.6: BRIEF DESCRIPTION OF THE PRO ECT

Location of Project	Survey Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District.	
Topo sheet Number	57 - P/15	
Type of Mining	Open Cast Mechanized Mining	
Seismic one	Seismically, this area is categorized under Zone-II as per IS-1893 (Part-1)-2002. Hence, seismically the site is medium Damage Risk Zone. With MSK scale of III.	
No of Wor ing Days	300days/ year	
Mine Area	2.50.0 Ha	
Mine Location on WGS 1984 datum	**Latitude**	**Longitude**
	12°24'03.58"N to 12°24'09.72"N	79°58'15.82"E to 79°58'23.00"E

1.7 LOCATION OF THE PRO ECT

The proposed mine is in Periya Venmani Village, Maduranthagam Taluk and Kancheepuram District, Tamil Nadu. The nearest railway station is Maduranthagam Railway station – 15.0km in North West direction. The nearest National Highway is NH45 (Chennai – Viluppuram) at the distance of 15.0km in North West from the project site and State Highway is SH115 (Vandavasi – Odiyur) at the distance of 2.0km in the South West direction of the site. The area is included in Survey of India Toposheet No. 57 - P/15 on R.F. 1:50,000. The location map of the project site is presented in

Figure:1.2. Photographs of the Rough stone Mine are given in **Figure: 1.6**. Topographical map of study area of the project area (10 km radius) is shown in **Figure:1.7**. The environmental setting and the project details is presented in **Table 1.7.** There is no critically polluted identified cluster by CPCB/MOEF in the vicinity of the project.

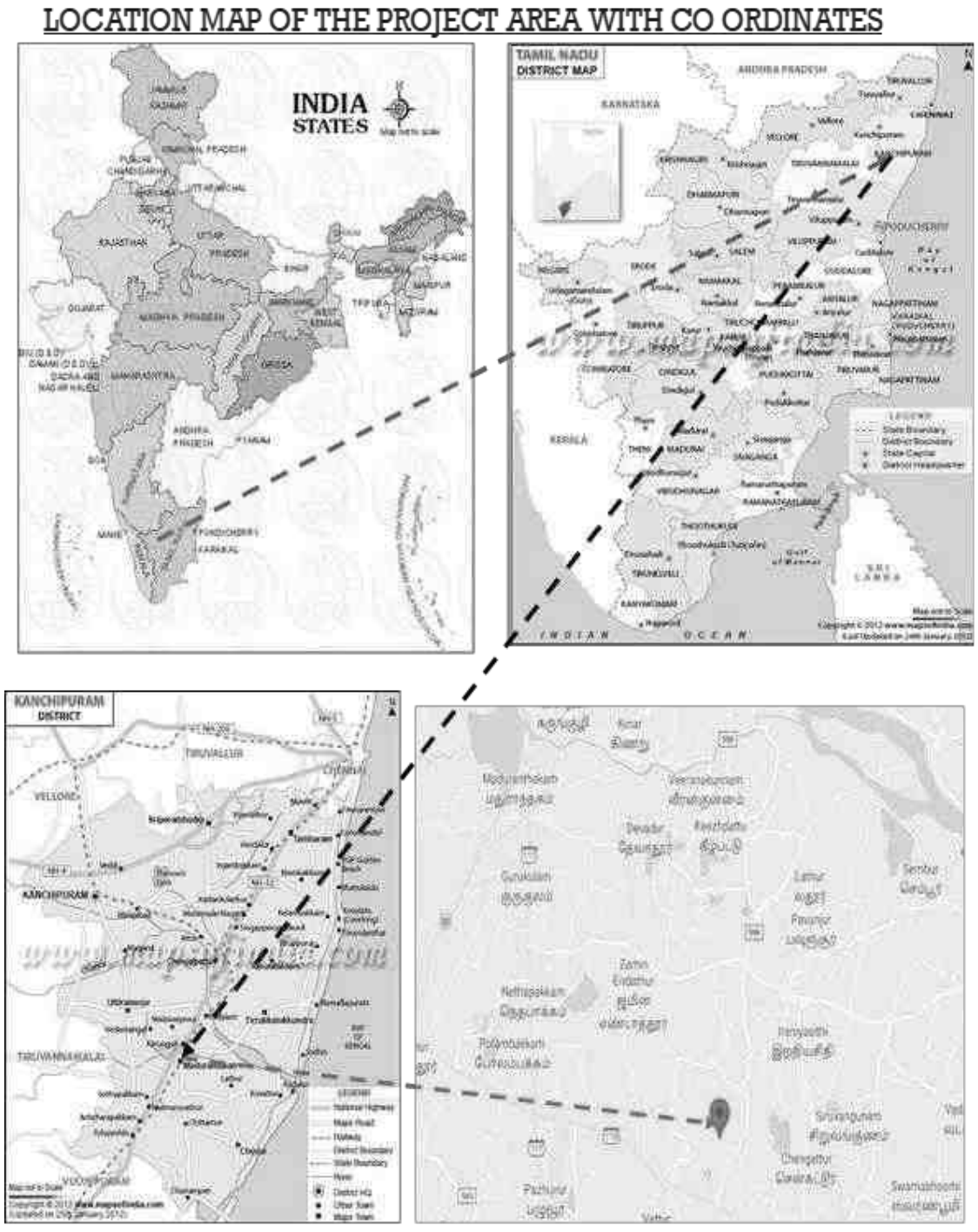


FIGURE 1.2: LOCATION MAP

FIGURE 1.3: ROUTE CONNECTIVITY MAP

FIGURE 1.4: MINE LOCATION ON WGS 84 DATUM

FIGURE 1.5: LEASE BOUNDARY

WEST

SOUTH

EAST

NORTH

FIGURE 1.6: PHOTOGRAPHS OF MINE

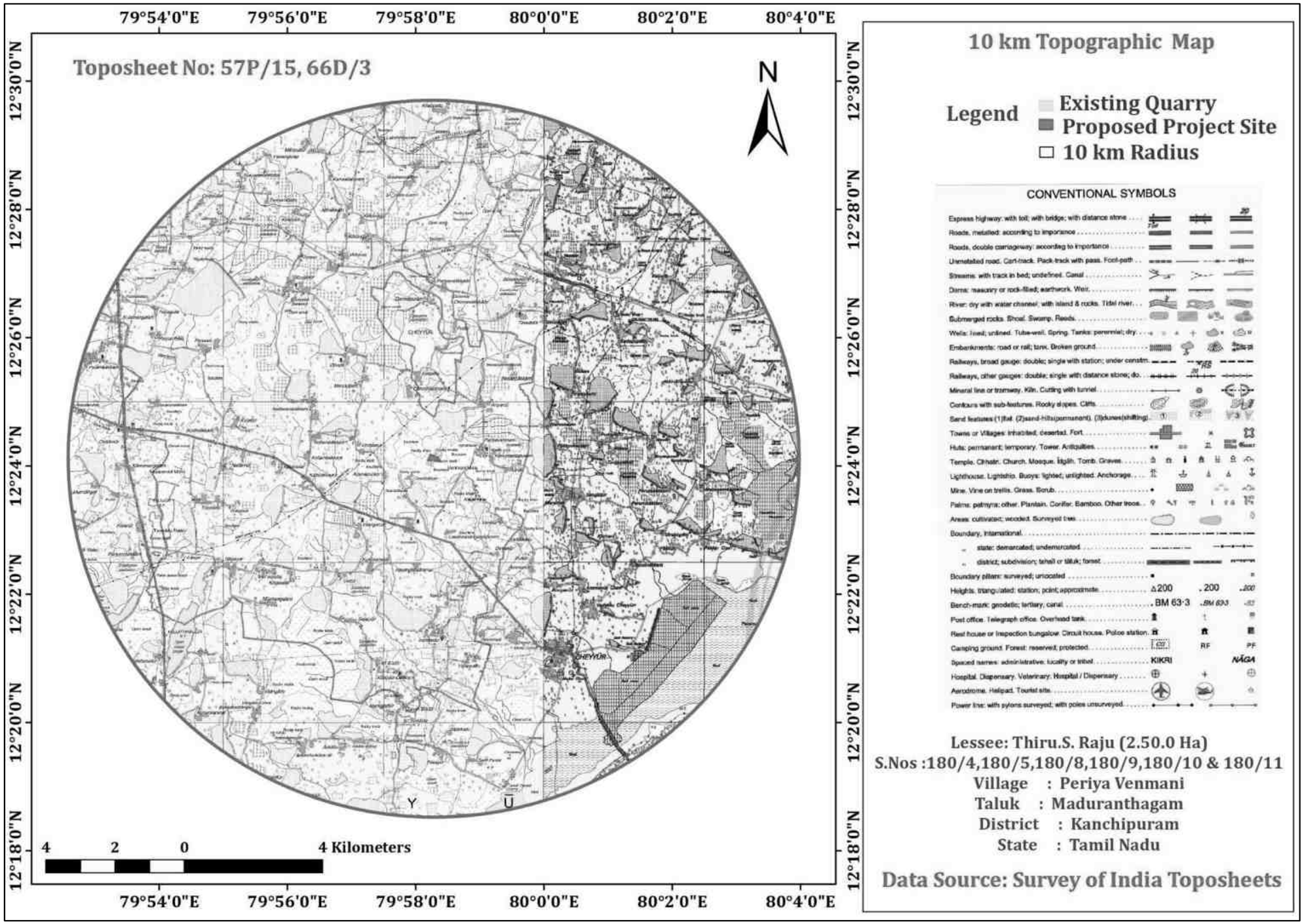


FIGURE 1.7: TOPOGRAPHICAL MAP OF STUDY AREA (10 KM RADIUS)

TABLE 1.7: PRO ECT DETAILS

S. No.	Particulars	Details
1	Type of Project	Rough Stone Mine
2	Mine area applied	2.50.0 Ha
3	Project Location	Survey Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District.
4	Mine Location on WGS 1984 datum	**Latitude**: 12°24'03.58"N to 12°24'09.72"N; **Longitude**: 79°58'15.82"E to 79°58'23.00"E
5	Boundary Pillars	
6	Topo sheet Number	57-P/15
7	Land use at the proposed project site	Patta Land Land Cover: Barren Land which is not fit for vegetation/cultivation
8	Site Topography	Plain topography, the area has gentle sloping toward southern side
9	Site elevation above Mean Sea Level	67 m (Max)
10	Reserves	
11	Lease period	5 years
12	Ultimate depth of Mining	37m (2m Gravel + 35m Rough Stone)
13	Existing Pit Dimension	89m (L) x 56m (W) x 4m (D)

Sr. No.	Latitude	Longitude
1	12°24'04.52"N	79°58'15.82"E
2	12°24'07.29"N	79°58'16.24"E
3	12°24'06.89"N	79°58'18.08"E
4	12°24'09.72"N	79°58'18.58"E
5	12°24'08.57"N	79°58'21.80"E
6	12°24'06.17"N	79°58'21.43"E
7	12°24'05.83"N	79°58'23.00"E
8	12°24'03.58"N	79°58'22.65"E

Description	Rough stone in m^3	Gravel in m^3
Geological Reserves	8,75,000	50,000
Mineable	3,19,840	7,338
Recoverable Reserves (5 Years)	3,19,840	7,338

S. No.	Particulars	Details
14	Ultimate Pit Dimension	192m (L) x 146m (W) x 37m (D) BGL
15	Land Use Pattern	**Description** / **Area** Area under quarry – 1.87.7Ha Infrastructure – 0.01.0 Ha Mine road – 0.02.0 Ha Green Belt – 0.45.0 Ha Un utilized area – 0.14.3 Ha
16	Climatic Conditions	IMD Data, Kancheepuram (1971-2000) • Avg. Ambient air temp – 25.3^{o}C • Annual rainfall - 1214 mm
17	Ground water level	The Ground water occurrence in this area is 47-50m depth below the ground level.
18	Seismic zone	Seismically, this area is categorized under Zone-II as per IS-1893 (Part-1)-2002. Hence, seismically the site is medium Damage Risk Zone. With MSK scale of III.
19	Nearest State/National Highway	NH45 – Chennai – Viluppuram – 15.0km - NW SH115 – Vandavasi – Odiyur – 2.0km – SW
20	Nearest Railway Station	Maduranthagam Railway station – 15.0km – NW
21	Nearest Air Port	Chennai Airport - 84km – NE
22	Nearest village/major town	Periya Venmani :2.0km, NE Direction Cheyur : 6.5 Km, SE Direction Kanchipuram : 55.00 Km, NW Direction
23	Nearest Town, city, District Headquarters along with distance in kms.	Cheyur : 6.5 Km, SE Direction Kanchipuram : 55.00 Km, NW Direction
24	Ecologically sensitive zone	No wildlife sanctuary, national park or biosphere reserve within 10m radius of mine lease area.
25	Reserved/Protected forests	No wildlife sanctuary, national park or biosphere reserve within 10m radius of mine lease area.
26	Historical/tourist places	None within 300m radius of mine lease area
27	Water bodies within 10 Km	**Water bodies** / **Distance (m)** / **Direction** Tank – 0.43 – SE

S. No.	Particulars	Details
	Radius	Tank: 0.60 NE; Odiyur Lake: 8.30 SE
28	Reserve Forest within 10Km Radius	Nil in 10 km Radius and Nearest Reserve Forest is Acharapakkam R.F at 17.5 km West Side
29	Nearest Hospital	Cheyur – 6.5km – SE
30	Details of other quarries for a radius of 500m around the quarry site	There are following quarries located within the radius of 500m from the proposed project site. Details: Abandoned quarry – Nil Expired quarry – 3 Nos (11.63.0ha) Existing Quarries – Nil Proposed Quarries – 3 Nos (5.96.0ha) The total extent of the Existing and proposed quarry within the radius of 500m is **5.96.0Ha.** The project falls under the cluster situation.
31	Man power	Total Employees proposed for the quarry operation is **26 Nos.**
32	Water requirement & source	Total water requirement for **3.0 KLD** from water vendors & nearby Bore well.
33	Overburden /Waste	The overburden in the form of Gravel formation
34	Cost of the project	**The Project Cost:** A. Project cost = Rs. 63,80,900/- B. EMP cost = Rs. 3,80,000/- Total Cost = Rs. 67,60,900/- CER cost (2% of the project cost) = Rs. 1,35,200/-

FIGURE 1.8: ENVIRONMENTAL SENSITIVITY MAP

1.8 SUPPLY AND DEMAND DETAILS

There is a huge demand of rough stone for State and National Road projects is under massive development for its widening and strengthening operation, apart from this many bridges and fly overs are also being under construction. And also, huge requirements of rough stone for Public and Private sector projects to infrastructure development of the state; hence the project is significant to the state.

Railway lines in the country also under progress where huge rough stone is required as Ballast. Other internal Panchayat Roads are also under progress, besides all these public works projects the rough stone is widely used for domestic construction project like Hospital, School, Government Building and Housing construction. It is worth mentioning that the rough stone of Kancheepuram District.

1.9 SCOPE OF THE STUDY

The EIA study includes detailed characterization of various environmental components like Air, Noise, Water, Soil, Land and Socio-economics within 10 km radius around the study area. The SEAC, Tamil Nadu committee suggested us to focus on baseline data which includes Hydrology study, Ground water study, Biodiversity assessment and land use cover within in the 10km radius around the mining lease area. The EIA is done based on collection of one season data (From December -2021 to February - 2022).

1.10 DATA GENERATION

The data has been generated by Enviro Tech Services, Ghaziabad (U.P) in accordance with the requirement of statutory agencies from December -2021 to February – 2022. The monitoring and testing have been done as per the guidelines of MoEF&CC and the IS standards.

1.11 DATA COLLECTION

The EIA study is being done for the Mine Lease (core zone) and area within 10 km radius (buffer zone), both of which comprise the study area. The following data has been collected by Enviro Resources through field survey and other sources for preparing the EIA/EMP for the mining project.

- Details of wild fauna and flora within 10 km from the project site and information about forests, if any.
- Eco-sensitive places, sanctuaries, biosphere reserves within 10 km radius.
- Physical environment (Air, Water, Soil, & noise) baseline data.
- Religious places / historical monuments and tourist places within 10 km radius.
- Land use pattern within core zone and buffer zone (10 km radius around the core zone) based on Survey of India toposheet map and satellite image.
- Demography and Socio-economic based on last available Census data for entire study area.
- Relevant meteorological data, for previous decades from Indian Meteorological Department (IMD) and primary data.
- Study of present environmental protection and mitigation measures in nearby operating similar projects if any.
- Identification of water bodies, hills, roads etc. within 10 km radius.

1.12 GENERIC STRUCTURE OF ENVIRONMENTAL IMPACT ASSESSMENT DOCUMENT

As per EIA notification of the MoEF dated 14th September 2006 as amended Dec 2009, the generic structure of the EIA document will be as under:

- Introduction
- Project Description
- Analysis of Alternatives (Technology and site)
- Description of the Environment
- Anticipated Environmental Impact & Mitigation Measures
- Environmental Monitoring Programme
- Additional Studies
- Project Benefits
- Environmental Cost Benefit Analysis

- Environmental Management Plan
- Summary & Conclusion
- Disclosure of Consultants engaged

1.13 PREPARATION OF EIA/EMP

The EMP will include the following details:

- Present Environmental Setting.
- Identification, prediction, and evaluation of anticipated environmental impact due to the proposed mine and related facilities.
- The environmental impacts would be anticipated in core and buffer zone.
- Sensitive Places/Historical Monuments.
- Measures to control the surface and ground water pollution due to various effluents to be discharged, if any.
- Measures to control air pollution due to proposed activities/operation.
- Green belt development plan and reclamation plan of mine.
- Measures to contain noise pollution & mitigate adverse impact on workers and habitat in core and buffer zone.
- Pronounce the improvement in socio-economic conditions & benefits the people will get on implementation of the project.
- Total and specific cost of control measures.
- Environmental monitoring, implementation organization and feedback mechanism to effect mid-course corrections.
- Identification of flora species which can be planted in and around the project.

The field studies for baseline environmental studies were conducted for a period of three months representing to determine existing levels of various environmental attributes as outlined in **Table 1.8**. The scope also includes all the conditions outlined in the ToR's prescribed.

TABLE 1.8: ENVIRONMENTAL ATTRIBUTES AND FREQUENCY OF MONITORING

S. No.	Attributes	Parameters	Frequency
1	Ambient Air Quality	PM_{10}, SO_2, NO_X, & mineralogical composition of PM_{10}, particularly for free silica	24 hourly samples, twice a week for three months at 7 locations.
2	Meteorology	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall	Continuous hourly recording (one season) at project site. Secondary data from the nearest IMD station.

S. No.	Attributes	Parameters	Frequency
3	Water quality	Physical and Chemical parameters.	Grab samples collected once during study period from 6 ground water locations.
4	Soil Quality	Physical and Chemical parameters.	Grab samples collected once during study period from 6 locations.
5	Ecology	• Existing terrestrial flora and fauna covering Core Zone (2.50.0 Ha) & Buffer Zone (10-Km radius). • Existing aquatic ecological status in Buffer Zone (10-Km radius).	Through field studies once during study period. Secondary data also collected.
6	Noise levels	Noise levels in dB (A) Day and Night.	Hourly Noise levels in and around the project area for 24 hours at each location once during study period at 7 locations.
7	Land use	Current land use scenario	Once during study period based on recent satellite imagery and ground-truthing at site.
8	Geology	Geological details	Once during study period. Data collected from secondary sources
9	Hydrogeology	Drainage area and pattern, nature of streams, aquifer characteristics, recharge and discharge areas, etc.	Based on primary and secondary sources, once during study period.
10	Socio-Economic aspects	Socio-economic aspects like demography, population dynamics, infrastructure resources, health status, economic resources, etc.	From primary and secondary sources (like census abstracts of census of India 2011) once during the study period.

1.14 TERMS OF REFERENCE

The EIA/EMP report is prepared for rough stone cluster Mine; which is classified as **"Category B"** by Ministry of Environment, Forest & Climate Change (MoEF & CC), New Delhi, as per the EIA notification dated on 14th September, 2006 and as the lease area is less than 100 Ha vide amended EIA Notification dated 14.08.2018. The project falls in B1 category vide OM No F. NO. L-11011/175/ 2018-IA-II (M) dated 12th December 2018 as per order dated 4th September 2018 and 13th September 2018 passed by Ho'ble NGT, New Delhi in O.A. NO. 173 of 2018 and O.A. NO. 186 of 2016.

The draft report is prepared incorporating the Terms of Reference (ToR's) granted by SEIAA, Tamil Nadu to prepare the Environmental Impact Assessment and Environmental Management Plan vide its letter No. SEIAA/TN/F.No.8686/SEAC/ToR-1045/2022 dated 27.01.2022.

CHAPTER 2: PRO ECT DESCRIPTION

2.1 TYPE OF PRO ECT

Lessee has applied for TOR to prepare EIA report for grant of Environmental Clearance for Rough stone Mine of area 2.50.0 Ha, with cluster area 5.96.00 Ha, located in S.F. No. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District., Tamil Nadu. Since the cluster extent is more than 5 ha, the proposal falls under B1 Category as per the Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018, and requirement for EIA, EMP and Public Consultation for obtaining Environmental Clearance. Rough Stone is proposed to be excavated by opencast mechanized method involving splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers and rock breakers to avoid secondary blasting.

2.2 NEED FOR THE PRO ECT

The basic objective of the project is to have effective utilization of rough stone as a building material in this region and state. The spur in infrastructure development and construction industry has enhanced the demand of rough stone in past few years. Building stone, mine not only provides the building material but also employment and economic growth of the region that ultimately enhance the socio-economic status of the people of the region and the state. The mining activities shall provide socio-economic benefits to the local population with direct & indirect employment opportunities. The project also contributes to the regional and financial benefits in the form of Royalty, Cess, Taxes, DMF etc.

2.3 LOCATION

TABLE 2.1: LOCATION DETAILS

1	S.F. No.	180/4, 180/5, 180/8, 180/9, 180/10 and 180/11	
2	Village	Periya Venmani Village	
3	Taluka and District	Maduranthagam Taluk, Kancheepuram District.	
4	State	Tamil Nadu	
5	Toposheet No.	57 - P/15	
6	Latitude & Longitude	**Latitude**	**Longitude**
		12°24'03.58"N to 12°24'09.72"N	79°58'15.82"E to 79°58'23.00"E

The proposed area does not fall within 10 km radius of any eco – sensitive zone, Wild life Sanctuary, National Park, Tiger Reserve, Elephant Corridor and Biosphere Reserves.

2.4 REQUIREMENTS FOR THE PRO ECT

2.4.1 Land Requirement

Lessee has obtained Letter of Intent by District Collector, Kanchipuram district for rough stone mine for a lease area 2.50.0 Ha located at Survey Nos180/4, 180/5, 180/8, 180/9, 180/10 and 180/11, Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District, Tamil Nadu. The LOI is provided for lease period of 5 years.

2.4.2 Water Requirement

Total water requirement for the project will be **3.0 KLD**, which will be met from mine pit water (when available) and by tankers from nearby bore wells**.** Water for drinking purposes will be supplied from nearby borewell. Details of water requirement in the project are presented in **Table 2.2**. Water balance diagram for the proposed mine is given in **Figure 2.1**

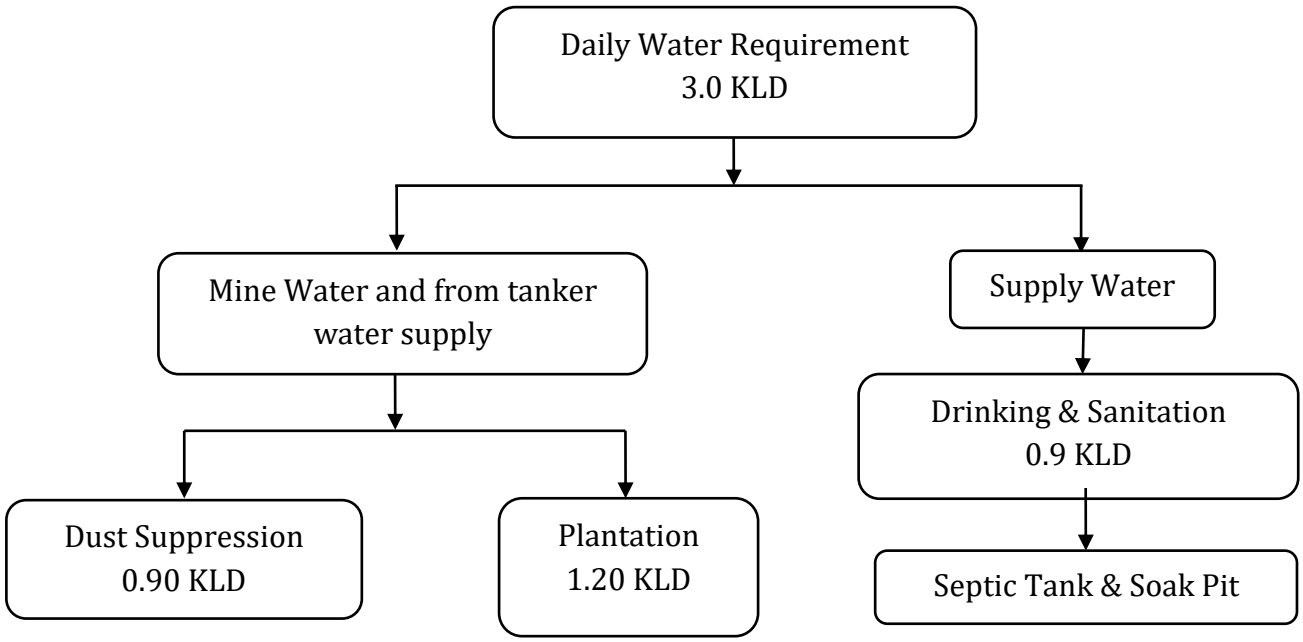


FIGURE 2.1: WATER BALANCE DIAGRAM

TABLE 2.2: DAILY WATER REQUIREMENT (KLD)

Particulars	Calculation description	Quantity
Dust Suppression	➢ Length of haul road = 300m ➢ Total area for water sprinkling ➢ = 300m L X 3m (W) = 900 SQM ➢ Considering 1 liter per square meter for dust suppression 900 X 1 = 900Litres ie., **0.90KLD**	0.90

<table>
<tr><th>Particulars</th><th>Calculation description</th><th>Quantity</th></tr>
<tr><td>Green Belt & Plantation</td><td>It is proposed to plant about 100 saplings per year hence considering 4 liter for sapling per day
<table>
<tr><td>Years</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td rowspan="3">Average Water consumption for green belt development 1.20KLD</td></tr>
<tr><td>Nos of Saplings</td><td>100</td><td>200</td><td>300</td><td>400</td><td>500</td></tr>
<tr><td>Water required</td><td>400</td><td>800</td><td>1200</td><td>1600</td><td>2000</td></tr>
</table></td><td>1.20</td></tr>
<tr><td>Domestic Use</td><td>➢ For Drinking = 4 liters per person
➢ (i.e. 4 X (26 Persons + 10 person buffer = 144 liters)
➢ For Domestic usage = 20 liters per person
➢ (i.e. 20X (26 Persons + 10 person buffer) = 720 liters)
Total = 864 Liters ie., 0.864 KLD</td><td>0.9</td></tr>
<tr><td colspan="2">Total</td><td>3.0</td></tr>
</table>

2.4.3 Man Po er Requirement

The mine will provide employment for activities such as excavation, transportation etc. The list of proposed manpower for rough stone mine is shown in **Table 2.3.**

TABLE 2.3: REQUIREMENT OF MANPOWER

S.No	Particulars	Nos
	Mine Official & Competent Person	
1.	Mine Foreman/ Manager	1
2.	Blaster/mate	1
	Machinery Operators	
3.	Excavator- Operator	4
4.	Jack hammer operator	12
	Semi Ordinary Employee	
5.	Watchman/ Security	1
6.	Labour & Helper	3
7.	Security	4
	Total	**26**

(Source: Approved Mining Plan)

2.4.4 Po er Requirement

Most of the mine machinery will be operated on diesel and thus, no major electrical power will be required for mining. The proposed rough stone mine does not require any power supply for the Mining operation. Lightings on the Night will be taken from nearby electric poles after obtaining permission from concerned authorities. It is proposed to

operate in day time only from 9 Am to 5 PM with 1 Hour lunch interval between 1PM to 2PM.

2.4.5 Diesel Requirement

Diesel (HSD) used for quarrying machineries will be around **2,57,095 Litres** of HSD for the entire project life. Diesel will be brought from nearby diesel pumps.

1. For Gravel:

Per hour Excavator will consume = 10 liters / hour
Per hour Excavator will excavate = 60m^3
For 6738m^3 = 6738/60
= 112.3 hours
Diesel consume 122.3 working hours = 1123 hours x 10 liters
Total diesel consumption = **11230** Liters of HSD will be utilized for Gravel excavation

2. For Rough Stone:

Per hour Excavator will consume = 16 liters / hour
Per hour Excavator will excavate = 20$m^3$of Rough Stone
For 3,19,240m^3 = 3,19,240/20
= 15,992 hours
Diesel consume 15,992 working hours = 15,962 hours x 16 liters
Total diesel consumption for = **255392** Liters of HSD will be utilized Rough Stone excavation
Total diesel consumption is around period of life. = **2,66,622** Liters of HSD for the entire

Total diesel consumption= 2,77,852 litres of HSD ill be utili ed for entire project.

2.4.6 Extent of Mechani ation

Since the deposit in this area is massive in nature, it is proposed to carry out opencast mining for this plan period. The lists of machines to be used in the mine are given in **Table 2.4.** Mostly hired equipment's are utilized.

TABLE 2.4: LIST OF MACHINERY

S.No	Particulars	Si e capacity	Motive Po er	Nos
1.	Jack hammer (30-35mm dia hole)	1.2m to 2.0m	Compressed air	6
2.	Compressor	400 psi	Diesel drive	2

S.No	Particulars	Si e capacity	Motive Po er	Nos
3.	Excavator with Bucket and Rock Breaker	300	Diesel drive	1
4.	Tippers	20 tonnes	Diesel drive	3

(Source: Approved Mining Plan)

2.4.7 Lorry Load Calculation

One lorry load = 6m³ (approx..)
Total No of working days = 300 days per year
Total quantity to be removed in this five years plan period = 3,19,840 m³
Hence total lorry loads per day = 3,19,840 m³ / 6m³
= 53,307 Lorry loads
= 53,307/ 5 years
= 10,661 / 300 days

Rough stone = 35 36 Lorry loads per day

Total quantity to be removed in this five years plan period = 7,338 m³
Hence total lorry loads per day = 37,338 m³ / 6m³
= 1,223 Lorry loads
= 1,223/ 5 years
= 408 / 300 days

Rough stone = 1 Lorry loads per day

2.5 PRO ECT COST

The estimated cost of the proposed rough stone quarry is proposed is given below in **Table.2.5** with split up. (The Total cost of the project including EMP Cost is **Rs. 67,60,900/ .**

TABLE 2.5: ESTIMATION OF PRO ECT COST

Description	Project
Project cost/ Investment	
Land cost	20,70,000
Machinery cost	32,00,000
Refilling/Fencing cost	2,18,400
Labourers shed	1,00,000
Sanitary facility	1,00,000
Others items (First aid room & accessories)	70,000
Drinking water facility for the labourers	1,00,000
Sanitary arrangement	60,000

Description	Project
Safety kit	70,000
Water sprinkling	1,00,000
Garland drain construction	2,02,500
Greenbelt etc.	90,000
A. Total Project cost	**63,80,900**
EMP cost	
Air Quality Monitoring	52,000
Water quality sampling	18,000
Noise Level monitoring	2,000
Ground vibration test	4,000
Total EMP cost	76,000
B. Total EMP Cost for the five years period	3,80,000
A. Project cost	63,80,900
B. EMP cost	3,80,000
Total Project Cost (A+B)	**67,60,900**
CER Cost (2.0%)	1,35,200
Total cost	**68,96,100**

2.6 MAINTENANCE REQUIREMENT

Regularly maintenance will be carried out of all equipment's at service centers located in nearby Town. The proposed method of mining operation will be Open Pit Mine by using by deploying drilling and blasting method, loader and tipper/dumper combination. The machineries to be deployed are excavators, Water Tanker loading and transportation from mine head to destination will be done by hired tipper/dumper.

2.7 GEOLOGY OF THE AREA

2.7.1 Regional Geology

The Kancheepuram district is principally made up of hard rocks and sedimentary formations. These are overlined by laterites and alluvium. The study area is underlain by formations of Quarternary, Tertiary and Mesozoic ages followed by the basement complex of crystalline rocks of Archaean age.

Stratigraphic succession of Geological Formations

Age	Formation	Lithography
Recent	Alluvium and beach sands	Sand, gravel, silt and clay
Pleistocene	Laterite, soils, talus	Laterites, sandy clay, silt

Age	Formation	Lithography
Pleistocene to upper Miocene	Conjeevaram gravels	Boulders, cobbles pebbles and gravels chiefly of quartzites
Unconformity		
Lower Cretaceous to Jurassic	Sandstones & Shales	Fine to medium grained sand medium-grained stone with clay intercalations of greenish soft shale
	Boulder bed	Big boulders of granite gneiss with or without Matrix of clay and the sand
Unconformity		
Archaean	Crystalline formations	Mixed gneisses, charnockites, granites and associated basic and ultra basic intrusives

Archaean: Hard roc s

The hard rocks spread over an area of about 60% of this district. These rocks are Granitic gneisses. Ultra basic intrusives of Archaean age and Charnockites. They are mainly comprisisng of biotite and hornblende and are intrude by amphibolite, dykes of dolorite and occasionally by veins of quartz and pegmites. Charnockite are more prominent in Tambaram, Sriperumbudur and Madurantakam taluks. Gneissic rocks occur mainly in Thirukkazhukundram and in parts of Kancheepuram taluks. The dolerites, as dykes are observed both in gneisses and in charnockites. The width ranges from 20m to 40m in the strike direction NE-SW. The dykes are prodominenty observed in Thiruporur and East of Chengalpattu.

God ana

This formation comprise of clays, shales, sandstones and conglomerates. The shale and clay of gondowana age occur on the bank of Palar river and Sriperumbudur taluk in irregular shape. Oldest of these formations exposed in parts of Sriperumbudur and Kancheepuram taluks as clay and shale beds, are of upper Gondwana age. The fine grained sand is observed at Kancheepuram and uthiramerur taluks. Gravel bed of 2 to 4m thickness is observed in Abdullapuram Manapakkam Road, and the gravel thickness is ranging form 1.5 cm to 5cm in diameter and the same is over lined by sandstone is called Conjeevaram gravels which is equivalent to cuddalore and Rajmundry sand stone of Teritiary age.

Conglomerates and Laterite

Conglomerates are composed of boulders, Pebbles and mostly of quarzites are observed in uplands of Sriperumbadur Taluk. The maximum sizes of these boulders are found as capping over the upper Gondwanas. The laterites are well developed around

Chemberambakkam village. These laterites are porous vermicular, clay like rocks of red, yellow, brown, grey and in mottled colours.

Alluvium

Alluvial deposits are the youngest formation consists of sands and clays and is deposited by the cheyyar, Coovam and Palar rivers. The Adayar alluvium consists of silt, fine and coarse grained sands, gravel and pebbles.

The Palar alluvium comprises of coarse sands and gravels. The average thickness of alluvium is about 10 to 30m.

Geological structure

The general trend of the gneiss is NE-SW direction and the regional trend observed is NNE-SSW to NW-SE direction. The deposition of Gondwana raocks, the sedimentary rocks, in faulted troughs and in the rugges topography of crystalline rocks took place during Jurasic period. The insitu soils laterites and alluvial deposits were deposited along the Palar and Cheyyar rivers during the quarternary period.

(Source:http://nwm.gov.in/sites/default/files/Notes%20on%20Kancheepuram%20District.pdf)

2.7.2 Local Geology

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite body N30°E - S30°W with dipping towards SE60°. The general geological sequences of the rocks in this area are given below:

AGE FORMATION

Recent- Quaternary formation (Gravel)

Unconformity

Archaean - Charnockite

Peninsular Gneiss complex

As far as Rough stone (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough stone within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,

The Geological map is presented in **Figure 2.2.**

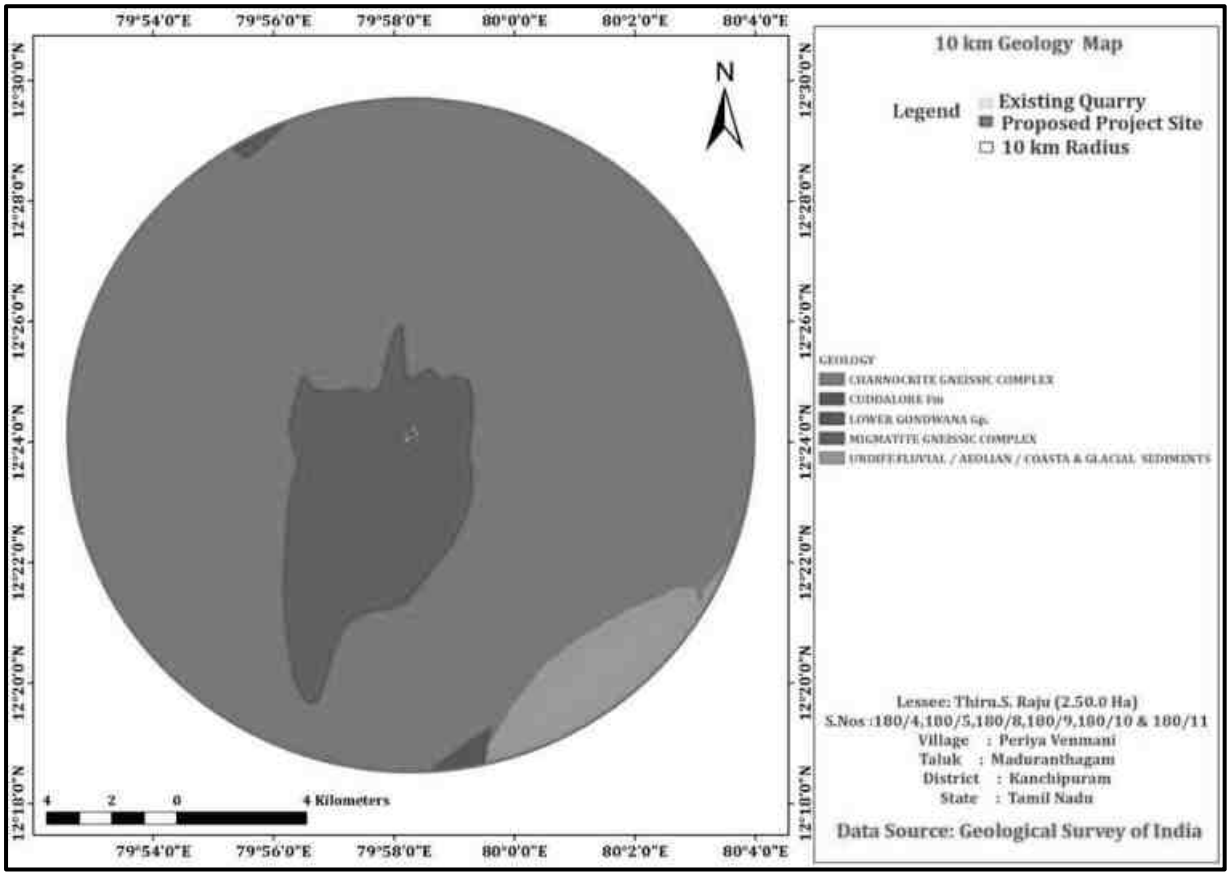


FIGURE 2.2: GEOLOGICAL OF STUDY AREA

2.8 GEOMORPHOLOGY

The prominent geomorphic units identified in the district through interpretation of satellite imagery are i) Chingleput-Tirukkalukkunram Surface (Erosional) ii) Palar Surface (fluvial and iii) Mamallapuram (Mahabalipuram) surface (Marina) etc. The elevation of the area ranges from 100 m amsl in the west to a sea level in the east. The major part of the area is characterised by an undulating topography with innumerable depressions, which are used as irrigation tanks. Three beach terraces ranging in elevation between 4 mark the coastal tract and 12 m with broad inter terrace depressions. The coastal plain displays a fairly low level or gently rolling surface and only lightly elevated above the local water surfaces on rivers. The straight trend of the coastline is a result of development of a vast alluvial plain. There are a number of sand dunes in the coastal tract. The coastal landforms include estuarine tidal, mud flats or lagoons and salt marsh etc.

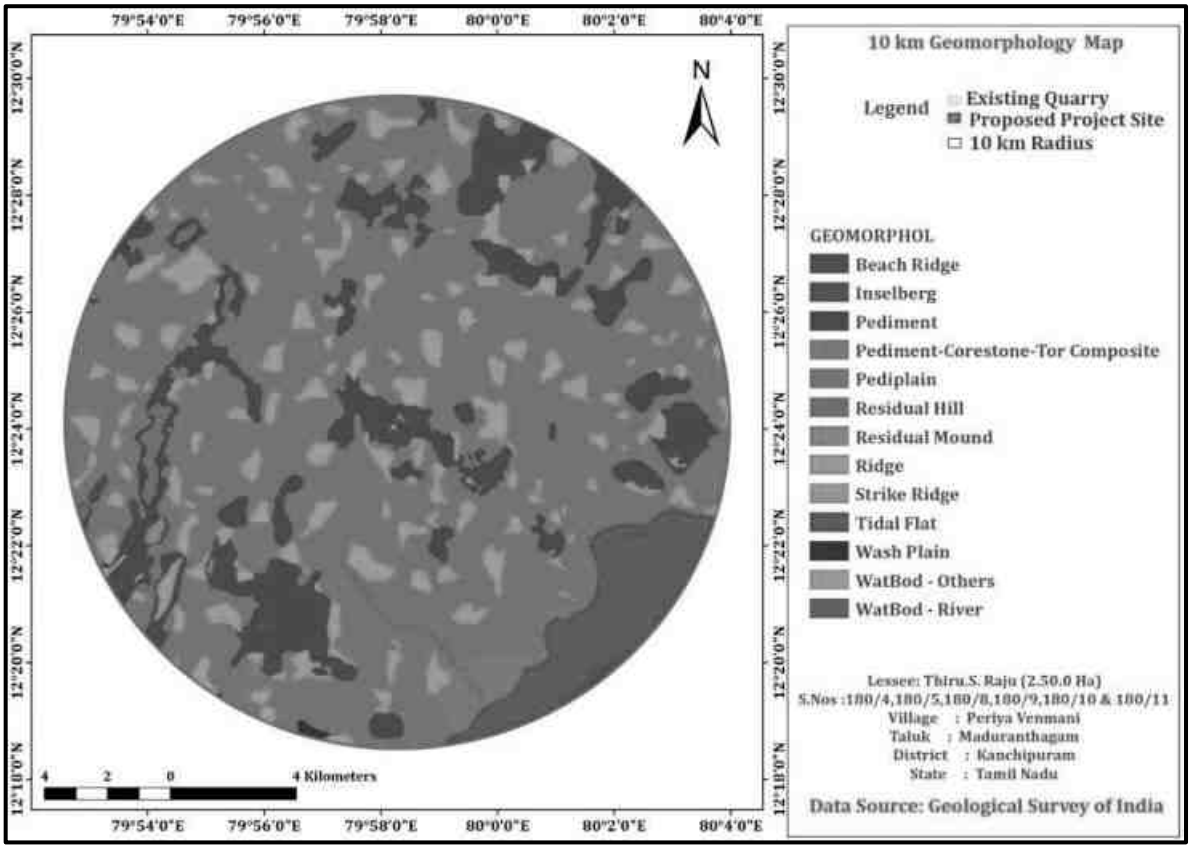


FIGURE 2.3: GEOMORPHOLOGY OF STUDY AREA

2.9 LITHOLOGY

The Kancheepuram district is principally made up of hardrocks and sedimentary formations. These are overlained by laterites and alluvium. The study area is underlain by formations of Quarternary, Tertiary and Mesozoic ages followed by the basement complex of crystalline rocks of Archaean age. The mine lease area is part of Hornblende Biotite Gneiss, while 10km study area mostly comprises of Acid to Intermediate Charnokite while in patches Garnet and Granite genies area also observed.

2.10 PHYSIOGRAPHY AND DRAINAGE PATTERN

Palar and Cheyyar are the important rivers. The drainage pattern in general is sub-dendritic and radial. All the rivers are seasonal and carry substantial flows during monsoon period. River Palar, a major river course, which drains this district originates from Western Ghats in Karnataka state, and discharges in Bay of Bengal near Pudupattinam. The Cheyyar, a tributary of Palar originates from the Jawadu Hills of Tiruvannamalai district. It has a northeasterly flow in Kancheepuram district and confluences with the Palar near Pazhaiyaseevaram. Other seasonal river like Korattalaiar and Tandiar drain this district partly on the northern and southern part respectively. *Source:* http://cgwb.gov.in/district_profile/tamilnadu/kancheepuram.pdf

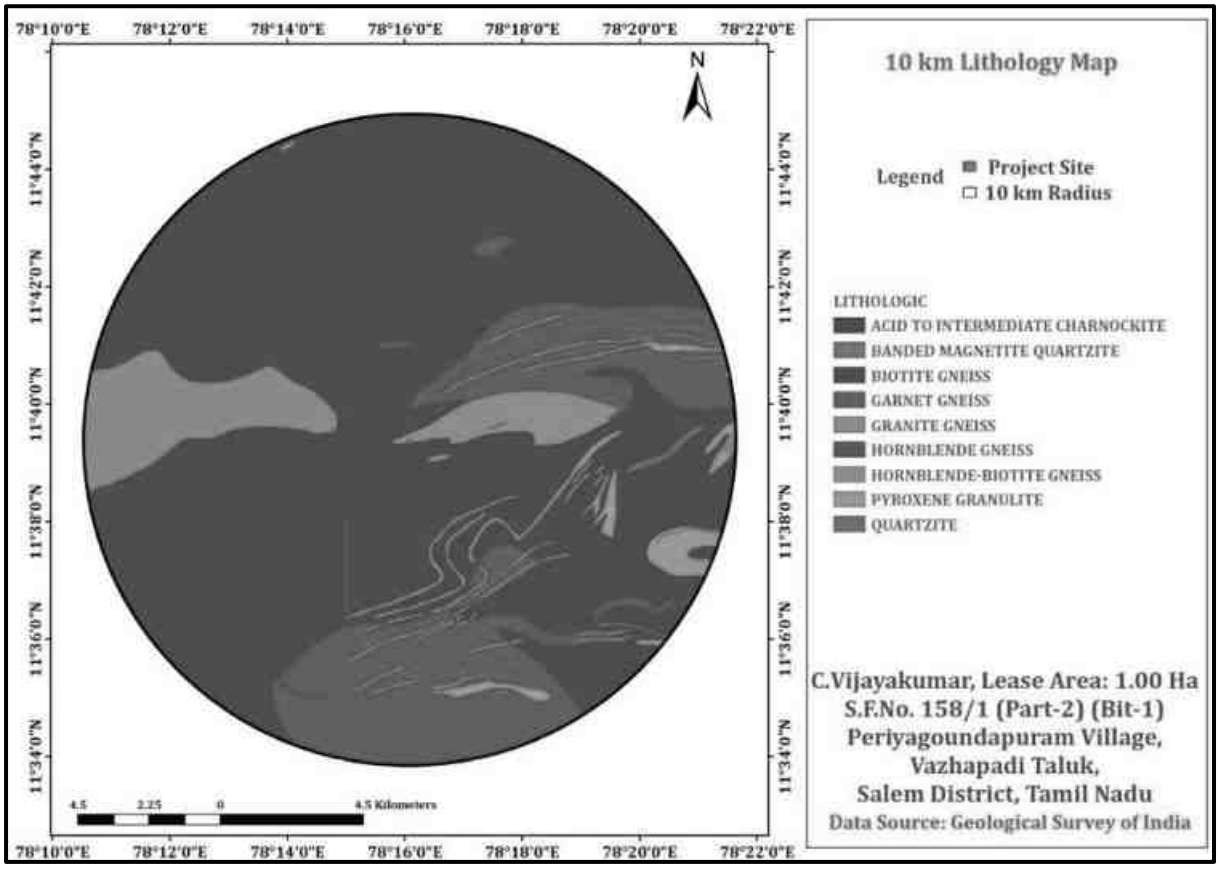
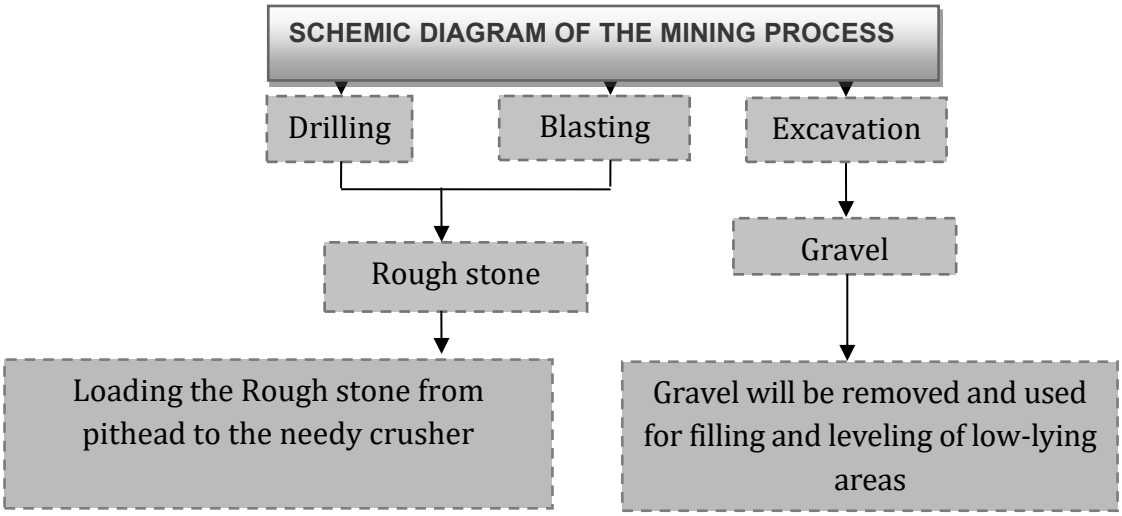


FIGURE 2.4: LITHOLOGY OF STUDY AREA

The lease applied area is exhibits plain terrain. The area has gentle sloping towards Southern side. The altitude of the area is 67m (max) above Mean Sea level. The area is covered by the Gravel which is about 2m thickness. Massive Charnockite is found after 2m (Gravel) which is clearly inferred from the nearby Quarry pits. The Water level in the surrounding area is 50-47m below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 1227.26mm during monsoon.



2.11 DETAILS OF MINING

The mine will be designed in such a way that the height of the bench is kept around 5m max and the width of benches will more than height, maintain a slope of 45° from the horizontal. Mining will be done with the help of drilling and blasting technique.

2.12 RESERVE ESTIMATION & LIFE OF THE MINE

2.12.1 Reserve Estimation

The estimation of ore reserves is made by conventional parallel cross section method using geological cross section. The geological cross sections are prepared across the strike of the ore body. The area of individual litho units in each cross section is calculated separately. The volume between the cross section is arrived based on the average area of parallel cross section i.e. ((S1+S2)/2) and multiplying sectional interval. And tonnage is arrived at by multiplying by bulk density.

2.12.2 Geological Reserves

The geological cross sections are prepared across the strike of the ore body. The area of individual litho units in each cross section is calculated separately. Section wise sectional area is measured and multiplied by the influence to obtain the volume in m^3. The volume is multiplied by 2.5MT/m^3 (bulk density) to calculate the resource of Rough stone in MT. The total Geological resources are calculated after depletion of existing quarry pits. The total Geological reserves available in the mine lease area are given in below.

GRAVEL:

Depth of Estimation of Resources;	2m
Total Geological Resources (Area x Depth):	25,000m2 x 2m 50,000m^3

ROUGH STONE:

Depth of Estimation of Resources:	35m
Total Geological Resources (Area x Depth):	25,000m2 x 35m 8,75,000m^3
Total Geological Resources of Gravel:	50,000m^3
Total Geological Resources of Rough Stone:	8,75,000m^3

(Source: Approved Mining Plan)

2.12.3 Mineable Reserves

Mineable reserve is getting restricted due to the formation of benches, leaving the statutory safety distance in the inner boundary, mineral lock up in the benches itself, ultimate depth of mining, bench slope adopted etc. So, the mineable reserve is estimated

after reducing the rough stone blocked in the safety distance, benches and existing pit. The Rough stone reserves are given below.

TABLE 2.6: SUMMARY OF MINEABLE RESERVE

Section	Bench	Length in (m)	Width in (m)	Depth in (in)	Mineable Reserves of Rough stone @ 100 (m^3)	Gravel (m^3)
XY-AB	i	41	47	2		3854
	ii	38	41	2	3116	
	ii	72	77	3	16632	
	iii	67	67	5	22445	
	iv	59	57	5	16815	
	V	54	47	5	12690	
	vi	49	37	5	9065	
	vii	44	27	5	5940	
	viii	39	17	5	3315	
				Total	**90018**	**3854**
XY-CD	i	13	134	2		3484
	ii	10	128	2	2560	
	ii	66	184	3	36432	
	iii	61	174	5	53070	
	iv	56	164	5	45920	
	V	51	154	5	39270	
	vi	46	143	5	32890	
	vii	41	96	5	19680	
				Total	**229822**	**3484**
Grand Total					**319840**	**7338**

(Source: Approved Mining Plan)

Total Mineable Reserves of Gravel **:7,338m^3**
Total Mineable Reserves of Rough Stone :**3,19,840m^3**
The mineable reserves have been computed as :**3,19,840m^3** of Rough stone at the rate of 100% recovery and **7,338m^3** of Gravel upto a depth of 37m (2m Gravel + 35m Rough Stone) below from the general ground level for a period of five years.

2.12.4 Anticipated Life of The Mine

The estimated life of the proposed quarry is 5 years.

2.13 METHOD OF MINING

Opencast Mechanized Mining Method is being proposed by formation of 5 m height 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 Mine Act – 1952.

Rough stone will be directly excavated by Hydraulic Excavators and loaded into tippers directly and sold to needy customers. The Rough Stone is a batholith formation and the splitting of rock mass of considerable volume from the parent rock mass will be carried out by deploying jackhammer drilling and Slurry Explosives will be used for blasting. Hydraulic Excavators attached with Rock Breakers unit will be deployed for breaking large boulders to required fragmented sizes to avoid secondary blasting and hydraulic excavators attached with bucket unit will be deployed for loading the Rough Stone into the tippers and then the stone is transported from pithead to the nearby crushers.

2.14 TOPSOIL, OVERBURDEN REMOVAL AND WASTE REMOVAL

- **Topsoil / Waste**

There is no topsoil in this proposed site. The overburden is in the form of topsoil formation. Most of the topsoil removed in previous quarrying operation. The entire quarried out rough stone will be consumed hence waste dump is not proposed.

- **Overburden / Waste**

The no overburden generated during the mining plan period. Hence, there is no disposal of Top soil or waste. The excavated rough stone will be directly loaded into Tippers for the filling and levelling of low-lying areas. The excavated Rough Stone (100%) will be directly loaded into Tippers to the needy customers. There is no Waste anticipated during this plan period hence, disposal of waste does not arise.

- **Waste ater**

There will not be any process effluent generation from the quarry lease area. Domestic effluent from the mine office is discharged in septic tank and soak pit. There is no toxic effluent expected to generate in the form of solid liquid and gases and the no requirement of treatment of waste.

2.15 PRODUCTION DETAILS

Year wise Production of Rough stone from the area will be upto maximum capacity. The recovery factor is up to 100% hence no waste expected to be generated. All excavated quantity is saleable. The summary of proposed development and production during the

mine plan period is given in **Table 2.7**. The Plan showing mine development during the plan period is given in **Figure 2.5.**

TABLE 2.7: YEAR WISE DEVELOPMENT & PRODUCTION

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserves of Rough stone @ 100 (m^3)	Gravel (m^3)
i	XY-CD	i	13	134	2		3484
		ii	10	128	2	2560	
		ii	46	184	3	25392	
		iii	36	174	5	31320	
		iv	5	164	5	4100	
					Total	**63372**	**3484**
ii	XY-AB	i	20	47	2		1880
		ii	17	41	2	1394	
		ii	51	77	3	11781	
		iii	46	67	5	15410	
	XY-CD	ii	20	184	3	11040	
		iii	25	174	5	21750	
					Total	**61375**	**1880**
iii	XY-AB	i	21	47	2		1974
		ii	21	41	2	1722	
		ii	21	77	3	4851	
		iii	21	67	5	7035	
		iv	59	57	5	16815	
	XY-CD	iv	51	164	5	41820	
					Total	**72243**	**1974**
iv	XY-CD	V	51	154	5	39270	
	XY-AB	V	54	47	5	12690	
		vi	49	37	5	9065	
					Total	**61025**	
V	XY-CD	vi	46	143	5	32890	
		vii	41	96	5	19680	
	XY-AB	vii	44	27	5	5940	
		viii	39	17	5	3315	
					Total	**61825**	
Grand Total						**319840**	**7338**

(Source: Approved Mining Plan)

The Recoverable reserves have been computed as **3,19,840m^3** of Rough stone at the rate of 100% recovery and **7,338m^3** of Gravel for the five years upto a depth of 37m (2m Gravel + 35m Rough Stone) below ground level for a period of five years.

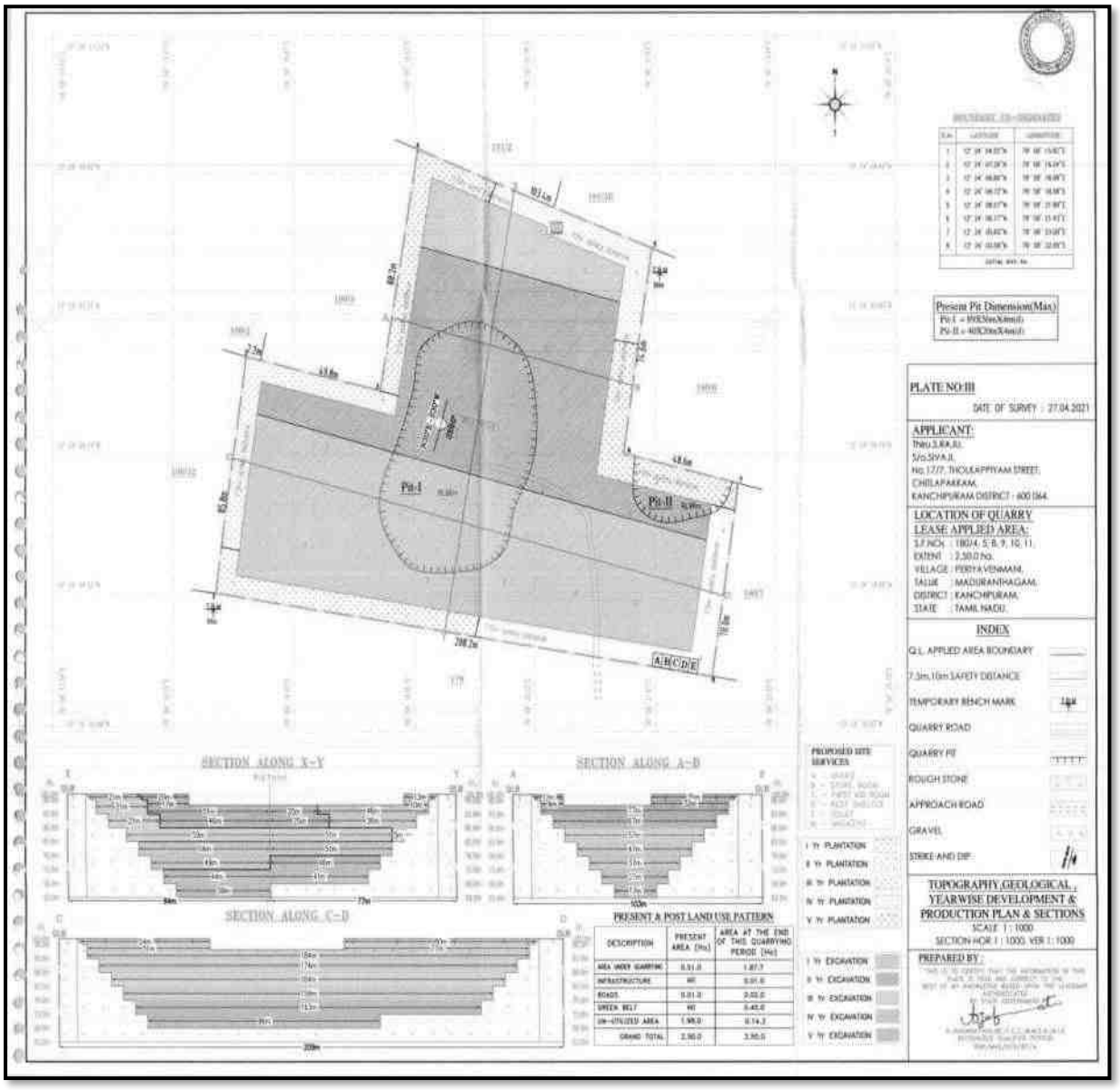


FIGURE 2.5: PRODUCTION AND DEVELOPMENT PLAN AND SECTION

2.16 DRILLING AND BLASTING PARAMETERS

Production from the fractured zone will be obtained with the help of excavator, whereas from compact zone the production will be obtained by drilling and blasting. Drilling will be done by jack hammer with the help of air compressor.

- Hole location will be properly dressed by excavator to remove the loose boulders for efficient drilling and for avoiding jamming of drilling hammer and bits.
- Drill holes of 32mm diameter and 1.5 m in depth will be made.
- To reduce the noise level the holes will be blasted by using nitrate mixture and Millisecond delay detonators.

- To maintain the bench height of 5m, sub bench of 2.5 m will be formed first, later Two benches will be merged and one bench of 5m will be formed and maintained.
- The spacing and burden will be kept at 1.2 m and 1m respectively.
- About 30 to 50 holes will be blasted in one blast.
- Yield per hole will be 1.5 x 1 x 1=1.5m^3.

2.16.1 Blasting Pattern

The blasting pattern entirely depends about the joints present in the rocks. The drilling is done as per the requirement of the rock fragmentation with desired production of mineral.

TABLE 2.8: BLASTING PROGRAM FOR THE PRODUCTION PER DAY

Particulars	Qty
No. of holes	184
Pattern of hole	Zigzag- Multi-rows
Inclination of holes	80^0 from horizontal
Yield (Tons)	552
Powder factor (Tons/Kg of explosives)	6
Total explosive required (Kg-Slurry explosives)	92
Charge/hole (Kg)	0.5
Use of detonators	25millisecond relays
Detonating fuse	Detonating Cord

2.16.2 Frequency of Blasting

Blasting will be carried out only in Day time between 12.00 – 12.30P.M. whenever required.

2.16.3 Storages of Explosives

Licensed Portable explosive magazines will be utilized for storage of explosives. Blasting will be performed as per requirement on the face. The explosive will be handled by authorized blasting party himself and the blasting will be carried out by registered blasting contractor as per present practices. The controlled blasting is proposed by adopting all the safety measures as per "MMR 1961" and with the permission of DGMS.

2.16.4 Precautions

- ✓ Proper and safe storage of explosives in approved and Licensed Magazine.

- ✓ Proper, safe and careful handling and use of explosives by competent Blasters having Blaster's Certificate of Competency issued by DGMS.
- ✓ Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones etc.
- ✓ The explosives of class 2 will be used in their original cartridge packing and such cartridge shall not be cut to remove explosive for making cartridge of different size.
- ✓ Detonators will be conveyed in special containers. These will not be carried with other explosives.
- ✓ The holes which have been charged with explosives will not be left unattended till blasting is completed.
- ✓ Before starting charging, clear audible warning signals by Sirens will be given so that people nearby can take shelter.
- ✓ Blasting operations will be carried out in day times only. Also, in this project, the mining operations are proposed to be carried out in day times.

2.16.5 Types of Explosives Used

Slurry explosives (An explosive material containing substantial portions of a liquid, oxidizers, and fuel, plus a thickener), NONEL / Electric Detonator &Detonating Fuse.

2.17 CONCEPTUAL MINE PLAN

During conceptual stage the mined-out area will be converted into water reservoir and safety zone as well as upper benches will be used for plantation at the conceptual period. It will also serve the purpose as socio economic and corporate social responsibility of the lessee by way of supplying water for irrigation purpose or at will of the local people. This will help in ground water recharging as well. The conceptual plan and section of mine lease area is given in **Figure 2.6.**

2.18 LAND USE PATTERN OF MINE LEASE AREA

- ➢ **Land form:** The lease applied area is exhibits an undulated topography. Lease area is dry land. The area does not fall in forest land.
- ➢ **Land use:** The area is a dry barren land devoid of Agriculture and Habitations. The land is not used for any specific vegetation. Some thorny bushes and shrubs are observed.
- ➢ **Land O nership:** It is a Patta Land.

The existing and proposed land use pattern of the mine lease area upto conceptual stage is given in **Table 2.9.**

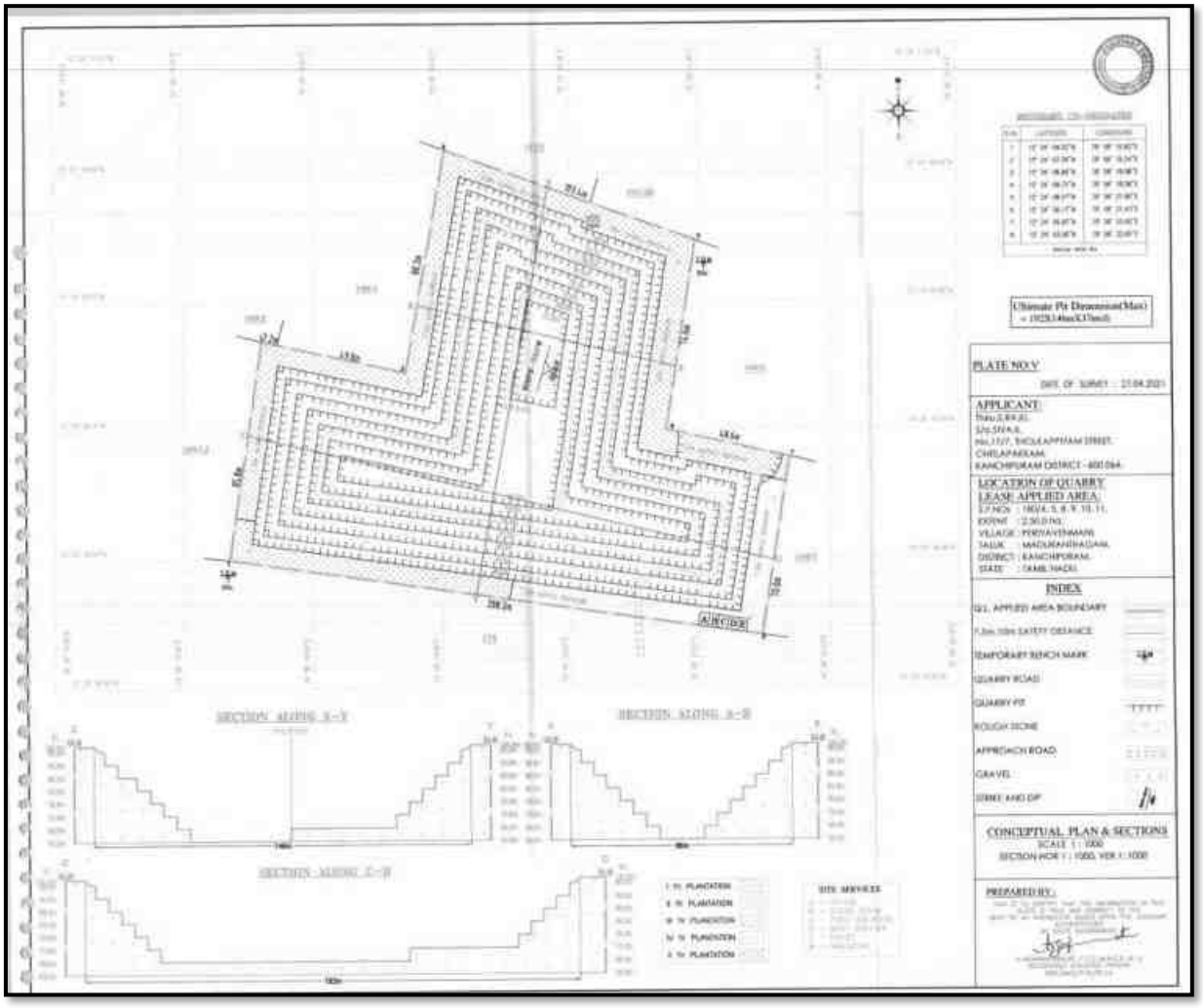


FIGURE 2.6: CONCEPTUAL PLAN

TABLE 2.9: E ISTING AND PROPOSED LAND USE PATTERN OF MINE LEASE AREA

S. No.	Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
1.	Area under quarry	0.44.4	1.87.7
2.	Infrastructure	Nil	0.01.0
3.	Roads	0.01.0	0.02.0
4.	Green Belt	Nil	0.45.0
5.	Unutilized Land	2.04.6	0.14.3
Total		**2.50.0**	**2.50.0**

Plantation with suitable native species will be taken up along the safety zone and upper benches within mining lease area progressively with mine operation till mine closure.

2.19 SITE SERVICES

Following site services will be provided at the mine:

A centralized office cum store with minor maintenance shed is available near mine site outside lease area. A first aid box with necessary medical facility is available and maintained at the mine office.

- **Po er supply:** The mine will work in one shift only in day time, so no electric power supply is required for mining operations. However eclectic connection and required transformer unit has been installed in the lease to support the crushing and screening unit.
- **Water supply:** There is no source of drinking water within the applied area. Drinking water & water for other purpose is brought from tube well situated outside the lease area. Drinking water stored in clean covered earthen pots and kept near working faces.
- **Latrine and Urinal**: latrine and urinal will be provided separately for male and female worker as per rule.
- **First Aid Room**: A first-aid room with all necessary medical facilities will be provided as per mines act and mines rules.

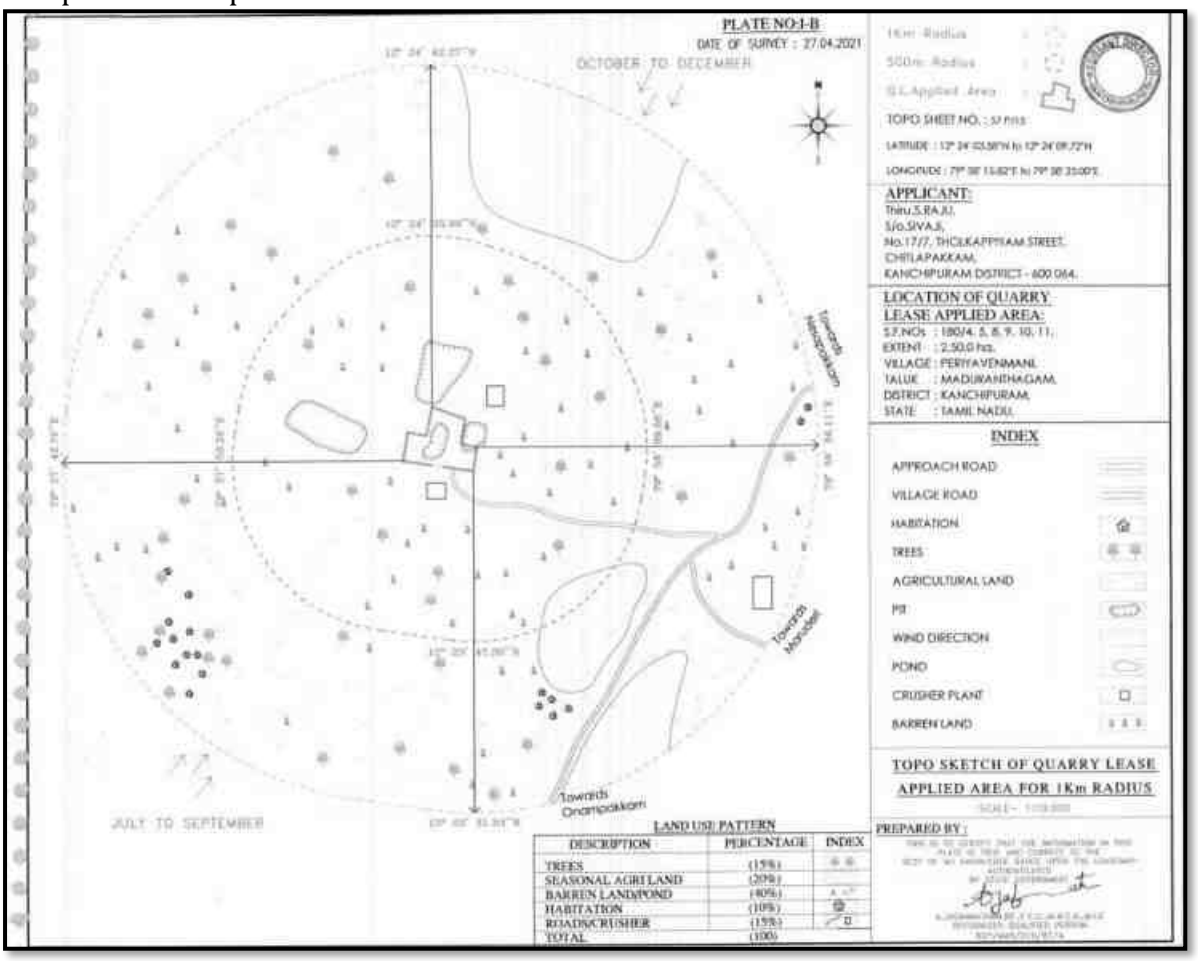


FIGURE 2.7: ENVIRONMENTAL & LAND USE PLAN

2.20 POTENTIAL IMPACTS & MITIGATION MEASURES

The expected anticipated adverse environmental impacts and mitigation measures are summarized in **Table 2.10**.

TABLE 2.10: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES PROPOSED

Environmental Component	Project Activities	Impacts	Mitigation Measures
Air Quality	Drilling and Blasting	Dust is generated during drilling and blasting operations	• Use of dust aprons on drilling equipment and adopting wet drilling methods. • Avoiding blasting during adverse weather conditions. • Use of controlled blasting practice • Development of greenbelt.
	Extraction of Mineral, Loading / unloading activities	Increase in SPM/RPM levels in ambient air and SO_2/NOx concentration levels in ambient air due to vehicular emissions.	• Exposed area will be limited to the minimum required for mining operations. • Periodic sprinkling of water on working faces, • Regular preventive maintenance of mine machinery
	Transportation of Mineral	Increase in SPM/RPM level due to dust generation and SO_2/NOx concentration levels in ambient air due to vehicular emissions.	• Regular sprinkling of water on haul and access roads. • Periodic maintenance of transport vehicles. • Periodic maintenance of haul roads • All tippers would be covered by tarpaulin sheets at top and avoid spillage.
	General equipment operations	Increased SPM/RPM and SO_2/NOx concentrations in ambient air.	• Regular maintenance of all equipment to minimize particulate matter and gaseous emissions from diesel engines.

Environmental Component	**Project Activities**	**Impacts**	**Mitigation Measures**
	All activities	Excessive occupational exposures to airborne particulate matter.	• Provision of dust masks to workers exposed to dusty operations / areas.
Noise Levels and Ground Vibrations	Blasting	High impulsive noise levels, overpressure and ground vibrations impacts and noise related community annoyance	• Small scale blasting will be carried out. • Controlled blasting using delay detonators will be carried out to minimize ground vibrations. • Charge per delay will be kept optimum. • Muffle blasting will be carried out in area facing habitation. • Blasting will be conducted during lunch (noon) time when no employees are present in mine working area.
	General activities including machine/ operations and transportation of Mineral.	Increase in noise levels occupational hazard due to noise exposures and increase in ambient noise levels.	• Periodic maintenance of all mining machinery and transport vehicles • Provision of effective silencers to all mine machinery • Provision of ear plugs/ear muffs to workers exposed to high noise generating operations • Development of thick plantation around mine lease boundary to act as a noise screen. • Regular noise monitoring will be carried-out.
Water Resources and Quality	Dewatering	Reduction in groundwater availability Deterioration in surface/ground	• Surface run-off from mining area will be collected in settling tank / mine sump and will be used for dust suppression and plantation. • There may be impact of groundwater availability since the

Environmental Component	Project Activities	Impacts	Mitigation Measures
		water quality of receiving body.	proposed working may intersect water table. • There will not be any process effluent discharge from the mine. • Domestic effluent will be discharged in septic tank and soak pit system. • At conceptual stage, mined out pit will be converted into water reservoir, which will help in recharging ground water table and will be available to nearby villagers as an additional surface water body.
	Water required in mine for dust suppression, plantation and domestic use.	Reduction in groundwater availability for domestic and for irrigation purposes.	• Surface run-off from mining area will be collected in settling tank / mine sump and will be used for dust suppression and plantation. • There may be impact of groundwater availability since the proposed working may intersect water table. • Water for drinking and domestic use will be supplied by tanker from nearby village. • At conceptual stage, mined out pit will be converted into water reservoir, which will help in recharging ground water table and will be available to nearby villagers as an additional surface water body.
	Waste water generated from domestic usage at mine.	Deterioration in ground water and soil quality when discharged untreated for	• There will not be any process effluent discharge from the mine. • Rain water accumulated in mine pit will be discharged in nearby drainage after passing through

Environmental Component	Project Activities	Impacts	Mitigation Measures
		greenbelt development	settling pond. • Domestic effluent will be discharged in septic tank and soak pit system.
Geology	Mining activities	Change in Geomorphology of the area with disturbance of stratigraphic sequence.	• The impact will be confined to lease area. • Mining will be carried out as per guidelines with formation of proper benches and presence of non-disturbed safety zone of 10m from lease boundary. • No active faults present in the area hence the change in geomorphology will be limited to lease area.
Hydrogeology and Drainage pattern	Mining activities	May impact regional hydrology and drainage pattern of the area.	• There may be impact of groundwater availability since the proposed working may intersect water table. However, at conceptual stage, mined out pit will be converted into water reservoir, which will help in recharging ground water table and will be available to nearby villagers as an additional surface water body. • Rainwater harvesting structures will be constructed in nearby villages.
Land use and Soil Characteristics	Mining operations.	Land use of the mine lease area will degrade. Impact due to settling of air borne dust on soil outside ML	• Development of thick plantation around mine lease area, waste dump area and on undisturbed area. • Adoption of adequate air pollution control measures to control dust emissions. • At conceptual stage, mined out pit

Environmental Component	Project Activities	Impacts	Mitigation Measures
		area. Land degradation due to disposal of solid wastes.	will be converted into water reservoir. Plantation will be developed on top benches of mined out pit. This will improve aesthetic view of the ML area.
Biological environment	Dust emission due to Rough stone mining activity.	Dust deposition on vegetation & agriculture paddy crop around periphery of ML area may reduce the crop productivity specifically within 500m from mine lease area.	• Development of thick green belt around mine lease boundary and plantation on undisturbed area, top benches of mined out area, waste dump area etc. using native flora species. • Transport through covered trucks. Sprinkler will be installed at loading & unloading point; regular water sprinkling within the mining area and also on haulage road will be carried out. • The waste material/OB dumps will be covered with shrubs and grasses plantation.
Environmental Pollution, Health, Safety	Overall Mining operation	Occupational health issues, Community disturbance, risk of accidents, etc	• Adoption of suitable pollution control measures in the mines • Provision of pre-employment and periodic training on health and safety to all the workers in the mine • Adoption of safe working practices • Maintaining proper housekeeping at working places. • Provision of necessary personal protective equipment's to all mine workers • Periodic maintenance of mine machinery and transport vehicles • Display of warning signals at strategic locations.
Socio-economic	Mining	Increase in	• Will generate direct employment for

Environmental Component	**Project Activities**	**Impacts**	**Mitigation Measures**
Aspects	operations	employment opportunities both direct and indirect thereby increasing economic status of people of the region.	persons. While secondary employment will be generated by other ancillary activities. • Mostly local people will be employed in the mine. • Mine management will carry out CER activities in the nearby villages to improve conditions of the villages. • The Mine management will improve the basic facilities. in the nearby villages under CER.

CHAPTER 3: DESCRIPTION OF ENVIRONMENT

3.1 BASELINE ENVIRONMENTAL STUDIES

Baseline environmental studies were carried out within 10 km radius of the rough stone mine cluster area to assess the existing environmental scenario in the area. For EIA studies, Mine lease area of rough stone mine was considered as the core zone and area outside the mine upto 10 km radius was considered as buffer zone. The baseline environmental monitoring was conducted by **Enviro Tech Service (ETS), Gha iabad** it is an NABL and MOEF recognized laboratory for various components of environment, viz. Air, Noise, Water, Land was carried out during Winter Season i.e. **December 2021 to February 2022** in the study area covering 10 km radial distance from the rough stone mine. Other environmental data on flora and fauna, land-use pattern, forest etc. were also generated through field surveys and secondary information collected from different State Govt. departments. Sampling methods and analysis. Socio-economic survey was conducted, through interaction with the people, sarpanch and medical officers by floating questionnaires and collection of information are supported by census data for demographic structures, amenities, and infrastructure availability within the study area.

3.1.1 Methodology

Appropriate methodologies are followed in developing the EIA-EMP report. The methodology adopted for the study is outlined below:

- Conducting reconnaissance of the study area;
- Selecting sampling locations for conducting various environment baseline studies;

The sampling locations were selected on basis of the following:

- Predominant wind directions recorded by the nearest Indian Meteorological Department (IMD) observatory;
- Existing topography;
- Drainage pattern and location of existing surface water bodies like lakes, rivers and streams;
- Location of villages/towns/ sensitive areas, and;
- Areas, which represent baseline conditions;

The field observations were made to:

- Assess the positive and negative impacts due to the proposed project;
- Suggest appropriate mitigation measures for negating the adverse environmental impacts, if any, and;
- Suggest post-project monitoring;

3.2 LAND ENVIRONMENT

3.2.1 LAND USE OF STUDY AREA

The land-use & land cover map of the 10 km radial study area from the periphery of project site has been prepared using Resource Sentinel-2A having 10 m spatial resolution and date of pass 1st March 2022 satellite image with reference to Google Earth data and the IRS Cartosat having 2.45 m spatial resolution and date of pass September 2014. In order to strengthen the baseline information on existing land use pattern, the following data covering approx. the proposed project site as well as the 10 km radius from the periphery of the project site i.e. 12°24'56.48"N to 12°23'57.29"N latitude and 79°52'42.75"E to 80° 3'54.90"E longitude and elevation -128 to 47 meter are observed. The project is in Survey of India topo sheet no 57P/15while 10 km radius study area covers four topo sheets 57P/15 & 66D/3

The digital image processing was performed on ERDAS Imagine 2014 and ArcGIS 10.8 software system on high-configured computer. This software package is a collection of image processing functions necessary for pre-processing, rectification, band combination, filtering, statistics, classification, etc. Apart from contrast stretching, there are large numbers of image processing functions that can be performed on this station. Arc GIS map 10.1 is used for final layout presentation.

Table 3.1: Data Specification Used for Presents Study

Satellite/ Image	Sensor	Spatial resolution	Date of Acquisition
Sentinel-2A	Sentinel-2	10 m	1st March 2022
Cartosat	IRS Cartosat I	2.45m	2014

3.2.2 Methodology

The land use pattern of the study area was studied by analysing the available secondary data published in the District Primary Census abstract of the year 2001 & 2011.

Salient features of the adopted methodology are given below:

- Acquisition of satellite data
- Preparation of base map from Survey of India topo sheets
- Data analysis using visual interpretation techniques
- Ground truth studies or field checks using GPS
- Finalization of the map
- Digitization using head up vectorisation method
- Topology construction in GIS
- Area calculation for statistics generation
- Masking

Four spectral bands provide high degree of measurability through band combination including

FCC generation, bands rationing, classification etc. These features of the IRS data are particularity important for better comprehension and delineation of the land use classes. Hence, Sentinental 2A data and SRTM data having 30 m spatial resolution having pan chromatic imagery has been used for land use mapping.

The satellite data from the compact disc is loaded on the hard disk and by studying quick look (the sampled image of the appropriate area ;) the sub-scene of the study area is extracted.

Supervised classification using all the spectral bands can separate fairly accurately, the different land use classes at level II on the basis of the spectral responses, which involve the following three steps:

1. Acquisition of ground truth.
2. Calculation of the statistics of training area.
3. Classification using maximum likelihood algorithm.

The training areas for classification were homogeneous, well spread throughout the scene with bordering pixels excluded in processing. Several training sets have been used through the scene for similar land use classes. After evaluating the statistical parameters of training sets, the training areas were rectified by deleting no congruous training sets and creating new ones.

3.3 PRE FIELD INTERPRETATION OF SATELLITE DATA

The False Color Composite (FCC) of Sentinel-2A satellite imagery having 10 m spatial resolution satellite data at 1:50,000 scale was used for pre-field interpretation work. Taking the help of topo sheets, geology, geo-morphology and by using the image elements, the features were identified and delineated the boundaries roughly. Each feature was identified on image by their image elements like tone, texture, color, shape, size, pattern and association. A tentative legend in terms of land cover and land use was formulated. The sample area for field check is selected covering all the physiographic, land use/land cover feature cum image characteristics. **Figure 3.1** shows the FCC of 10 KM radius of Sentinental imagery.

3.4 TOPOGRAPHY

The physical setting of study area shows a contrast of immense dimensions and reveals a variety of landscapes influenced by relief, climate, vegetation and economic use by man. But even then, regionally, there is considerable local variation. The area is sloping from South West to North East. The Surface elevation map of the study area is shown in **Figure 3.2** to **Figure 3.4**. The Elevation from 128 to 47 m MSL are observed in the study area.

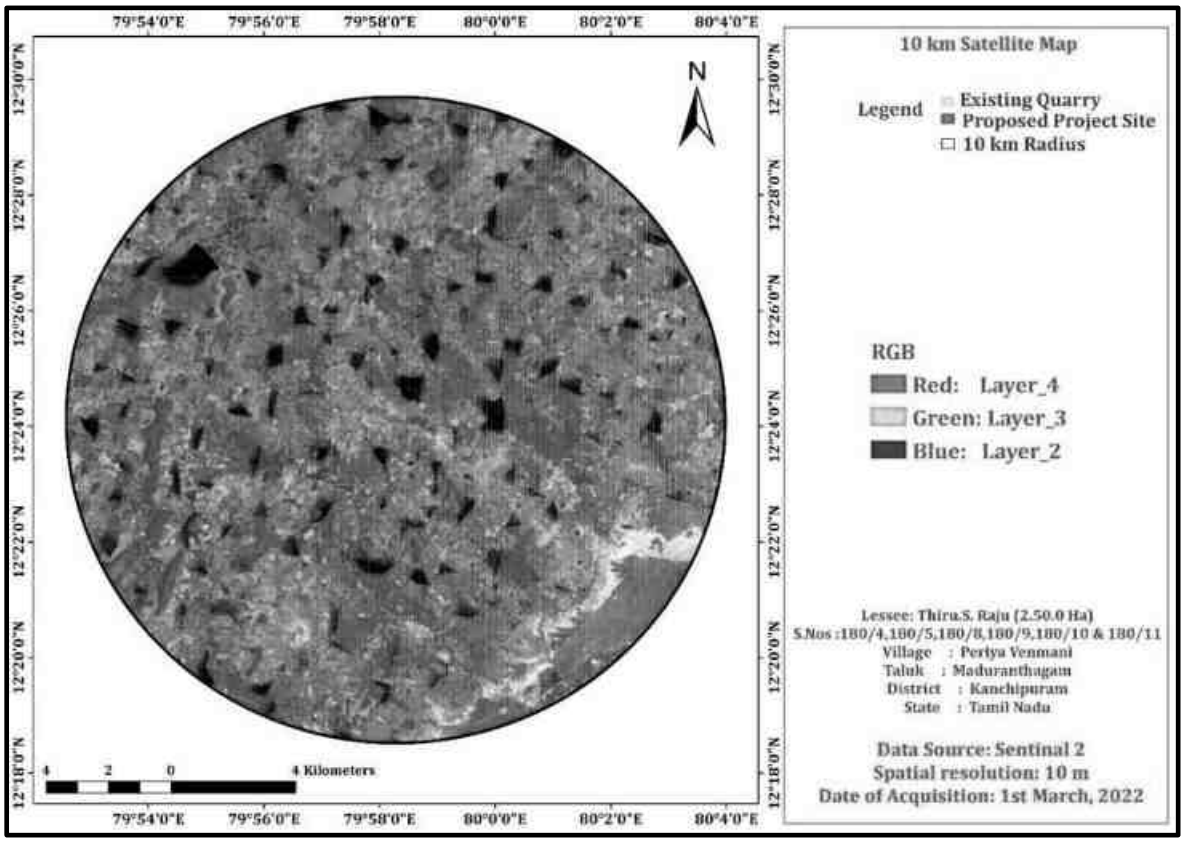


FIGURE 3.1: FCC OF THE 00 10 KM RADIUS WITH PRO ECT LOCATION

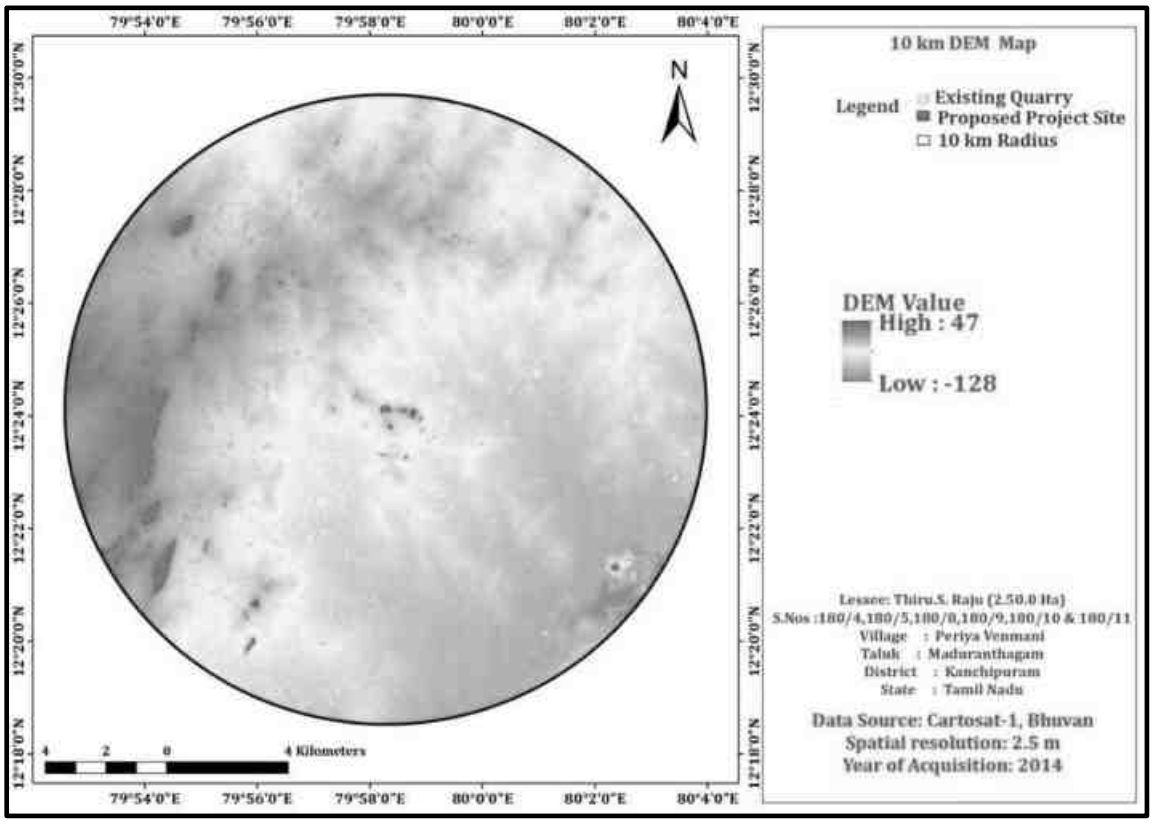


FIGURE 3.2: DIGITAL ELEVATION MODEL WITH IN 10 KM RADIUS

FIGURE 3.3: ELEVATION PROFILE OF NW SE DIRECTION WITH IN 10 KM RADIUS

FIGURE 3.4: ELEVATION PROFILE OF SW NE DIRECTION WITH IN 10 KM RADIUS

3.5 LAND USE/LAND COVER CLASSIFICATION

Total three major land use/land cover classes were demarcated in the study area following Level I classification furthermore a level II classification also adopted as per the requirement of **MoEF & CC** in which total 10 classifications has been classified in the study area. A thematic map of 1:50,000 scale was generated incorporating these classified categories considering the area of the project

Of the 6 LU/LC classes as per NRSA-TR-LU & CD-01-90 the 10 Km radius study area has presence of all 6 LU/LC classes are shown in **Table 3** of which the agricultural land has the highest category of land which is combination of plantation and crops 44.47 % (148.93 Km^2), followed by waste land which comprises of scrub/shrub land 26.47% (88.49 km^2) and bare land 12.40 % (41.46 Km^2), followed by built-up land 11.60 % (38.77 Km^2), followed by water body comprises of 3.64% (12.17 Km^2), followed by forest land which comprises of 1.12% (3.74 km^2) and the last one is mining land 0.22% (0.75 km^2). Terrain presumably makes it difficult to visualize some of the other features of the total project area. It is also observed that the study area is well connected SH-115 which is passing under the 10 km radius of the study area.

The presence of different land use is shown in **Figure 3.5** of the pie chart distribution.

TABLE 3.2: LU/LC AND ITS COVERAGE WITHIN 10 KM RADIUS

S.No	Level I	Level II	Area (Km^2)	Percentage ( )
1	Built-up Land	Built-up Land	38.77	11.60
2	Forest	Dense Forest	3.74	1.12
3	Agricultural Land	Plantation	48.37	14.47
		Crops	100.56	30.08
4	Waste Land	Scub/Shrub	88.49	26.47
		Bare land	41.46	12.40
5	Water Body	Water Body	12.17	3.64
6	Others	Mining land	0.75	0.22
		Total	**334.31**	100.00

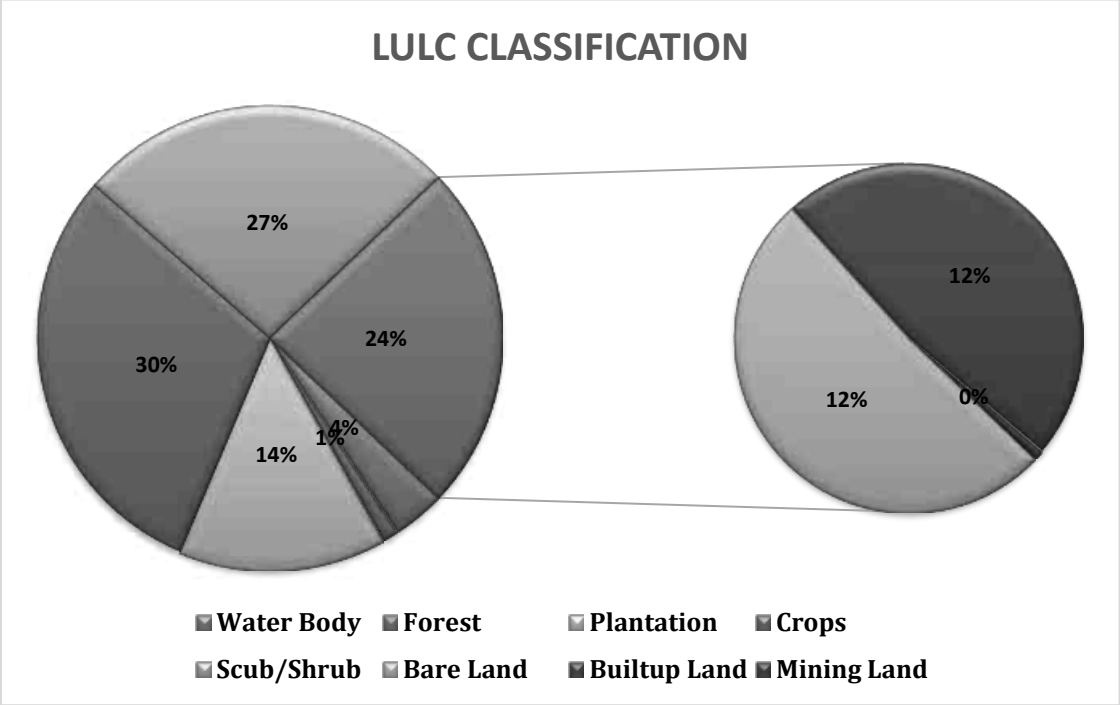


FIGURE 3.5: PIE CHART OF THE LU/LC CLASSIFICATION WITHIN 10 KM RADIUS

From the above table and pie diagram it is inferred that most of the land in the study area is Agriculture land (includes crop land) 44.53 % and by water bodies (Rivers Stream Canals) 3.64 %. The total mining area within the study area is 0.22 %. The cluster area 5.96.00 Ha contributes to the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment.

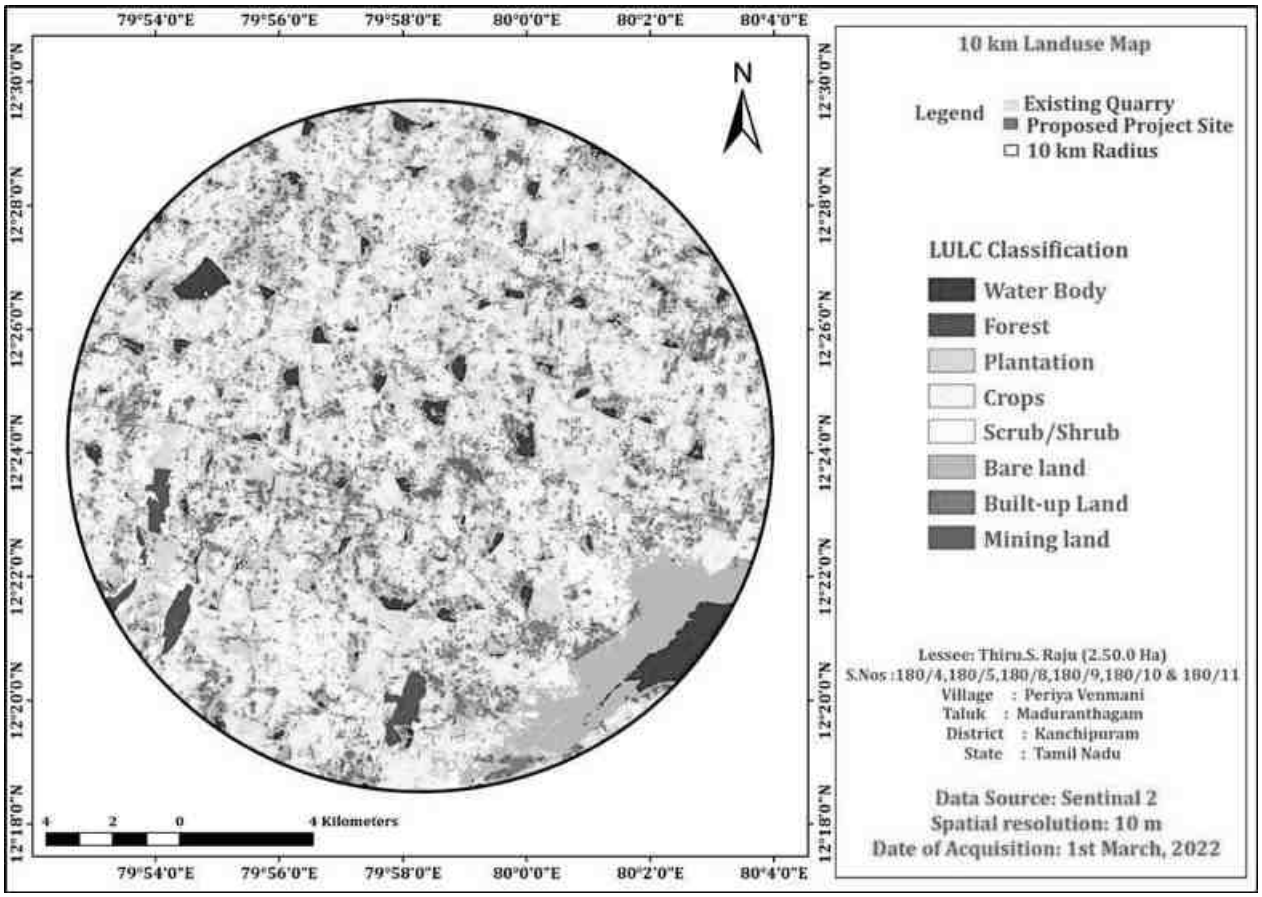


FIGURE 3.6: LU/LC DETAILS OF 10 KM RADIUS

3.6 SPATIAL DATA FROM SOI TOPOGRAPHICAL SHEETS

Creating a GIS spatial database is a complex operation, and is the heart of the entire work; it involves data capture, verification and structuring processes. Raw geographical data are available in many different analogue and digital form such as toposheets, aerial photographs, satellite imageries and tables. Out of all these sources, the source of toposheets is of much concern to natural resource scientist and an environmentalist.

In the present study, the essential maps generated from SOI topographical maps. Using the topographical maps, the drainage map and contour Map were also developed. The maps are prepared to a certain scale and with attributes complying with the requirement of terms of reference (ToR). The location of entities on the earth's surface is then specified by means of an agreed co-ordinate system. For most GIS, the common frame of co-ordinate system used for the study is UTM co-ordinates system. All the maps are first Geo-referenced. The same procedure is also applied on remote sensing data before it is used to prepare the Essential maps. There is a road network connecting built-up areas and industries. As the terrain conditions are black cotton soil and bit undulated terrain and there is a drainage network around the site location. No National parks and wild life sanctuaries located in the study area.

3.7 SOIL CHARACTERISTICS

Soils have been classified into 1) clayey soil, 2) red sandy or red loamy soil 3) Red sandy brown clayey soil and 4) Alluvial soil. Of the above soils brown clayey soil is the most predominant, covering more than 71 percent of the areal extent of Kancheepuram district. Alluvial soils are found on the banks of Palar, Cheyyar and other rivers. The river alluvium is transported and is seen in coastal area of this district. Sandy coastal alluvial (arenacious soil) occurs along the seacoast as a narrow belt.

For studying soil profile of the region, sampling locations were selected to assess the existing soil conditions in and around the stone mining area representing various land use conditions. The samples were collected by ramming a core-cutter into the soil up to a depth of 15-20 cm. Total 6 samples within the study area were collected and analyzed. The details of the soil sampling locations are given in **Table 3.3** and shown in **Figure 3.7**. The sampling was carried out once in the study period during winter season.

TABLE 3.3: DETAILS OF SOIL SAMPLING LOCATIONS

S. No.	Location Code	Location	Distance (Km)	Direction of ind	Criteria
			.r.t Project Site		
1.	S1	Venmari	0.73	NE	Nearest Village
2.	S2	Periyavenmani	1.1	N	Upwind
3.	S3	Chinnavelikadu	1.25	NE	Crosswind
4.	S4	Poondi	1.25	SE	Crosswind
5.	S5	Chittamur	1.9	W	Downwind
6.	S6	Kollambakkam	3.2	W	Downwind

The collected soil samples were analyzed in the NABL/MOEF approved laboratory for physio-chemical and nutrition parameters. The physical, chemical properties and heavy metals concentrations were determined, and the results are given in **Table 3.5**.

FIGURE 3.7: STUDY AREA MAP WITH SOIL SAMPLING LOCATIONS

TABLE 3.4: TEST RESULTS OF SOIL

Date of Sampling	20.02.2022	**Sampling Method**	ETS/STP/SOIL-01
Analysis Start Date	25.02.2022	**Sample Quantity**	2.0 Kg.
Analysis End Date	02.03.2022	**Pac ing Condition**	SEALED
Sampling Done By	ETS STAFF	**Pac ed In**	POLY BAG

S. No.	Test Parameter	Unit	S1 Results	S2 Results	S3 Results	S4 Results	S5 Results	S6 Results	Test Method
1	pH	…	7.63	8.26	7.66	8.02	7.83	7.59	IS 2720 (Part-26)
2	Electrical Conductivity (EC)	µs/cm	332	413	353	541	352	329	IS 14767
3	Texture	…	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Sandy Clay Loam	IS 2720 (Part-4)
4	Sand	%	33.5	36.2	37.4	31.3	38.3	44.4	IS 2720 (Part-4)
5	Silt	%	35.2	34.3	30.2	42.6	33.1	18.6	IS 2720 (Part-4)
6	Clay	%	31.3	29.5	32.4	26.1	28.6	37.0	IS 2720 (Part-4)
7	Water Holding Capacity (WHC)	%	45.6	40.0	42.6	44.5	38.0	48.3	IS 2720 (Part-2)
8	Bulk Density	g/cm^3	1.27	1.11	0.94	1.05	1.14	0.83	IS 2386 (Part-4)
9	Porosity	%	32.5	29.6	27.1	33.5	26	36.5	IS 13030
10	Calcium,(Ca)	mg/kg	126	160	163.5	184.5	146	138	IS 2720 (Part-23)
11	Magnesium,(Mg)	mg/kg	25.8	21.5	25.6	33	23	29.7	ETS/STP/SOIL-08
12	Manganese,(Mn)	mg/kg	36.2	25.3	23.4	20.4	28.7	12	ETS/STP/SOIL-18
13	Zinc,(Zn)	mg/kg	0.54	0.82	1.17	1.13	1.06	0.53	ETS/STP/SOIL-18
14	Boron (as B)	mg/kg	0.43	0.78	0.63	0.74	1.69	0.44	ETS/STP/SOIL-18

S. No.	Test Parameter	Unit	S1 Results	S2 Results	S3 Results	S4 Results	S5 Results	S6 Results	Test Method
15	Chloride,(Cl)	mg/kg	132	139	129.5	126	137	157	BS 1377 -3
16	Total Soluble Sulphate	%	135	153	135.1	150.2	146	113	IS 2720 (Part-27)
17	Potassium (K)	mg/kg	40.6	41.6	52.6	41	36.4	26.5	ETS/STP/SOIL-18
18	Phosphorus (PO4)	mg/kg	0.87	1.52	0.86	1.03	1.26	0.74	ETS/STP/SOIL-19
19	Total Nitrogen (N)	mg/kg	169	169.6	158	201	138.8	245	ETS/STP/SOIL-15
20	Cadmium,(Cd)	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ETS/STP/SOIL-18
21	Chromium,(Cr)	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ETS/STP/SOIL-18
22	Copper,(Cu)	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ETS/STP/SOIL-18
23	Lead,(Pb)	mg/kg	0.77	0.52	0.78	1.33	1.38	0.47	ETS/STP/SOIL-18
24	Iron,(Fe)	mg/kg	2.63	2.06	2.23	2.50	2.14	2.66	ETS/STP/SOIL-18
25	Organic Matter,(OM)	%	1.45	1.71	1.98	1.75	1.61	1.77	IS 2720 (Part-22)
26	Organic Carbon,(OC)	%	0.81	1.02	1.15	1.13	0.85	1.08	BS 1377 -3
27	Cation Exchange Capacity (CEC)	meq/100g	31.6	41.0	36	28.5	39	41	IS 2720 (Part-24)

3.7.1 Observations:

- pH of the soil samples varied from 7.59 to 8.63 indicating slightly alkaline soil
- Bulk density of the soil samples varied from 0.83 to 1.27 g/cm^3
- Organic matter in the soil samples varied from 1.45 to 1.98 %
- Total Nitrogen in the soil samples varied from 138.8 to 245 mg/kg
- Water Holding Capacity (WHC) in the soil samples varied from 38.0 to 48.3%.

From the analysis results of the soil samples, it was observed that the soil was low to medium fertile and having low productivity. The soil in the study area needs additional fertilizers for improving the fertility status and increase in crop productivity. This also indicates the poor level of micro-nutrient. The organic matter was found in the range of 1.45 to 1.98 % indicating moderate organic content in the soil. Overall, the soil quality in the area was found to medium to fair fertile with moderate productivity.

3.8 AIR ENVIRONMENT

3.8.1 Meteorology

Kancheepuram district generally experiences hot and humid climatic conditions. The district receives the rain under the influence of both southeast and northeast monsoons. Most of the precipitation occurs in the form of cyclonic storm caused due to the depressions in Bay of Bengal chiefly during northeast monsoon period. The southwest monsoon rainfall is highly erratic and summer rains are negligible.

The normal annual rainfall over the district varies from 1105 mm to 1214mm. It is the minimum in the western and northwestern parts of the district around Uttiramerur (1105 mm) and it is the maximum around Kovalam (1214.2 mm). High relative humilities between 58 and 84% prevail throughout the year. Relative humidity is maximum in the morning and minimum in the evening. Higher rates of relative humidity are observed between November and January i.e., 83 to 84%. In the months of June, the humidity is lower i.e., around 58%. Average relative humidity in the morning and evening 74 and 64%. The minimum and maximum temperature are 20°C & 37°C. The daytime heat is oppressive and the temperature is as high as 43°C.

Rainfall :

Most of the precipitation in the Kancheepuram district occurs in the form of cyclonic storm caused due to the depressions in Bay of Bengal chiefly during northeast monsoon period. The southwest monsoon rainfall is highly erratic and summer rains are negligible.

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TABLE 3.5: KANCHEEPURAM DISTRICT ACTUAL RAINFALL (2011 TO 2018)

Month	Normal	2011	2012	2013	2014	2015	2016	2017	2018
January	18	2.60	3.54	0.00	0.00	0.15	0.23	14.34	1.78
February	12	27.81	0.00	15.95	3.27	0.00	0.00	0.00	1.69
Winter Total	**30**	**30.41**	**3.54**	**15.95**	**3.27**	**0.15**	**0.23**	**14.34**	**3.47**
March	7	0.00	0.00	9.12	0.00	0.00	0.00	0.00	9.54
April	11	48.66	0.00	0.00	0.00	35.82	0.00	0.00	0.38
May	38	19.93	4.95	10.57	32.50	38.67	125.50	14.52	6.03
Summer Total	**56**	**68.59**	**4.95**	**19.69**	**32.50**	**74.49**	**125.5**	**14.52**	**15.95**
June	50	18.73	26.03	49.57	84.56	26.83	57.30	61.78	39.92
July	111	69.02	51.42	103.67	42.22	71.76	55.52	82.29	47.95
August	157	124.72	98.76	114.48	95.89	107.45	121.66	165.10	150.84
September	160	109.93	62.31	136.79	100.23	61.98	168.35	78.11	75.05
SW Monsoon Total	**478**	**322.4**	**238.52**	**404.51**	**322.9**	**268.02**	**402.83**	**387.28**	**313.76**
October	184	182.33	255.16	105.65	113.54	138.58	32.42	195.07	110.10
November	284	299.99	70.82	86.72	94.33	848.63	11.30	226.54	236.06
December	129	140.02	99.91	51.82	63.70	441.44	182.37	44.83	33.39
NE Monsoon Total	**597**	**622.34**	**425.89**	**244.19**	**271.57**	**1428.65**	**226.09**	**466.44**	**379.55**
Total	**1161**	**1043.74**	**672.90**	**684.34**	**630.24**	**1771.31**	**754.65**	**882.58**	**712.73**
Excess / Shortage		-117.26	-488.1	-476.66	-530.76	610.31	-406.35	-278.42	-448.27
Rainfall %		89.90	57.96	58.94	54.28	152.57	65.00	76.02	61.39
Shortage RainFall %		-10.10%	-42.04%	-41.06%	-45.72%	52.57%	-35.00%	-23.98%	-38.61%

Source : Kancheepuram District survey report)

Humidity:

Kancheepuram district generally experiences hot and humid climatic conditions. The district receives the rain under the influence of both southeast and northeast monsoons. High relative humidities between 58 and 84% prevail throughout the year.

Relative humidity is maximum in the morning and minimum in the evening. Higher rates of relative humidity are observed between November and January i.e., 83 to 84%. In the months of June, the humidity is lower i.e., around 58%. Average relative humidity in the morning and evening 74 and 64%.

Temperature:

The minimum and maximum temperatures are 20°C & 37°C. The daytime heat is oppressive and the temperature is as high as 43°C.

TABLE 3.6: METEOROLOGICAL DATA RECORDED AT SITE

S. No	Parameters		December 2021	anuary 2022	February 2022
1	Temperature (^{0}C)	Max	30.9	31.6	34.1
		Min	18.9	18.6	19.1
		Avg	24.5	25.8	27.1
2	Relative Humidity (%)	Avg	83	83	81
3	Wind Speed (mph)	Avg	6.1	6.3	6.5
4	Cloud Cover (OKTAS)	-	0-8	0-8	0-8
5	Wind Direction	-	E	E	E

Source: On-site monitoring/sampling

3.8.2 Analysis of Meteorological Data, Chennai

The Indian Meteorological Department records the data at two times a day viz. 08:30 hr and 17:30 hr.

The meteorological data recorded during the monitoring period is very useful for proper interpretation of the baseline information as well as input for air quality prediction. Historical data on meteorological parameters also plays an important role in identifying the general meteorological regime of the region. The year may broadly be divided into four seasons based on meteorological variations:

Winter	:	December to February
Pre-Monsoon/Summer	:	March to May
Monsoon	:	June to September
Post-Monsoon	:	October to November

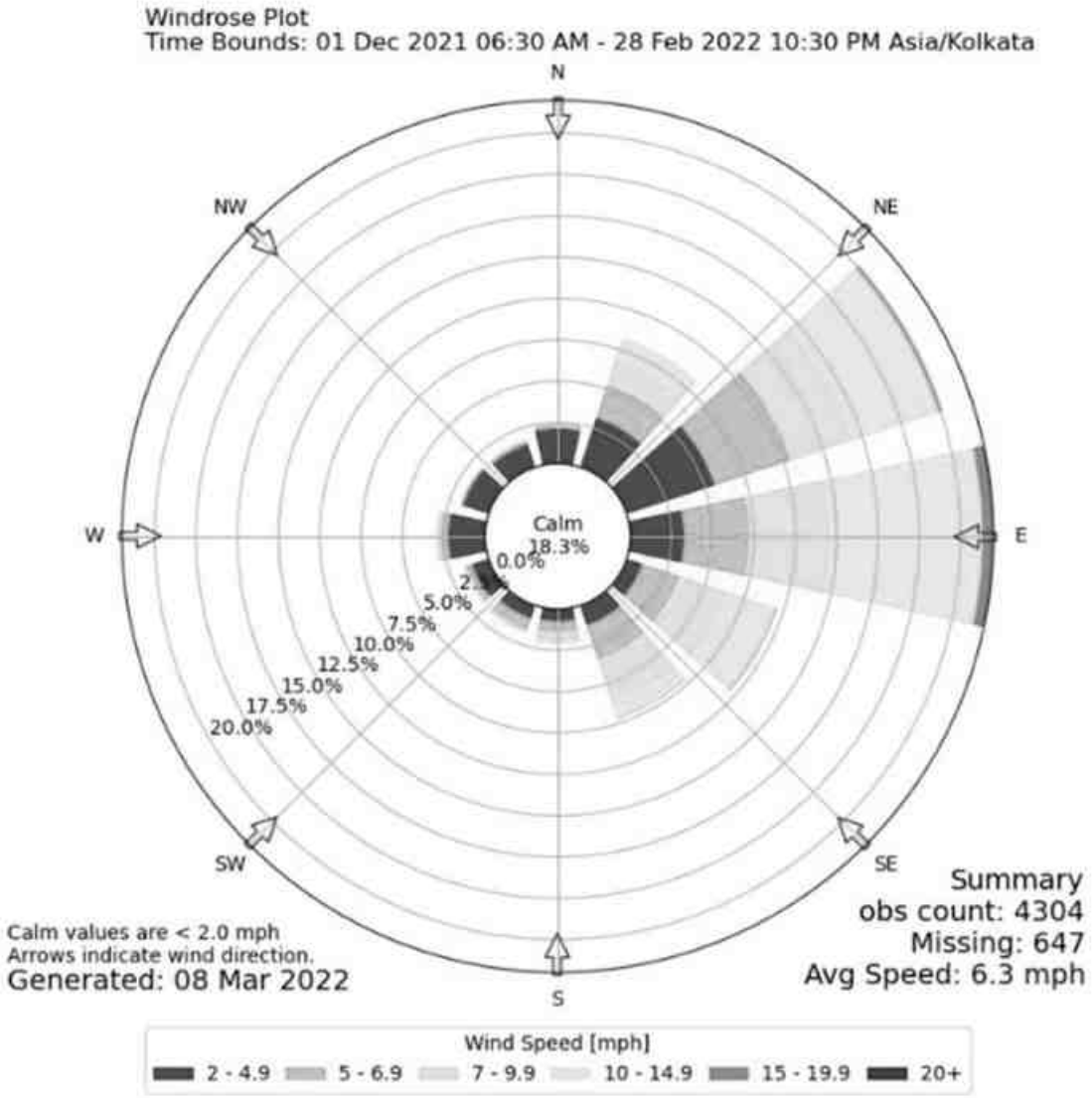

FIGURE 3.8: SITE SPECIFIC WINDROSE DECEMBER 2021 TO FEBRUARY 2022

TABLE 3.7: WIND DIRECTION AND WIND SPEED

Wind Direction	**Frequency**
Upwind Direction	E
Downwind Direction	W
Calm conditions (%)	18.3
Average Speed	6.3 mph

3.8.3 Baseline Ambient Air Quality

The status of ambient air quality within the study area was monitored during December 2021 to February 2022 at 7 locations including the Rough stone mine lease area and in

nearby villages. The monitoring locations are given in **Table 3.8** and are shown in **Figure 3.11**.

The various sources of air pollution in the region are stone mining, crushing activities and vehicular traffic. The prime objective of the baseline air quality study (10-km radius) was to assess the existing air quality of the area to form baseline information. The study area represents mostly rural environment with stone mining quarries & crushers.

The regional climatologically data, was used as a guideline to know the predominant wind direction during study period. The locations were identified keeping in view predominant wind directions prevailing during study period, sensitive receptors, human settlements, and mining activities around.

The levels of Respirable Particulate Matter (PM_{10}), Fine Particulates ($PM_{2.5}$), Sulphur Dioxide (SO_2) and Oxides of Nitrogen (NO_x) were monitored for establishing the baseline status. PM10 were sampled with the help of Respirable Dust Samplers on filter papers and SO_2& NOx were absorbed in the respective absorption media in the impingers attached to RD samplers and analyzed Spectro-photometrically. $PM_{2.5}$ was monitored with the help of Fine Particulate Samplers. The minimum, maximum, average and 98th percentile values have been computed from the observed raw data for all the AAQ monitoring stations and the results are summarized in **Table 3.9.**

TABLE 3.8: DETAILS OF AMBIENT AIR QUALITY MONITORING LOCATIONS

S. No.	Station Code	Locations	Distance (Km)	Direction of ind	Criteria
			.r.t Project Site		
1	AAQ1	Project Site	-	-	-
2	AAQ 2	Venmari	0.73	NE	Nearest Habitation
3	AAQ 3	Periyavenmani	1.10	N	Upwind
4	AAQ 4	Chinnavelikadu	1.15	NW	Crosswind
5	AAQ 5	Poondi	1.3	SE	Crosswind
6	AAQ 6	Chittamur	1.9	W	Downwind
7	AAQ 7	Kollambakkam	3.3	W	Downwind

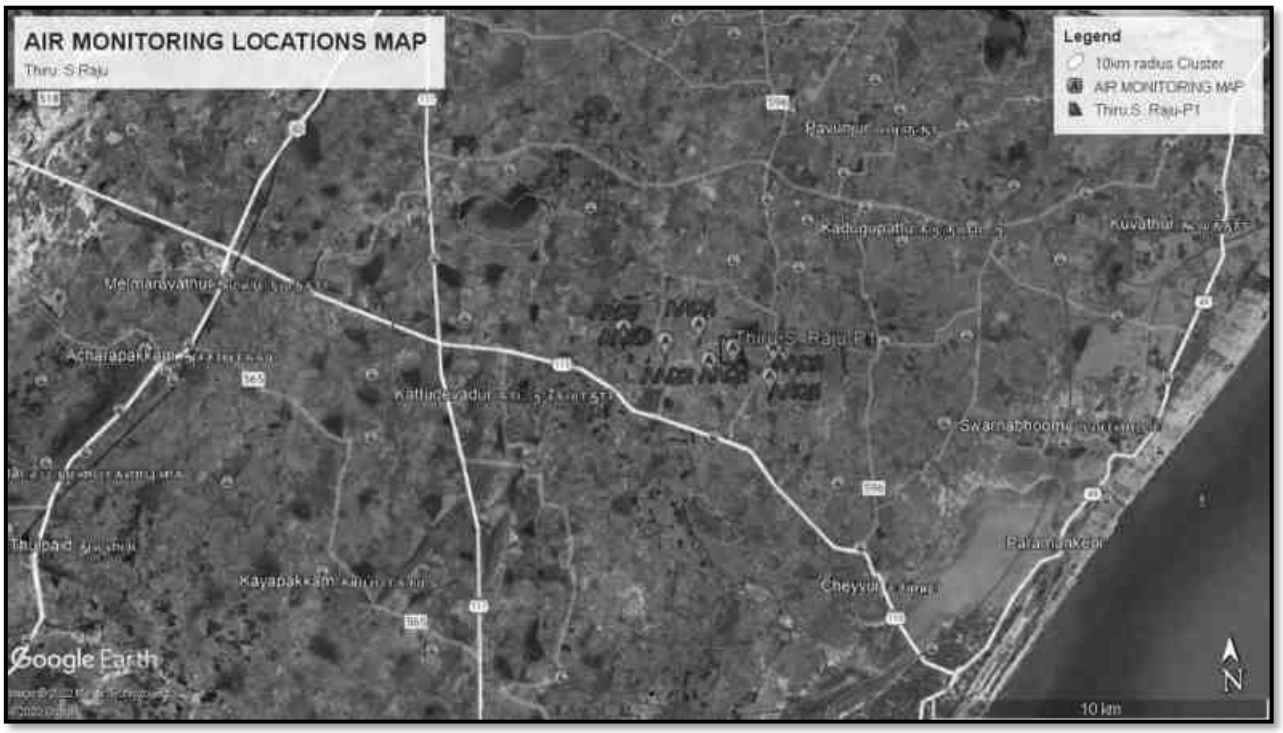

FIGURE 3.9: STUDY AREA MAP WITH MONITORING LOCATIONS

TABLE 3.9: SUMMARY OF AMBIENT AIR QUALITY RESULTS

Date of Sampling	-	**Sampling Method**	ETS/STP/AIR-01
Analysis Start Date	07.12.2021	**Sample Quantity**	-
Analysis End Date	05.03.2022	**Pac ing Condition**	
Sampling Done By	ETS STAFF	**Weather Condition**	**Clear**

Particulate matter PM 2.5					
Station ID	**Max**	**Min**	**Mean**	**98 Percentile**	**STDEV**
AAQ-1	35.6	29.1	32.3	35.05	1.58
AAQ-2	34.5	28	31.2	33.95	1.580633
AAQ-3	33.7	27.2	30.4	33.15	1.580633
AAQ-4	32.9	26.4	29.6	32.35	1.580633
AAQ-5	36.3	29.8	33	35.75	1.580633
AAQ-6	35.3	28.8	32	34.75	1.580633
AAQ-7	32.6	35.1	28.6	31.8	1.580633
Particulate matter PM 10					
Station ID	**Max**	**Min**	**Mean**	**98 Percentile**	**STDEV**
AAQ-1	62.7	52.9	56.06923	62.1	2.434382
AAQ-2	61.5	51.7	54.86923	60.9	2.434382
AAQ-3	60.7	50.9	54.06923	60.1	2.434382
AAQ-4	60.1	50.3	53.46923	59.5	2.434382
AAQ-5	62.7	52.9	56.06923	62.1	2.434382
AAQ-6	62.4	52.6	55.76923	61.8	2.434382

AAQ-7	61.7	51.9	55.06923	61.1	2.434382
Sulphur Di oxide as SO_2					
Station ID	**Max**	**Min**	**Mean**	**98 Percentile**	**STDEV**
AAQ-1	9.8	8.1	9.026923	9.75	0.525781
AAQ-2	10.4	8.7	9.626923	10.35	0.525781
AAQ-3	10	8.3	9.226923	9.95	0.525781
AAQ-4	11.9	10.2	11.12692	11.85	0.525781
AAQ-5	11.1	9.4	10.32692	11.05	0.525781
AAQ-6	11.3	9.6	10.52692	11.25	0.525781
AAQ-7	10.6	8.9	9.83	10.55	0.53
Oxide of Nitrogen as NO_2					
Station ID	**Max**	**Min**	**Mean**	**98 Percentile**	**STDEV**
AAQ-1	27.8	22.3	24.95	27.75	1.332141
AAQ-2	28.2	22.7	25.35	28.15	1.332141
AAQ-3	27.7	22.2	24.85	27.65	1.332141
AAQ-4	31	25.5	28.15	30.95	1.332141
AAQ-5	30.1	24.6	27.25	30.05	1.332141
AAQ-6	29.3	23.8	26.45	29.25	1.332141
AAQ-7	28.6	23.1	25.75	28.55	1.332141

3.8.4 Observations of Primary Data:

- $PM_{2.5}$ concentration in the study area varied from 26.4 to 36.3 µg/m^3 during the study period.
- PM_{10} concentration in the study area varied from 50.3 to 62.7 µg/m^3 during the study period.
- SO_2 concentration in the study area varied from 8.1 to 11.9 µg/m^3 during the study period.
- NO_2 concentration in the study area varied from 22.2 to 31.0 µg/m^3during the study period.

From the above results, it is observed that the ambient air quality with respect to PM_{10}, $PM_{2.5}$, SO_2, and NO_2 at all the monitoring locations was within the permissible limits specified by CPCB.

3.9 NOISE ENVIRONMENT

3.9.1 Baseline Status

Ambient noise level monitoring was carried out at the 7 monitoring locations; those were selected for ambient air quality monitoring. The details of noise monitoring locations are given in **Table 3.10** and are shown in **Figure 3.10**. Monitoring stations and the results are summarized in **Table 3.11**.

TABLE 3.10: NOISE SAMPLING LOCATIONS IN THE STUDY AREA

S. No.	Station Code	Locations	Distance (Km)	Direction of ind	Criteria
			.r.t Project Site		
1	N 1	Project Site	-	-	Industrial
2	N 2	Venmari	0.73	NE	Residential
3	N 3	Periyavenmani	1.10	N	Residential
4	N 4	Chinnavelikadu	1.15	NW	Residential
5	N 5	Poondi	1.3	SE	Residential
6	N 6	Chittamur	1.9	W	Residential
7	N 7	Kollambakkam	3.3	W	Residential

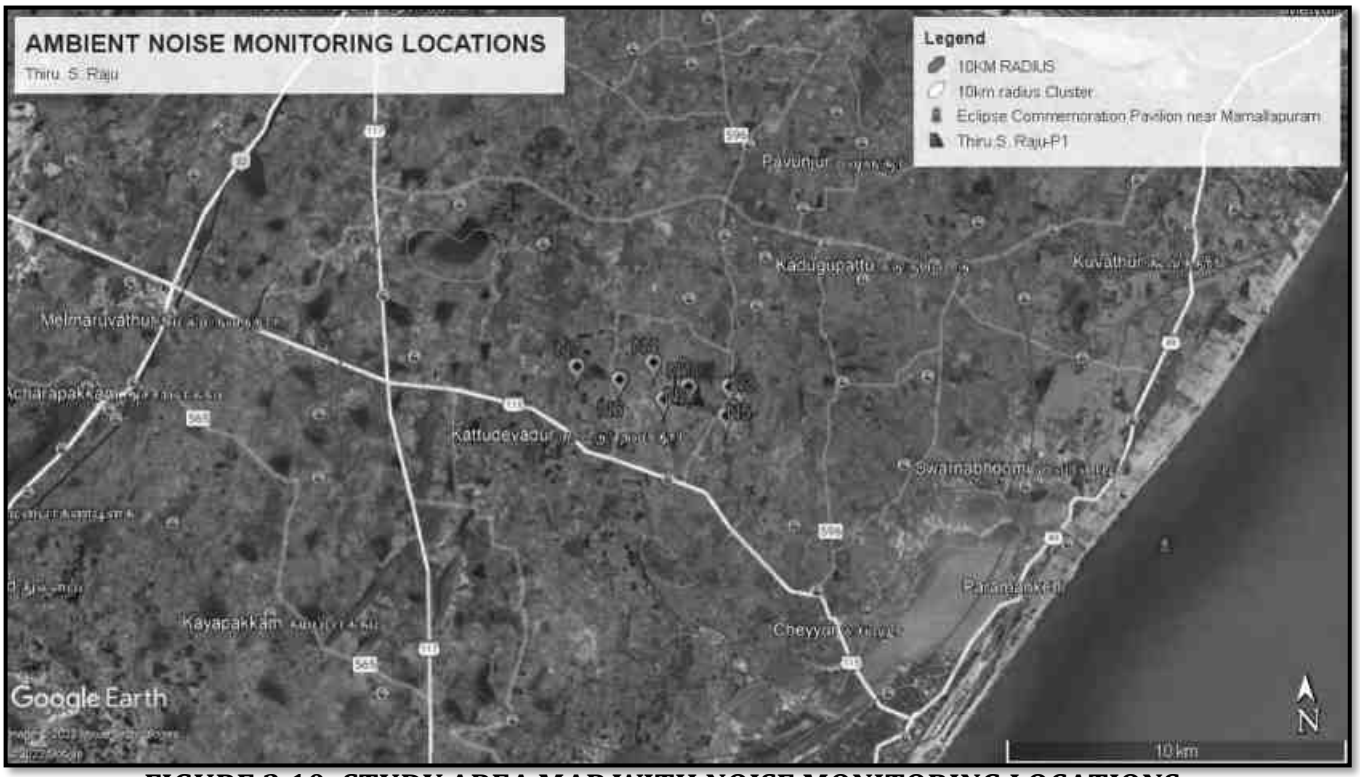

FIGURE 3.10: STUDY AREA MAP WITH NOISE MONITORING LOCATIONS

TABLE 3.11: AMBIENT NOISE LEVEL MONITORING RESULTS, dB(A)]

Date of Sampling	-	**Sampling Method**	ETS/STP/NOISE-01
Analysis Start Date	20.12.2021	**Sample Quantity**	-
Analysis End Date	21.12.2021	**Pac ing Condition**	
Sampling Done By	ETS STAFF	**Category of Area**	**Industrial Area**

Location		**N1**			**N2**			**N3**			**N4**		
S.No	**Time (Hrs)**	**Min dB(A)**	**Max dB(A)**	**dB(A)**	**Min dB(A)**	**Max dB(A)**	**dB(A)**	**Min dB(A)**	**Max dB(A)**	**dB(A)**	**Min dB(A)**	**Max dB(A)**	**dB(A)**
1	0600	0600	39.5	40.5	38.9	39.5	49.9	31.6	47.3	43.2	31.6	47.3	43.2
2	0700	0700	39.5	42.2	42.1	42.5	49.7	29.6	48.6	45.6	29.6	48.6	45.6
3	0800	0800	40.7	45.5	43.6	41.2	49.7	33.5	49.2	46.6	33.5	49.2	46.6
4	0900	0900	40.1	47.3	45.0	40.4	48.3	34.5	47.6	44.6	34.5	47.6	44.6
5	1000	1000	40.6	48.7	46.6	43.6	50.0	38.6	46.5	44.2	38.6	46.5	44.2
6	1100	1100	41.5	49.2	47.0	42.5	49.3	36.5	45.9	43.0	36.5	45.9	43.0
7	1200	1200	43.4	45.5	44.6	43.7	52.4	36.5	46.5	43.3	36.5	46.5	43.3
8	1300	1300	44.5	48.5	46.6	43.4	52.9	35.4	47.4	44.5	35.4	47.4	44.5
9	1400	1400	44.8	46.6	45.8	42.9	50.5	34.6	45.8	43.1	34.6	45.8	43.1
10	1500	1500	43.5	50.2	48.7	39.8	48.8	36.5	45.5	43.4	36.5	45.5	43.4
11	1600	1600	44.8	53.2	51.3	37.1	49.9	38.7	44.5	42.2	38.7	44.5	42.2
12	1700	1700	45.7	54.4	51.9	38.3	48.2	39.2	48.4	46.0	39.2	48.4	46.0
13	1800	1800	44.8	51.5	49.0	36.4	45.3	35.1	46.9	44.2	35.1	46.9	44.2
14	1900	1900	43.8	51.6	49.6	38.7	45.9	39.4	44.3	42.6	39.4	44.3	42.6

Location		**N1**			**N2**			**N3**			**N4**		
15	2000	2000	40.6	50.6	48.0	36.2	44.9	36.2	47.3	44.9	36.2	47.3	44.9
16	2100	2100	40.6	51.7	49.4	38.6	45.8	31.5	46.5	43.6	31.5	46.5	43.6
17	2200	2200	39.7	48.4	46.4	35.5	45.1	32.3	48.6	45.5	32.3	48.6	45.5
18	2300	2300	38.5	40.2	39.4	32.7	43.5	30.4	42.6	39.8	30.4	42.6	39.8
19	0000	0000	37.8	39.7	38.5	34.8	44.4	31.7	39.7	36.7	31.7	39.7	36.7
20	0100	0100	36.4	39.5	38.8	31.5	42.9	31.6	37.6	35.6	31.6	37.6	35.6
21	0200	0200	34.5	36.7	35.9	32.6	43.5	27.2	36.6	33.9	27.2	36.6	33.9
22	0300	0300	34.6	38.8	37.7	32.6	42.8	24.4	35.6	32.9	24.4	35.6	32.9
23	0400	0400	34.7	37.7	36.6	33.4	40.5	26.3	34.7	32.6	26.3	34.7	32.6
24	0500	0500	33.8	36.7	35.6	33.7	41.7	25.7	32.8	30.3	25.7	32.8	30.3
Day Mean dB(A)				**46.8**	**Day Mean dB(A)**		**45.7**	**Day Mean dB(A)**		**40.3**	**Day Mean dB(A)**		**44.3**
Night Mean dB(A)				**37.6**	**Night Mean dB(A)**		**39.5**	**Night Mean dB(A)**		**38.5**	**Night Mean dB(A)**		**34.7**

Location		**N5**			**N6**			**N7**		
S.No	**Time (Hrs)**	**Min**	**Max**	**dB(A)**	**Min**	**Max**	**dB(A)**	**Min**	**Max**	**dB(A)**
1	0600	42.2	49.3	46.3	34.8	40.5	38.3	33.5	38.3	35.5
2	0700	44.3	46.9	45.1	33.6	41.4	39.1	36.6	40.7	38.6
3	0800	45.1	42.6	46.5	31.4	43.2	39.6	34.9	41.5	39.1
4	0900	45.4	47.6	46.7	32.2	40.7	38.4	33.4	39.5	37.4
5	1000	45.9	48.2	47.2	33.6	41.6	39.1	34.5	40.2	37.9
6	1100	44.3	46.5	45.5	31.5	40.5	38.3	33.8	41.9	39.1
7	1200	43.2	46.2	45.0	32.2	40.6	37.9	36.6	43.6	41.2

Location		**N5**			**N6**			**N7**		
S.No	**Time (Hrs)**	**Min**	**Max**	**dB(A)**	**Min**	**Max**	**dB(A)**	**Min**	**Max**	**dB(A)**
8	1300	44.2	45.4	44.9	33.8	41.6	39.2	36.8	38.5	36.3
9	1400	44.8	46.5	45.6	35.1	44.4	41.8	34.9	41.7	39.4
10	1500	42.9	45.7	45.2	33.7	43.2	39.5	33.5	40.9	38.6
11	1600	44.6	46.6	45.5	34.6	43.7	41.4	3428	43.4	41.1
12	1700	45.5	47.5	46.4	35.8	44.5	42.3	32.6	40.4	38.1
13	1800	45.7	42.3	46.6	35.2	42.3	39.9	35.5	43.1	40.4
14	1900	45.8	47.4	46.6	36.4	44.5	42.2	36.3	40.6	38.6
15	2000	46.2	48.6	47.2	31.9	42.2	36.3	34.2	43.6	41.5
16	2100	45.7	47.6	46.0	32.4	40.1	37.8	36.8	47.1	44.7
17	2200	46.2	47.6	46.2	32.6	41.6	39.2	33.8	41.7	38.9
18	2300	38.7	42.3	40.9	32.5	40.6	38.6	33.3	42.1	39.7
19	0000	35.9	42.3	40.4	31.4	39.2	36.9	31.5	39.4	37.6
20	0100	34.8	38.7	37.7	33.4	41.5	39.1	32.4	40.3	37.9
21	0200	36.1	35.4	35.3	32.8	40.3	38.0	33.4	41.7	39.3
22	0300	34.2	35.5	34.9	31.4	39.6	36.4	31.4	38.5	36.7
23	0400	35.2	38.6	37.1	33.6	42.7	40.2	32.6	39.8	38.7
24	0500	33.5	37.4	35.8	32.6	43.8	38.5	31.5	37.6	36.3
Day Mean dB(A)				**46.6**	**Day Mean dB(A)**		**39.2**	**Day Mean dB(A)**		**39.5**
Night Mean dB(A)				**37.7**	**Night Mean dB(A)**		**38.9**	**Night Mean dB(A)**		**37.3**

3.9.2 Observations

From the above table, it is observed that the ambient noise levels at all the monitoring locations and villages as the permissible limits of 55 dB(A) for day time and 45 dB(A) for night time observed within permissible limit.

3.10 WATER ENVIRONMENT

3.10.1 Topography & Drainage Pattern

Topography

The lease applied area is exhibits elevated terrain. The area has gentle sloping towards Southern side. The maximum altitude of the area is 67m (max) above Mean Sea level.

Drainage Pattern of the area

There are no developed surface drainage channels in the study area. The area is studded with few tanks that serve as the source of drinking water and their surplus feeds adjoining tanks. The area is mostly dry in all seasons except rainy seasons.

Palar and Cheyyar are the important rivers. The drainage pattern in general is sub-dendritic and radial. All the rivers are seasonal and carry substantial flows during monsoon period. River Palar, a major river course, which drains this district originates from Western Ghats in Karnataka state, and discharges in Bay of Bengal near Pudupattinam. The Cheyyar, a tributary of Palar originates from the Jawadu Hills of Tiruvannamalai district. It has a northeasterly flow in Kancheepuram district and confluences with the Palar near Pazhaiyaseevaram. Other seasonal river like Korattalaiar and Tandiar drain this district partly on the northern and southern part respectively.

3.10.2 Rainfall

The normal annual rainfall over the district varies from 1105 mm to 1214mm. It is the minimum in the western and northwestern parts of the district around Uttiramerur (1105 mm) and it is the maximum around Kovalam (1214.2 mm).

3.10.3 HYDROLOGY

The area represents a gently slope this river is within 10 km radius**. Figure 3.11,** represent the drainage pattern of the study area.

The study area is near Irumbedu lake basin. Dendritic to sub dendritic type of drainage is observed in study area. The 10km study area comprises of many lakes the major is Irumbedu lake 4.93 Km in S direction and Odiyur lake 8.97 km in SE Direction.

TABLE 3.12: DISTANCE & DIRECTION OF RIVER/STREAM/NALA WITHIN THE 10KM RADIUS

Name of the River/Stream/Nala	Distance from Project Site (Km)	Direction from Project Site
Irumbedu lake	4.93 km	S
Odiyur lake	8.97 km	SE

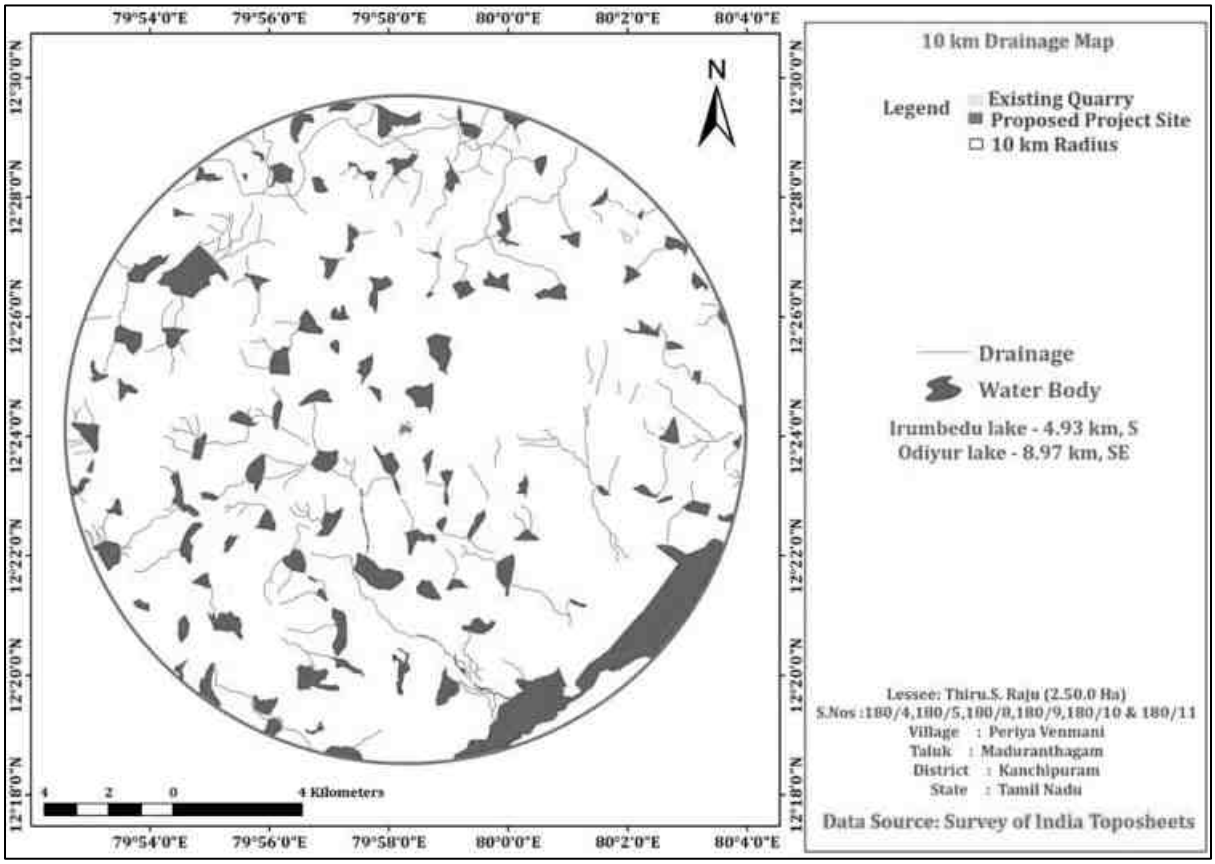

FIGURE 3.11: DRAINAGE PATTERN 10 KM RADIUS

3.10.4 Hydrogeological studies

The district is underlain by both sedimentary and fissured formations. The important aquifer system in the district are constituted by 1) unconsolidated and semi consolidated formations and 2) weathered, fissured and fractured crystalline rocks.

Porous Formation

Semi Consolidated formation:

Gondwana sandstones and shales and Tertiary mottled clays and sandstones represent the porous, semi-consolidated sediments. Ground water occurs under water table conditions to confined conditions in the inter granular spaces of sandstones, sands and in the bedding planes and thin fractures of shales. The ground water occurs under water

table conditions and the depth of the wells ranges from 5 to 10 m bgl. The depth to water level ranged from 2.89 to 4.09 m bgl during May 2006 and 1.05 to 3.40 m.bgl during Jan'2007. The specific capacity of porus formation ranged from 1.00 to 80.00 lpm/m/dd.

Ground Water in Unconsolidated Alluvium

These unconsolidated formations occur mainly along the banks of Palar and Cheyyar rivers and the sand layers of this alluvium form the potential aquifer. Between Walajabad and Kancheepuram, small diameter dug wells tap the alluvium with depths ranging between 6 and 12 m bgl. The yield ranges from 25 to 35 m3 /hr.Depth of filter point and dug cum bore wells ranges from 10 – 21 m bgl and yield is around 20 m3 /hr. The yield of infiltration wells with varying depths of 5 – 12 m bgl is around 35 m3 /hr. In areas covered by the laterites, the ground water is developed by means of dug wells in the depth of 4 to 6 m bgl. Along the coast, wind blown sand acts as aquifer zones and ground water extraction is by means of shallow dug wells with radial arms. The wells can sustain for 3 to 6 hours pumping and yield is around 15 m 3 /hour.

Fissured Formation

The movement of ground water is fissured crystallines is principally controlled by joints, fissured, fractures and their interconnections. Ground water in fissured crystallines is developed by means of dug wells, dug-cum-bore wells and bore wells. The wells range in depth between 6 and 17.00 m bgl. The depth to water level ranged from 3.50 – 8.34 m bgl during May 2006 and 1.32 – 7.53 m bgl during January 2007.The yield of the wells varies from 30 to 100 m3 /day (January-March).The depth of dug cum bore wells ranges from 25 to 45 m bgl. The depth of bore wells ranges up to 200 m bgl. The piezometric head ranges from 2.05 to 5.98 m bgl during May 2006 and 0.70 – 3.75 m bgl during Jan'2007 and the yield ranges up to 12 lps. The specific capacity in the fissured formation ranges from 10 -250 lpm/m/dd.

(Source: http://cgwb.gov.in/district_profile/tamilnadu/kancheepuram.pdf)

Type of Aquifer	**Water Table Conditions In Hard Roc Areas.**	
Aquifer Parameters	Hard Rock	Alluvial Formation
Well yield (lpm):	45 – 220	150 – 400
Transmissivity (T)(m 2/day)	10 – 80	200 – 300
Permeability (K)(m/day)	0.5 – 2.5	20 - 30
Depth of Water level	5m to 12.5m	

(Source: Kanchipuram | TWAD (tn.gov.in)*).*

3.10.5 Site Specific Ground Water Table scenario

The pre monsoon water level in wells in adjoining villages near project site is observed at 47 to 50 bgl while Post Monsoon water level in the area is observed from 45 to 48 bgl. As per data obtained from nearby village borewells are tabulated in **Table 3.13 and 3.14.**

TABLE 3.13: WATER LEVEL

Particulars	Project
Water Table Level	
During summer Pre Monsoon	47-50m
Post Monsoon	45-48m

Particulars	Distance & Direction	Depth (m)	Water Level (m)
Bore Well (2 Nos)	80m S	161	46
	120m NE	163	47

TABLE 3.14: WATER LEVEL OBSERVED IN BOREWELLS WITH 1KM RADIUS

Station Code	Latitude	Longitude	Dec 2021	an 2022	Feb 2022	Average
			Water Level bgl in m			
A.	12°23'46.95"N	79°57'55.55"E	45	46	45	45
B.	12°24'31.40"N	79°57'46.35"E	44	45	45	45
C.	12°24'1.06"N	79°58'20.67"E	46	44	43	44
D.	12°23'49.30"N	79°58'47.61"E	45	45	45	45
E.	12°24'11.55"N	79°58'55.02"E	44	46	44	45

Source: Field Monitoring Data

3.10.6 GEOPHYSICAL SURVEY

Geophysical survey was carried out in that area by SSRMP-ATS Instrument with the help of IGIS software. Low resistance encountered at the depth between 48m bgl. The quarrying operation is restricted upto 37 m (2m Gravel + 35 m Rough Stone). There are no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area. There is no necessity of stream, channel diversion due to this proposed project. Productive aquifers are expected beyond 85m where minor fractures are observed, and shallow aquifers are expected above 80m BGL. Since the total mining depth is 37 m (2m Gravel + 35 m rough Stone). the water seepage from the fractured zone is not anticipated and will have no impact on the Ground Water.

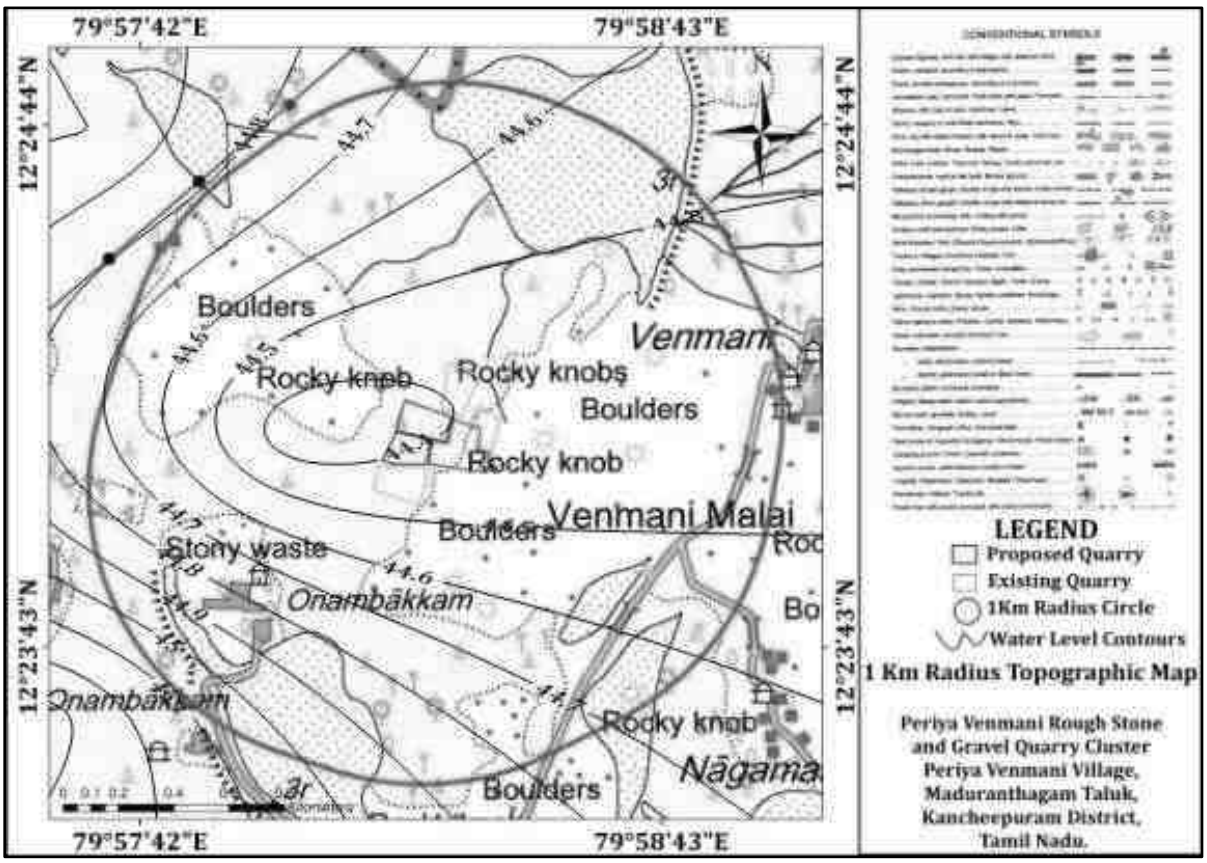

FIGURE 3.12: WATER LEVEL CONTOURS OBSERVED WITHIN 1KM RADIUS

3.10.6.1 Methodology and Data Acquisition

VES Resistivity Method for delineating lateral as well vertical discontinuities in the resistive structure of the Earth's subsurface is well established. Schlumberger electrode set up was employed for making sounding measurements. Since it is least influenced by lateral in homogeneities and can provide higher depth of investigation. The four electrodes collinear set up where in the outer electrodes send current into the ground and the inner electrodes measure the potential difference.

The present study utilizes maximum current electrode separation AB/2. The data from this survey are commonly arranged and contoured in the farm of Pseudo-section that gives an approximate of the subsurface resistivity. This technique is used for the inversion of Schlumberger VES data to predict the layer parameter namely layer resistivity and Geo electric layer thickness. The main goal of the present study is to search the vertical in homogeneities that is consistent with the measured data.

For a Schlumberger among the Apparent resistivity can be calculated as follows

$$\rho_a = \frac{G\Delta V}{I}$$

ΔV = potential difference between receiving electrodes

G = Geometric Factor.

Rocks show wide variation in resistivity ranging from 10-8 more than 10+14 ohmmeter. On a broad classification, one can group the rocks falling in the range of 10-8 to 1 ohmmeter as good conductors. 1 to 106 ohmmeter as intermediate conductors and 106 to 1012 ohmmeter as more as poor conductor. The resistivity of rocks and subsurface lithology, which is mostly dependent on its porosity and the pore fluid resistivity is defined by Archie's Law,

$$\rho_r = F\rho = a\,Ø^m\rho$$

ρr = Resistivity of Rocks

ρw = Resistivity of water in pores of rock

F = Formation Factor

Ø = Fractional pore volume

A = Constants with values ranging from 0.5 to 2.5

3.10.6.2 Survey Layout

Here the present study is considered with Schlumberger array. The layout for a resistivity survey depends on the choice of the current and potential electrode arrangement, which is called electrode array. In which the distance may be used for current electrode separation while potential electrode separation is kept on third to one fifth of the same. One interesting aspect in VES is the principle of reciprocity, which permits interchange of the potential and current electrode without any effect on the measured apparent resistivity. The field equipment deployed for the study is in a deep resistivity meter with a model of SSR – MP – ATS. This Signal stacking Resistivity meter is a high quality data acquisition system incorporating several innovation features for Earth resistivity. In the presence of random earth Noises the signal to nose ration can be enhanced by √N where N is the number of stacked readings. This SSR meter in which running averages of measurements [1, (1+2)/2, (1+2+3)/3 … (1+2...+16/16)] up to the chosen stacks are displayed and the final average is stored automatically, in memory utilizing the principles of stacking to achieve the benefit of high signals to noise ratio. Based on these above significations the signal stacking resistivity meter was used for (VES) Vertical Electric Resistivity Sounding.

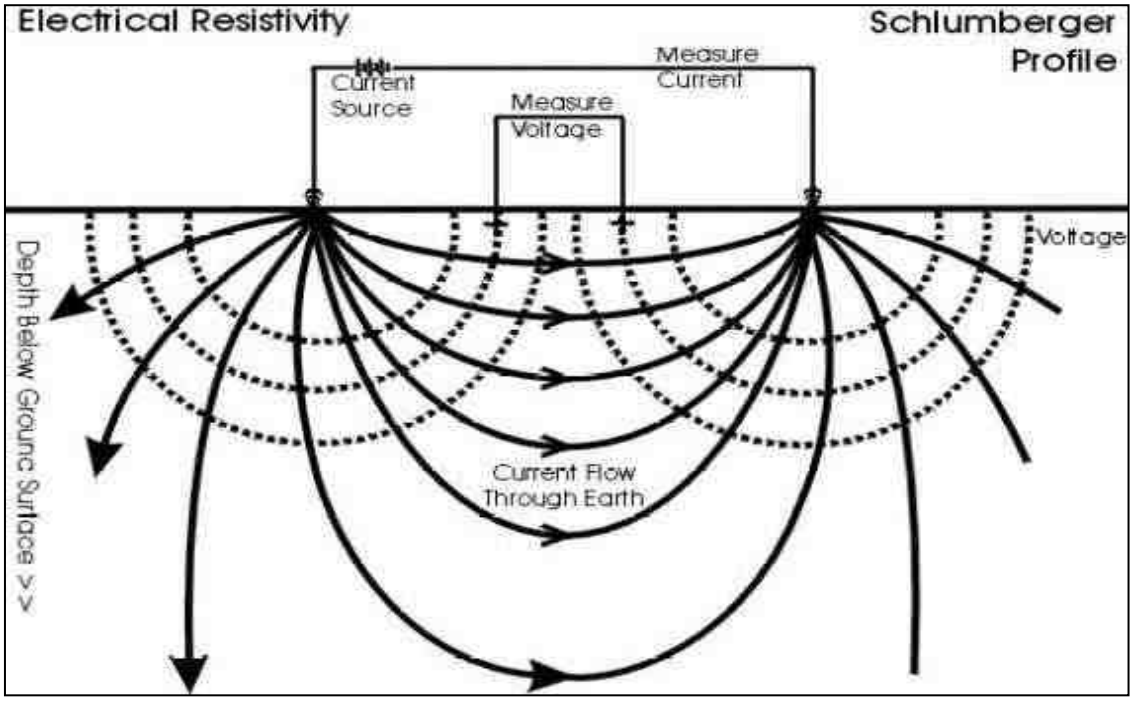

FIGURE 3.13: RESISTIVITY SURVEY PROFILE

Measurements of ground Resistivity is essentially done by sending a current through two electrodes called current electrodes (C_1& C_2) and measuring the resulting potential by two other electrodes called potential electrode (P_1& P_2). The amount of current required to be sent into the ground depends on the contact resistance at the current electrode, the ground resistivity and the depth of interest.

TABLE 3.15: GPS CO ORDINATES OF VES LOCATION

No of station	Co ordinates	Vertical Electrical Sounding depth in (m)
Station 1	12°24'5.48"N 79°58'19.05"E	100m
Station 2	12°24'7.88"N 79°58'19.66"E	100m

Source: Field Data

3.12.6.3 Data Presentation

TABLE 3.16 VES RESULTS OF STATION 1

S.No	Ab/2	Mn/2	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
STATION 1					
1	2	1	4.71	25.60	120.58
2	4	1	23.55	10.23	240.92

S.No	Ab/2	Mn/2	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
3	6	1	54.95	6.98	383.55
4	8	1	98.91	4.58	453.01
5	10	1	155.45	3.69	573.61
6	10	5	23.55	25.69	605.00
7	15	5	62.80	10.58	664.42
8	20	5	117.75	5.69	670.00
9	30	5	274.75	2.69	739.08
10	40	5	494.55	1.48	731.93
11	50	5	777.15	1.10	854.87
12	60	5	1122.55	0.98	1100.10
13	70	5	1530.75	0.89	1362.37
14	80	5	2001.75	0.64	1281.12
15	90	5	2535.55	0.58	1470.62
16	100	5	3132.15	0.48	1503.43
STATION 2					
1	2	1	4.71	32.00	150.72
2	4	1	23.55	15.83	372.80
3	6	1	54.95	6.98	383.55
4	8	1	98.91	4.58	453.01
5	10	1	155.45	2.98	463.24
6	10	5	23.55	22.58	531.76
7	15	5	62.80	10.58	664.42
8	20	5	117.75	5.69	670.00
9	30	5	274.75	2.69	739.08
10	40	5	494.55	1.48	731.93
11	50	5	777.15	1.25	971.44
12	60	5	1122.55	0.97	1088.87
13	70	5	1530.75	0.89	1362.37
14	80	5	2001.75	0.62	1241.09
15	90	5	2535.55	0.58	1470.62
16	100	5	3132.15	0.48	1503.43

Source: Field Data

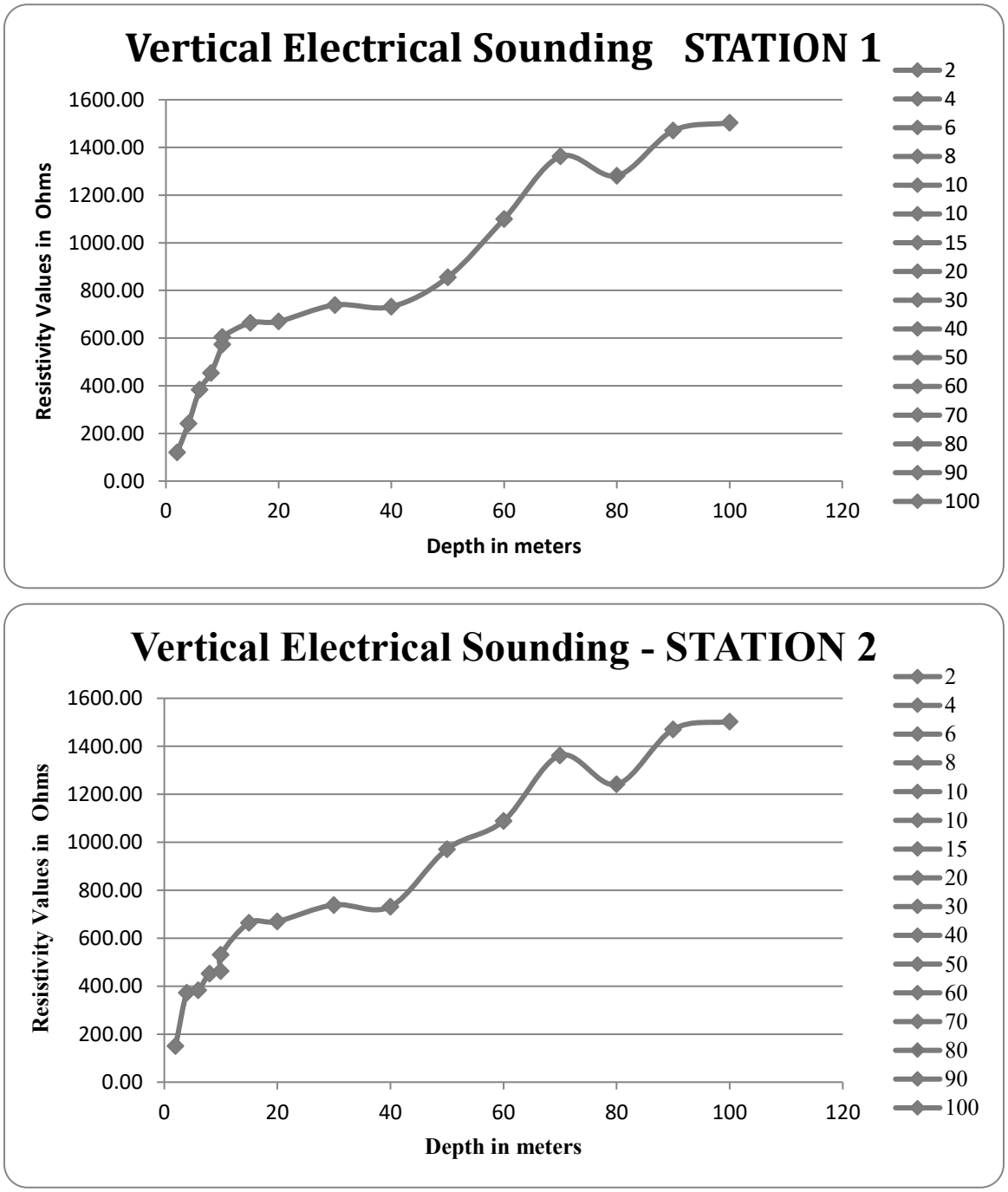

FIGURE 3.14: VES SOUNDING (💧 THIS COLOR INDICATES FRACTURED ONE)

3.10.6.4 Geophysical Data Interpretation

From the interpreted data, it has inferred that the area has moderate groundwater potential in the investigated area. This small quarrying operation is above ground level and topography is hilly and will not have any significant impact on the Ground Water. The geophysical data's was obtained to study the lateral variations, vertical in homogeneities in the sub-surface with respect to the availability of groundwater.

3.10.7 Water requirement

Total water requirement in the rough stone mine for the project is estimated to be 3.0 KLD. Water will be supplied from mostly rainwater accumulated in mine pit (when available) for dust suppression and plantation and by tanker from nearby villages. Drinking water will be supplied from nearby villages.

3.10.8 Baseline Status

The existing status of groundwater and surface water quality was assessed by identifying 5 ground water (Bore wells/dug wells) samples in different villages.

The physico-chemical characteristics of ground are given in the **Tables 3.18** respectively**.**

TABLE 3.17: DETAILS OF WATER SAMPLING LOCATIONS

Sr. No.	Station Code	Locations	Distance (Km)	Direction
1	GW 1	Venmari	0.73	NE
2	GW 2	Periyavenmani	1.10	N
3	GW 3	Chinnavelikadu	1.15	NW
4	GW 4	Poondi	1.3	SE
5	GW 5	Chittamur	1.9	W

FIGURE 3.15: WATER MONITORING LOCATIONS

TABLE 3.18: PHYSICO CHEMICAL CHARACTERISTICS OF GROUND WATER

Date of Sampling	20.02.2021	**Sampling Method**	ETS/STP/WATER-01
Analysis Start Date	25.02.2021	**Sample Quantity**	2.0+ 0.5 Litre
Analysis End Date	02.03.2021	**Pac ing Condition**	Sealed
Sampling Done By	ETS STAFF	**Pac ed IN**	PVC and Glass Bottle

S. No.	Test Parameter	Unit	GW 1 Result	GW 2 Result	GW 3 Result	GW 4 Result	GW 5 Result	Specification/Limit (As per IS:10500: 2012)		Test Method
								Desirable	Permissible	
1	Colour	Hazen	< 5	< 5	< 5	< 5	< 5	5	15	APHA 2120-B
2	Odour	...	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	APHA 2150-B
3	pH	...	7.53	7.66	6.96	7.67	7.03	6.5 - 8.5	No Relaxation	APHA 4500-H+
4	Conductivity	µs/cm	671	747	708	659	739	Not Specified	Not Specified	APHA 2510-B
5	Turbidity	NTU	< 1	< 1	< 1	< 1	< 1	1	5	APHA 2130-B
6	Total Dissolved Solids (TDS)	mg/L	463	516	489	455	510	500	2000	APHA 2540-C
7	Total Hardness, ($CaCO_3$)	mg/L	122	215.5	192	197.4	216.6	200	600	APHA 2340-C
8	Calcium, (Ca)	mg/L	25.8	46.2	34.5	27.5	28	75	200	APHA 3500:(Ca)-B
9	Magnesium (Mg)	mg/L	16.2	23.7	21.4	21	18.6	30	100	APHA 3500:(Mg)-B
10	Total Alkalinity (CaCO3)	mg/L	188	189	138	166	176	200	600	APHA 2320-B
11	Chloride, (Cl)	mg/L	71	90.3	86.3	71	86.5	250	1000	APHA 4500:(Cl-)-B
12	Sulphate, (SO_4)	mg/L	18.6	26	28.5	27	22	200	400	APHA 4500:(SO_4)-E
13	Iron,(Fe)	mg/L	0.15	0.21	0.12	0.12	0.10	0.3	No Relaxation	APHA-3120B
14	Chlorine (Residual)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	1	APHA 4500:(Cl)-B

S. No.	Test Parameter	Unit	GW 1 Result	GW 2 Result	GW 3 Result	GW 4 Result	GW 5 Result	Specification/Limit (As per IS:10500: 2012)		Test Method
								Desirable	Permissible	
15	Fluoride, (F)	mg/L	0.16	0.17	0.14	0.21	0.20	1	1.5	APHA 4500:(F-)-D
16	Nitrate, (NO_3)	mg/L	17	14	18.6	23	13	45	No Relaxation	APHA 4500:(NO_3-)-B
17	Copper, (Cu)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.05	1.5	APHA 3120B
18	Manganese, (Mn)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.1	0.3	APHA-3120B
19	Mercury, (Hg)	ug/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	No Relaxation	APHA-3114C
20	Cadmium, (Cd)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	No Relaxation	APHA 3120B
21	Selenium, (Se)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	No Relaxation	APHA-3120B
22	Aluminium, (Al)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.2	APHA-3120B
23	Lead,(Pb)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	No Relaxation	APHA-3120B
24	Zinc,(Zn)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	5	15	APHA-3120B
25	Total Chromium, (Cr)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	Not Specified	Not Specified	APHA-3120B
26	Boron, (B)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.5	1	APHA 4500: (B)-C
27	Mineral Oil	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.5	No Relaxation	IS 3025 (Part-39)
28	Phenolic Compound, (C_6H_5OH)	mg/L	Absent	Absent	Absent	Absent	Absent	0.001	0.002	APHA 5530-C
29	Anionic Detergent (MBAS)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.2	1	APHA 5540-C
30	Cyanide, (CN)*	mg/L	Absent	Absent	Absent	Absent	Absent	0.05	No Relaxation	APHA 4500: (CN-)-D
31	Total Coliform Count	MPN/ 100m	Absent	Absent	Absent	Absent	Absent	Shall Not Be Detectable		IS 1622

S. No.	Test Parameter	Unit	GW 1 Result	GW 2 Result	GW 3 Result	GW 4 Result	GW 5 Result	Specification/Limit (As per IS:10500: 2012)		Test Method
								Desirable	Permissible	
		L								
32	Escherichia coli	MPN/ 100mL	Absent	Absent	Absent	Absent	Absent	Shall Not Be Detectable		IS 1622
33	Barium, (Ba)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.05	0.7	No Relaxation	APHA 3120B
34	Ammonia(as Total NH_3-N)*	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	No Relaxation	APHA 4500:(NH3)-C
35	Sulphide, (H_2S)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.005	0.05	No Relaxation	APHA 4500: (S_2-)-D
36	Molybdenum, (Mo)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.07	No Relaxation	APHA-3120B
37	Arsenic,(As)	mg/L	<0.005	<0.005	<0.005	<0.005	<2.0	0.01	0.05	APHA 3120B
38	Total Suspended Solids (TSS)	mg/L	<2.0	<2.0	<2.0	<2.0	<0.05	Not Specified	Not Specified	APHA 2540-D

3.10.9 Result Discussion

3.10.9.1 Ground Water Quality

The physico-chemical characteristics of groundwater are presented in Table below and are compared with the standards. The pH of the water samples collected ranged from 6.96 to 7.67 and within the acceptable limit of 6.5 to 8.5. The total dissolved solids were found in the range of 455 to 516 mg/l in all samples. The total hardness varied between 122 to 216.6 mg/l for all samples collected at 5 locations.

In all samples, iron content is 0.10 to 0.21 mg/l, Nitrate in between 13 to 23 mg/l, fluoride varied between 0.14 to 0.21 mg/l, chloride 71 to 90.3 mg/l, Sulphate 18.6 to 28.5 mg/l, alkalinity 138 to 189 mg/l, calcium 27.5 to 46.2 mg/l and magnesium in between 16.2 to 23.7 mg/l. The overall ground water quality was found to be good in most of the villages. The levels of heavy metals content were found to be within permissible limits.

3.10.9.2 Surface Water Quality

There is no surface water within 5 km radius of the study area.

3.11 BIOLOGICAL ENVIRONMENT

3.11.1 Introduction

Biological environment of any area constitutes all living beings of that area. It is an integral part of the environment. Biodiversity is often considered synonymous with species richness of the area. Identifying, measuring, and monitoring biodiversity is a complex exercise. The biodiversity assessment generally concerns with, conducting biodiversity inventories, inventories for assessing existing biodiversity. This provides the information on the biodiversity richness of the area under consideration. The selection of indicators differs for each biodiversity monitoring and is entirely based on the output required from such biodiversity inventory. Any change in the surrounding environment could cause loss of species or decrease in biodiversity of the area. Therefore, the present study is proposed to assess the impact of the rough stone mining project on biological environment of the project site and surrounding area within 10 km radius. Accordingly, mitigation measures are planned to sustain the biological diversity.

3.11.2 Ecological Impact Assessment

Ecological Impact Assessment is used to predict and evaluate the impacts of development activities on ecosystems and their components, thereby providing the information needed to ensure that ecological issues are given full and proper consideration in development planning. Environmental Impact Assessment (EIA) has emerged as a key to sustainable development by integrating social, economic and environmental issues. EIA has a major part to play as a component of EIA but also has other potential applications in environmental planning and management. Ecological Impact Assessment provides a comprehensive review of the EIA process and summarizes the ecological theories and tools that can be used to understand, explain and evaluate the ecological consequences of development proposals.

Environmental Impact Assessments have become an integral part of development projects in India ever since 1994, to formulate policies and guidelines for environmentally sound economic development. Proper assessment of biological environment and compilation of its taxonomical data is essential for the impact predictions.

Consistent and regularly updated data on regional and local taxonomy and floristic and faunal diversity of the areas are almost non-existent in country as diverse as India. Instant information on biodiversity profiles of the area, where the proposed project is

setting up, is an essential part of the baseline studies of EIA. In such a situation, good primary baseline biodiversity survey is a pre-requisite for the collection of reliable data. These contributions towards biodiversity surveys may sometimes recognized as the actual value additions in terms of new records or a new data base but are more often recognized in the validation and updating of the existing information base.

There is no National Parks, Eco sensitive areas, Wild life sanctuaries, Reserve Forest within the radius of 10km. An ecological survey of the study area was conducted particularly with reference to the listing of species and assessment of the existing baseline ecological (terrestrial) condition in the study area.

3.11.3 Objectives of the study

The ecological study of the area was conducted to understand the existing status of the flora and fauna to generate baseline information and evaluate the possible impacts on biological environment. The present study highlights the various issues pertaining to floristic diversity and faunal wealth in the surrounding area up to 10 km radius of the proposed project site.

3.11.4 Methodology Adopted & Objective

To achieve the above objective, a detailed study of the area was undertaken in 10 km radius from the proposed project area. The different methods adopted were as follows:

- Primary field surveys to establish primary baseline of the study area;
- Compilation of information available in published literatures and as obtained from Forest survey of India,Environmental Information Centre, Botanical Survey of India and Zoological Survey of India.
- The present report gives the review of published secondary data and the results of field sampling conductedand there are no forest blocks in study area. The detailed ecological assessment of the study a rea has been carried out with the following objectives:
- Identification of flora and fauna within the study area;
- Preparation of checklist of species which also include endangered, endemic and protected (both floral andfaunal categories); and
- Evaluation of impact of proposed expansion on flora and fauna of the area.

The present study was carried out in given steps

- Field survey was conducted by visual encounter survey for flora present within the 10 km radius study areaof all the proposed mine site.
- After surveying the core and buffer areas, a detailed floral inventory has been compiled. List of all plantsof the study area was prepared and their habitats were

recorded.

- Verification of Rare, Endangered and Threatened Flora species from IUCN Red Data Book.
- Plants and Animals communities were noted.

3.11.5 Site selection criteria

The core study area is located at Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District, Tamil Nadu. The buffer study area comprises of 10 km radius from all the proposed rough stone quarry area. Selection of sampling locations was made with reference to topography, land use, vegetation pattern, etc. The observations were taken on natural vegetation, roadside plantation, and non-forest area (agricultural field, in plain areas, village wasteland, etc.) for quantitative representation of different species. A methodology of Sampling Flora and fauna studies were carried out to assess the list of terrestrial plant and animal species that occur in the core area and the buffer area up to 10 km radius from the project site. No damage was created to flora and fauna during the sampling.

3.11.6 Flora Methodology

To provide representative ecological status for the study area, the 10-km buffer zone has been divided into four quartiles for biodiversity sampling, i.e., NE (Quartile-1), NW (Quartile-2) SW (Quartile-3) and SE (Quartile-4). Each of the quartiles have been examined for representative flora on randomly sampled quadrats for trees (25x25-m), shrubs (10x10-m) and herbs (2x2-m) depending upon prevailing geographical conditions and bio-diversity aspects of study area.

3.11.7 Fauna Methodology

The assessment of fauna was done collecting the primary data from the project sites. The presence was also confirmed from the local inhabitants depending on the animal sightings and the frequency of their visits in the project area. In addition, officials, local people were another source of information for studying the fauna of the area. Field activities were physical search, hollow inspection, covering rocks, location of nesting sites and habitat assessment etc. Taxonomical identification was done by the field guide book and wildlife envis data base (wiienvis.nic.in/Database/Schedule Species Database) and Zoological Survey of India (ZSI).

3.11.7.1 Survey and Monitoring of Mammals

Intensive survey was done by line transect method (Walking and in vehicle) for all major habitats for surveying of mammals by direct and indirect evidence. Indirect methods

such as scat (i.e. faecal matter,) and pug mark by establishing 10 × 100-m linear transects depending on the habitat (i.e., existing wildlife game routes/foresttrails used). Direct observation technique was used for surveying large and medium sized mammals but this technique was perfectly suitable for surveying of diurnal mammals.

3.11.7.2 Survey and Monitoring of Birds

Birds are sampled by using point count methods, and opportunistic bird sightings. By this bird vocal sounds, the species were identified in consultation with village local people.

Point count: In this method, the observer will stand in a randomly chosen point and birds seen or heard in 50m radius will be recorded for 5-min, this observation will be repeated in another point at least 30m from the first point. We have enumerated 20 point – counts in each quartile, which constitute a total of 80 points-count (20 x 4) within 10 km radius area.

Opportunistic bird sightings: While traveling in study area, many bird species will be detected in survey time. Such species will be recorded by their appearance or by their call.

3.11.7.3 Survey and Monitoring of reptiles

Several survey techniques such as standard walk transect visual encounter survey methods were used to sampling reptiles in each and every habitat of the study area. Species identification was done by using standard field guides in consultation with village people expert. The butterfly was enumerated by 2 linear transects of 10 × 100 m, laid within each quartile at minimum interval of 1 km. Further, amphibians and fishes documented in existing literature and secondary information in consultation with local people and wildlife experts.

3.11.8 Flora in Core one

Taxonomically a total of 15 species belonging to 16 families have been recorded from the core mining lease area. It is very dry and exhibit plain topography. Based on habitat classification of the enumerated plants the majority of species were Tree (6), Shrubs (4), Herbs (3) and Climber (2). The result of core zone of flora studies shows that Fabaceae and Arecaceae are the main dominating species.

3.11.9 Flora in Buffer one

Similar type of environment also in buffer area but with more flora diversity compare than core zone area because nearby some agriculture land. The agriculture land was found to dominate mostly in North, and East directions. Majority of the flat landscape

around project unit is occupied by agriculture fields. It contains a total of 59 species belonging to 39 families have been recorded from the buffer zone. Floral (62) varieties among them trees (25), shrubs (11) and herbs (14) and climbers (9) were identified. The result of buffer zone of flora studies shows that Fabaceae and Lamiaceae, Moraceae are the main dominating species in the study area. There is no Rare, Endangered and Threatened Flora species in mining area and their surrounding area.

TABLE 3.19: FLORA IN CORE ONE

S. No	*Scientific Name*	*Family*	**Local Name**
TREES			
1	*Azadirachta indica*	Mahogany	Neem
2	*Vachellia nilotica*	Fabaceae	Babool
3	*Eucalyptus globules*	Myrtaceae	Eucalyptus
HERB			
4	*Cynodon dactylon*	Poaceae	Arugampul
5	*Tribulus terrestris*	Zygophyllales	Nerunji
6	*Leucas aspera*	Lamiaceae	Thumbai
SHRUB			
7	*Calotropis gigantea*	Apocynaceae	Erukku
8	*Abutilon indicum*	Malvaceae	Thuththi
9	*Mimosa pudica*	Mimosaceae	Thottalchinungi
9	*Senna auriculata*	Fabaceae	Avarai
CLIMBER			
10	*Passiflora foetida*	Passifloraceae	Sirupunaikkali
11	*Cissus quadrangularis*	Vitaceae	Perandai

TABLE 3.20: FLORA IN BUFFER ONE

S. No	Scientific Name	Family	Local Name	Resource use type
TREE				
1.	*Tamarindus indica*	Legumes	Puliyamaram	EM
2.	*Ficus religiosa*	Moraceae	Arasanmaram	M
3.	*Azadirachta indica*	Meliaceae	Vembu	M
4.	*Cocos nucifera*	Arecaceae	Thennai maram	EM
5.	*Borassus flabellifer*	Arecaceae	Panai maram	E
6.	*Musa*	Musaceae	Vazhaimaram	EM
7.	*Mangifera indica*	Anacardiaceae	Manga	E
8.	*Ficus benghalensis*	Moraceae	Alamaram	E

S. No	Scientific Name	Family	Local Name	Resource use type
9.	*Bambusa bambo*	Poaceae	Moonghil	E
10.	*Ficus recemosa*	Moraceae.	Athi	EM
11.	*Lawsonia inermis*	Lythraceae	Marudaani	EM
12.	*Tectona grandis*	Verbenaceae	Thekku	E
13.	*Psidium guajava*	Myrtaceae	Koyya	EM
14.	*Emblica officinalis*	Phyllanthaceae	Nelli	EM
15.	*Morinda citrifolia*	Rubiaceae	Nuna maram	M
16.	*Sygygium cumini*	Myrtaceae	Navalmaram	EM
17.	*Manilkara zapota*	Sapotaceae	Sapota	E
18.	*Calophyllu inophyllum*	Calophyllaceae	Punnai	M
19.	*Carica papaya L*	Caricaceae	Pappali maram	EM
20.	*Vachellia nilotica*	Fabaceae	Karuvelam maram	M
21.	*Vitex negundo*	Verbenaceae	Nochi	E
22.	*Annona reticulata*	Annonaceae	Seethapazham	E
23.	*Murraya koenigii*	Asclepiadaceae	Velipparuthi	EM
24.	*Citrus lemon*	Rutaceae	Ezhumuchaipalam	EM
25.	*Eucalyptus globules*	Myrtaceae	Eucalyptus	EM
		HERB		
26.	*Leucas aspera*	Lamiaceae	Thumbai	M
27.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	M
28.	*Eclipta prostata*	Asteraceae	Karisilanganni	EM
29.	*Centella asiatica*	Apiaceae	Vallarai	EM
30.	*Phyllanthus amarus*	Phyllanthaceae	Kilanelli	M
31.	*Commelina benghalensis*	Commelinaceae	Kanamvazha	M
32.	*Achyranthes aspera*	Amaranthaceae	Nayuruv	M
33.	*Ocimum tenuiflorum*	Lamiaceae	Thulasi	M
34.	*Cyperus rotundus*	Cyperaceae	Korai	NE
35.	*Boerhavia diffusa*	Nyctaginaceae	Mukurattai	M
36.	*Tridax procumbens*	Asteraceae	Veetukaayapoondu	M
37.	*Cynodon dactylon*	Poaceae	Arugampul	E
38.	*Solanumnigrum*	Solanaceae	Manathakkali	EM
39.	*Cyperus compressus*	Cyperaceae	Kunnakora	NE
		SHRUB		
40.	*Solanum torvum*	Solanaceae	Sundaika	EM
41.	*Phoenix pusilla*	Arecaceae	Icham	EM
42.	*Abutilon indicum*	Meliaceae	Thuthi	M

S. No	Scientific Name	Family	Local Name	Resource use type
43.	*Senna auriculata*	Fabaceae	Avarai	M
44.	*Nerium indicum*	Apocynaceae	Arali	M
45.	*Hibiscu rosa-sinensis*	Malvaceae	Chemparuthi	EM
46.	*Jatropha curcas*	Euphorbiaceae	Kattamanakku	EM
47.	*Calotropis gigantea*	Apocynaceae	Erukku	M
48.	*Abrus precatorius*	Fabaceae	Kundumani	M
49.	*xoracoc cinea*	Rubiaceae	Idlipoo	M
50.	*Mimosa pudica*	Mimosaceae	Thottalchinungi	M
		CLIMBER		
51.	*Jasminum augustifolium*	Oleaceae	Malli	EM
52.	*Cissus quadrangularis*	Vitaceae	Perandai	M
53.	*Lagenaria siceraria*	Cucurbitaceae	Sorakkai	EM
54.	*Coccinia grandis*	Cucurbitaceae	Kovai	M
55.	*Clitoriaternatia*	Fabaceae	Sangupoo	M
56.	*Solanum trilobatum*	Solanaceae	Thuthuvelai	EM
57.	*Trichosanthes dioica*	Cucurbitaceae	Kovakkai	EM
58.	*Passiflora foetida*	Passifloraceae	Sirupunaikkali	
59.	*Clitoria ternatea*	Fabaceae	Karkakartum	M

*E- Economical, M- Medicinal, EM- Both Economical and Medicinal, NE- Not evaluated

3.11.10 FAUNA

The faunal survey has been carried out as per the methodology cited and listed out Mammals, birds, Reptiles, Amphibians and Butterflies. All the listed species were compared with Red Data Book and Indian Wildlife Protection Act, 1972. There are no rare, endangered, threatened (RET) and endemic species present in core area.

3.11.11 FAUNA IN CORE ONE

A total of 2 varieties of species observed in the Core zone of Periya Venmani village, rough stone quarry. Among them numbers of Insects 9 (37.5%), Reptiles 4 (20.83%), Mammals 3 (12.5%) and Avian 6 (29.16%). A total of 22 species belonging to 19 families have been recorded from the core mining lease area. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and six species are under schedule IV according to Indian wild life Act 1972. A total seven species of bird were sighted in the mining lease area.

Dominant species are mostly birds and insects and three amphibians were observed during the extensive field visit (Hoplobatrachus tigerinus), (Rana hexadactyla), (Bufo melonosticatus). There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in **Table 3.21**.

TABLE 3.21: LIST OF FAUNA IN CORE ONE

S. No	*Scientific Name*	*Family Name*	*WPA Schedule*	*IUCN List*
INSECTS				
1	*Danaus plexippus*	Nymphalidae	Schedule IV	LC
2	*Catopsilia pyranthe*	Peridae	NL	LC
3	*Hieroglyphus sp*	Acrididae	NL	LC
4	*Hamitermes silvestri*	Blattodea	NL	LC
5	*Mantis religiosa*	Mantidae	NL	NL
6	*Crausius morosus*	Lonchodidae	NL	LC
7	*Sympetrum fonscolombii*	Libellulidae	NL	LC
8	*Acraea violae*	Nymphalidae	NL	LC
9	*Danaus genutia*	Nymphalidae	NL	NL
REPTILES				
10	*Hemidactylus frenatus*	Gekkonidae	NL	LC
11	*Sitanaponticeriana*	Agamidae	NL	LC
12	*Calotes versicolor*	Agamidae	NL	LC
13	*Eutropis carinata*	Scincidae	NL	LC
MAMMALS				
14	*Rattus rattus*	Muridae	Schedule IV	LC
15	*Mus booduga*	Muridae	Schedule IV	NL
16	*Herpestes javanicus*	Herpestidae	Schedule II	LC
AVES				
17	*Meropsorientalis*	Meropidae	NL	LC
18	*Bubulcus ibis*	Ardeidae	NL	LC
19	*Acridotheres tristis*	Sturnidae	NL	LC
20	*Coturnix coturnix*	Phasianidae	Schedule IV	LC
21	*Corvussplendens*	Corvidae	NL	LC
22	*Dicrurus macrocercus*	Dicruridae	Schedule IV	LC

*NE- Not evaluated; LC- Least Concern, NT –Near Threatened, T-Threatened

3.11.10.1 FAUNA IN BUFFER ONE

Taxonomically a total of 40 species belonging to 29 families have been recorded from the buffer zone area. Based on habitat classification the majority of species were Insects 14 (35%), followed by Birds 15 (37.5%), Reptiles 5 (12.5%), Mammals 3 (7.5%) and amphibians 3 (7.5%). There are one Schedule II species and twenty-two species are under schedule IV according to Indian wild life Act 1972. A total 15 species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable and endemic species were observed.

The result of core & Buffer zone of fauna studies shows that Nymphalidae and *Scincidae, Agamidae* are the main dominating species in the study area; it is mentioned in Table No.3.5. There is no schedule I Species in study area. There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of faunal diversity in buffer zone are given in **Table 3.22**.

TABLE 3.22: FAUNA IN BUFFER ONE

S.No	Scientific Name	Family Name	WPA Schedule	IUCN List
INSECTS				
1	*Apis cerana*	Apidae	Schedule IV	LC
2	*Danaus plexippus*	Nymphalidae	Schedule IV	LC
3	*Danaus chrysippus*	Nymphalidae	Schedule IV	LC
4	*Danaus genutia*	Nymphalidae	Schedule IV	LC
5	*Eurythyrea austriaca*	Buprestidae	Schedule IV	NA
6	*Sympetrum fonscolombii*	Libellulidae	NL	LC
7	*Camponotus Vicinus*	Formicidae	NL	NL
8	*Ceratogomphus pictus*	Gomphidae	Schedule IV	
9	*Danainae*	Nymphalidae	NL	LC
10	*Euploea core*	Nymphalidae	Schedule IV	LC
11	*Mantis religiosa*	Mantidae	NL	NL
12	*Hieroglyphus sp*	Acrididae	NL	LC
13	*Zizina Otis indica*	Lycaenidae	Schedule IV	LC
14	*Tirumala limniace*	Nymphalidae	Schedule IV	LC
REPTILES				
15	*Calotes versicolor*	Agamidae	NL	LC
16	*Eutropis carinata*	Scincidae	NL	LC
17	*Hemidactylus frenatus*	Gekkonidae	NL	LC
18	*Sitanaponticeriana*	Agamidae	NL	LC
19	*Naja naja*	Indian Cobra	NL	LC
MAMMALS				

S.No	Scientific Name	Family Name	WPA Schedule	IUCN List
20	*Funambulus palmarum*	Sciuridae	Schedule IV	LC
21	*Mus booduga*	Muridae	Schedule IV	LC
22	*Herpestes javanicus*	Herpestidae	Schedule II	LC
AVES				
23	*Eudynamys*	Cucalidae	Schedule IV	LC
24	*Bubulcus ibis*	Ardeidae	NL	LC
25	*Acridotheres tristis*	Sturnidae	NL	LC
26	*Corvussplendens*	Corvidae	NL	LC
27	*Meropsorientalis*	Meropidae	NL	LC
28	*Pycnonotuscafer*	Pycnonotidae	Schedule IV	LC
29	*Psittacula krameri*	Psittaculidae	NL	LC
30	*Accipiter badius*	Accipitridae	NL	LC
31	*Coturnix coturnix*	Phasianidae	Schedule IV	LC
32	*Dicrurus macrocercus*	Dicruridae	Schedule IV	LC
33	*Dicrurus macrocercus*	Dicruridae	Schedule IV	LC
34	*Francolinus pondicerianus*	Phasianidae	Schedule IV	LC
35	*Coturnix coturnix*	Phasianidae	Schedule IV	LC
36	*Amaurornis phoenicurus*	Rallidae	NL	LC
37	*Fulica atra*	Rallidae	Schedule IV	LC
38	*Sphaerotheca breviceps*	Dicroglossidae	Schedule IV	LC
39	*Rana hexadactyla*	Ranidae	Schedule IV	LC
40	*Hoplobatrachus tigerinus*	Chordata	Schedule IV	LC

*NL- Not listed, LC- Least concern, NT- Near threatened

3.11.11 Interpretation& Conclusion

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

3.12 SOCIO ECONOMIC ENVIRONMENT

A prosperous nation needs well-developed industries to provide the amenities of life to its citizens. Industrial development has had an important role in the socio -economic growth of countries. Rapid economic growth is often essential for achieving a reduction in absolute poverty. Industrialization is often essential for economic and social growth.

Poverty reduction the pattern of industrialization, however, impacts remarkably on how the poor benefit from growth. Pro-poor economic and industrial policies focus on increasing the economic returns to the productive factors that the poor possess, e.g. raising returns to unskilled labour, whereas policies promoting higher returns to capital and land tend to increase inequality, unless they also include changes in existing patterns of concentration of physical and human capital and of land ownership. Use of capital-intensive methods instead of labor-intensive ones tends to increase employment, labour regulation, social protection, health, education, etc.
Where the level of education is low and human capital concentrated. Income disparities, as does the employment of skill-based technologies, especially Also, the location of industrial facilities has an impact on overall poverty reduction and inequality. As enterprises are often concentrated in urban areas. The industrial revolutions led to the development of factories for large-scale production, with consequent changes in society like Growth and structure of employment, impact of Socio-economic reforms and globalization trade and employment, labour regulation, social protection, health, education, etc. In this manner all developmental projects have direct as well as indirect relationship with socio-economic aspect, which also include public acceptability for new developmental projects. Thus the study of socio-economic component incorporating various facets related to prevailing social & cultural conditions and economic status of the project region is an important part of EIA study.

There is no habitation/ village within the radius of 1km from the cluster area. Socio-economic study is an essential part of environmental study. It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of theproject.
It is expected that the Socio- Economic Status of the area will substantially improve because of this proposedproject. As the proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area and, thus, improve their standard of living.

3.12.1 Objectives of the Study

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

- To examine, status of developmental parameter in identified study area.
- To identify the direct and indirect impact on the social environment because of development project.
- To evaluate the nature and magnitude of these impacts.

- To provide probable mitigating measures on identified negative impacts due to proposed development activity on socio economic environment.

3.12.2 Scope of Wor

To study the Socio-economic Environment of the area from the secondary sources;

- Data Collection & Analysis
- Prediction of project impact
- Mitigation Measures

3.13 ADMINISTRATIVE SETUP OF KANCHEEPURAM DISTRICT

Kancheepuram district was initially known as Chengalpattu district. For the administrative reasons, Chengalpattu distict was bifurcated on 18-11-1997 into Kancheepuram and Thiruvallur districts. Kancheepuram town, known as city of thousand temples, is the headquarters of the district.

Alandur taluk and Sholinganallur taluk were newly created from Tambaram taluk as per G.O.(MS)NO.500, Revenue(RA1(1), dated 24.12.2009. At present Kancheepuram district consists of 3 Revenue Divisions and 10 taluks comprising of 1019 Revenue Villages. For development reasons, it is divided into 14 Community Development Blocks with 10 Municipalities, 1 Cantonment Board/Cantonment, 24 Town Panchayats and 40 Census Towns.

3.13.1 Kancheepuram District Density

Population density is the indicator of the assessment of the development of the area and the people. The density of population in this district was 892, higher than the State level of 555 as per 2011 census because of its proximity to the Chennai city and industrial development.

3.13.2 Kancheepuram Literacy Rate

The literacy rate in the district has increased in 2011 census compared to 2001 census. In 2011 census, Kancheepuram district has returned 84.5% as literate population; males with 89.9% and females with 79%. The total literacy in 2001 was 76.9%; males at 84.7% and females at 68.8%.

3.13.3 Kancheepuram Sex Ratio

The initial provisional data released by census India 2011, the sex ratio (i.e., females per 1000 males) of the district was recorded as 986, lower than the State level of 996 during Census 2011 census. Child sex ratio of the district was recorded as 959.

3.13.4 Kancheepuram Child population

The initial provisional data released by census India 2011, shows that total child population of Kancheepuram district is 431,574 out of which 220,341 are Males and 211,233 are Females.

3.13.5 Kancheepuram Household Census

The initial provisional data released by census India 2011, shows that total household in Kancheepuram district are 998,052.

3.13.6 Kancheepuram District Urban/ Rural

The total area of the district is 4615.71 sq.km (Rural: 380038.1 hectares and Urban: 66459.3 hectares). The urban population was 63.5% in the district. In 2011 census, the total population of Kancheepuram district was 3998252. Of this, rural population was 1459916 and urban population was 2538336. In 2001, these were 2877468, 1342502 and 1534966 respectively. The percentage of decadal population variation of the total population during 2001-2011 in the district was recorded as 39%. In urban population, 65.4% growth was recorded whereas in rural population 8.7% of growth was noticed. The highest population growth rate was recorded in Sholinganallur taluk with 134.8% followed by Sriperumbudur taluk with 61.2% and Tambaram taluk with 45.7%. In rural, highest growth is recorded in Tambaram taluk(90.1%). In urban, highest growth is recorded in Sriperumbudur taluk (285.5%).

3.14 STUDY AREA

The 10km radius village map is shown in **Figure 3.16.**

3.14.1 Reconnaissance

EIA study for Rough Stone Mine by Shri. Thiru Raju for total Proposed Production of 3,19,240 m^3 of Rough Stone & 3,19,240 m^3 of Gravel, S.F. No. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 over an extent of 2.50 Ha of Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District., Tamil Nadu, India. The details of information on demographic structure of the villages in the study area are presented in in **Table 3.23**.

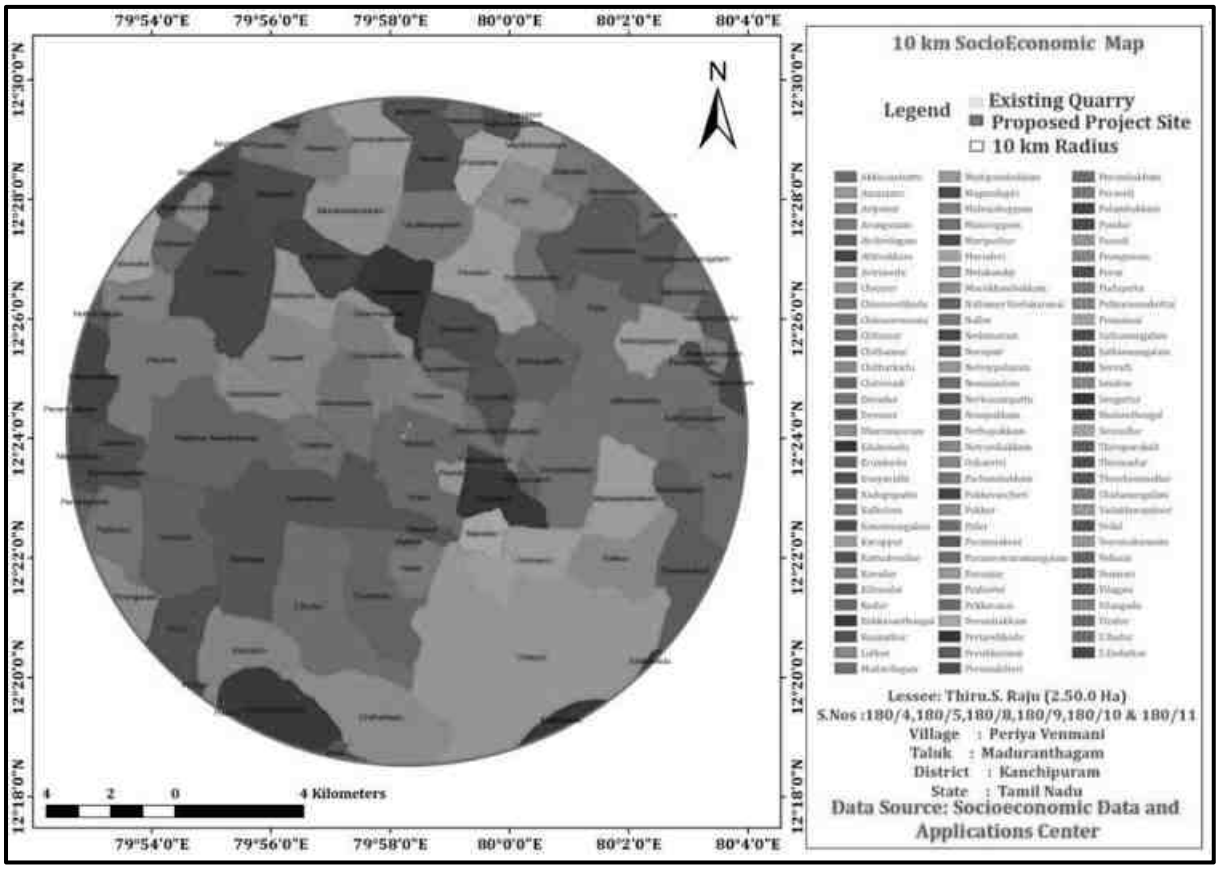

FIGURE 3.16: VILLAGE MAP OF THE STUDY AREA

TABLE 3.23: LIST OF VILLAGES IN THE STUDY AREA

Sr. No	District	Tehsil	Village/To n
1	Kancheepuram	Maduranthakam	Kunnathur
2			Veeranakunnam
3			Vilagam
4			Kavadur
5			Murukkambakkam
6			Mariputhur
7			Devadur
8			Arungunam
9			Nethapakkam
10			Sirunallur
11			Avirimedu
12			Chitravadi
13			Puliyaranankottai
14			Z.Endathur
15			Melakandai
16			Athivakkam

17			Dharmapuram
18			Nesapakkam
19			Ariyanur
20			Venmari
21			Chinnavenmani
22			Ozhavetti
23			Netrambakkam
24			Peruveli
25			Nallamur Keelakaranai
26			Chitamur
27			Kattudevadur
28			Viralur
29			Poondi
30			Devanur
31			Vellarai
32			Nallur
33			Erumbedu
34			Z.Budur
35			Kilvasalai
36			Neerpair
37			Vilangadu
38		Cheyyur	Karuppur
39			Sembur
40			Parameswaramangalam
41			Manicuppam
42			Thondamanallur
43			Kalkulam
44			Vadakkuvayaloor
45			Sathamangalam
46			Pekkaranai
47			Seevadi
48			Punnamai
49			Lathur
50			Pachambakkam
51			Pavunjur
52			Uludamangalam
53			Periavelikadu
54			Chinnavelikadu
55			Thiruvadur
56			Kadugupattu

57			Palur
58			Nelvoypalayam
59			Perumalcheri
60			Malrajakuppam
61			Kodur
62			Akkinambattu
63			Iranyasidhi
64			Nemanadam
65			Sengattur
66			Pakkavancheri
67			Thirupurakoil
68			Madayambakkam
69			Atchivilagam
70			Paramankeni
71			Pakkur
72			Cheyyur
73			Ammanur
74			Maruderi
75			Chitharkadu
76			Kokkaranthangal
77			Pondur
78			Vilangadu
79			Porur
80			Poongunam
81			Kannimangalam
82			Polambakkam
83			Perambakkam
84			Magundagiri
85			Perukkaranai
86			Vedal
87			Sirumailur
88			Edakalinadu (TP)

Source*: Primary Census Abstract 2011, Kancheepuram District, State Tamil Nadu*

3.14.2 Baseline Status

Baseline information is collected after delineation of the baseline study area in order to study the socio-economic profile of the project affected area. The process related to baseline database analysis includes:

- Demographic Structure
- Infrastructure Base

- Economic Structure
- Health Status
- Cultural Attributes
- Salient Observation

3.14.3 Demographic Structure

The demographic structure of the study area was derived primarily from data of Census record of one district covering two tehsil and 87 villages. The demographic structures of each village in the study area as per Census 2011 are presented in **Table 3.24**. Summary of demographic structure is presented in **Table 3.25**

TABLE 3.24: DEMOGRAPHIC STRUCTURE OF VILLAGE IN THE STUDY AREA

Sr. No	Village/ To n	Area (in Hectares)	Total Household	Population			0 6 child Population			Schedule Cast Population			Schedule Tribe Population		
				Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
District Kancheepuram, Tehsil Madurantha am															
1	Kunnathur	496.96	599	2183	1088	1095	186	92	94	402	201	201	22	13	9
2	Veeranakunnam	827.02	647	2566	1283	1283	224	111	113	941	473	468	134	66	68
3	Vilagam	170.39	38	141	75	66	18	10	8	0	0	0	27	12	15
4	Kavadur	352.4	256	1033	528	505	121	69	52	675	346	329	57	27	30
5	Murukkambakkam	612.57	259	942	482	460	79	43	36	690	345	345	39	22	17
6	Mariputhur	390.29	230	901	470	431	61	31	30	393	202	191	0	0	0
7	Devadur	205.18	333	1298	647	651	114	61	53	661	329	332	38	17	21
8	Arungunam	674.79	578	2129	1063	1066	164	79	85	935	475	460	73	39	34
9	Nethapakkam	372.86	197	756	370	386	69	31	38	521	262	259	0	0	0
10	Sirunallur	487.91	550	2163	1079	1084	193	101	92	791	394	397	10	5	5
11	Avirimedu	337.44	146	562	285	277	67	34	33	170	83	87	11	6	5
12	Chitravadi	156.93	198	828	411	417	83	39	44	379	198	181	20	10	10
13	Puliyaranankottai	129.12	185	701	356	345	67	34	33	348	181	167	5	3	2
14	Z.Endathur	1172.47	726	3014	1539	1475	270	134	136	1552	803	749	69	35	34
15	Melakandai	331.66	195	812	408	404	88	42	46	472	236	236	12	5	7
16	Athivakkam	354.5	279	1088	551	537	103	61	42	845	426	419	27	11	16
17	Dharmapuram	138.79	136	526	243	283	55	28	27	291	133	158	26	12	14
18	Nesapakkam	167.81	185	671	348	323	68	41	27	436	230	206	0	0	0
19	Ariyanur	266.43	171	669	340	329	61	33	28	382	201	181	0	0	0
20	Venmari	540.2	304	1215	625	590	121	64	57	761	393	368	12	7	5
21	Chinnavenmani	419.98	207	794	388	406	66	33	33	385	183	202	15	5	10

Sr. No	Village/ To n	Area (in Hectares)	Total Household	Population			0 6 child Population			Schedule Cast Population			Schedule Tribe Population		
				Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
22	Ozhavetti	554.21	265	1104	561	543	126	68	58	936	479	457	32	16	16
23	Netrambakkam	353.87	424	1666	831	835	185	82	103	846	415	431	0	0	0
24	Peruveli	984.96	858	3381	1671	1710	342	183	159	2175	1075	1100	5	2	3
25	Nallamur Keelakaranai	1140.11	743	3122	1545	1577	303	166	137	2540	1246	1294	4	2	2
26	Chitamur	306.54	67	315	166	149	25	10	15	211	117	94	0	0	0
27	Kattudevadur	1049.57	891	3398	1700	1698	373	194	179	1419	717	702	0	0	0
28	Viralur	304.04	118	467	231	236	47	23	24	255	124	131	22	13	9
29	Poondi	76.64	4	12	7	5	2	2	0	0	0	0	0	0	0
30	Devanur	122.88	56	204	102	102	15	5	10	82	41	41	0	0	0
31	Vellarai	84.01	56	236	121	115	21	10	11	174	87	87	0	0	0
32	Nallur	217.08	161	625	309	316	81	47	34	356	168	188	9	5	4
33	Erumbedu	877.41	660	2614	1299	1315	225	111	114	2246	1110	1136	15	11	4
34	Z.Budur	1001.41	788	2873	1422	1451	283	145	138	1243	604	639	0	0	0
35	Kilvasalai	692.43	343	1351	686	665	126	59	67	1147	589	558	7	4	3
36	Neerpair	711.97	530	2090	1024	1066	236	123	113	1096	545	551	31	18	13
37	Vilangadu	498.34	148	593	311	282	63	30	33	365	187	178	7	4	3
Total		**17581.17**	**12531**	**49043**	**24565**	**24478**	**4731**	**2429**	**2302**	**27121**	**13598**	**13523**	**729**	**370**	**359**
District Kancheepuram, Tehsil Cheyyur															
38	Karuppur	139.3	184	774	385	389	82	33	49	669	333	336	2	0	2
39	Sembur	138.95	208	831	426	405	74	43	31	128	66	62	0	0	0
40	Parameswaramangalam	1255.81	1185	4847	2394	2453	528	253	275	1479	721	758	70	36	34
41	Manicuppam	175.31	364	1370	673	697	142	68	74	698	340	358	27	10	17

Sr. No	Village/ To n	Area (in Hectares)	Total Household	Population			0 6 child Population			Schedule Cast Population			Schedule Tribe Population		
				Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
42	Thondamanallur	991.62	571	2187	1098	1089	260	125	135	1271	644	627	133	63	70
43	Kalkulam	270.52	276	1208	620	588	113	68	45	844	437	407	0	0	0
44	Vadakkuvayaloor	229.77	164	641	326	315	62	31	31	460	233	227	0	0	0
45	Sathamangalam	244.76	111	402	203	199	39	19	20	161	79	82	0	0	0
46	Pekkaranai	126.07	146	582	296	286	60	28	32	510	262	248	9	4	5
47	Seevadi	327.49	284	1205	602	603	116	59	57	781	389	392	0	0	0
48	Punnamai	260.76	130	528	273	255	40	17	23	46	21	25	0	0	0
49	Lathur	427.38	333	1273	662	611	148	78	70	980	504	476	0	0	0
50	Pachambakkam	258.11	224	950	475	475	89	47	42	513	248	265	8	3	5
51	Pavunjur	709.86	351	1409	729	680	145	78	67	395	209	186	8	4	4
52	Uludamangalam	466.21	329	1380	687	693	154	66	88	635	320	315	0	0	0
53	Periavelikadu	493.01	198	802	410	392	107	57	50	540	266	274	0	0	0
54	Chinnavelikadu	478.58	305	1152	585	567	114	71	43	200	104	96	1	1	0
55	Thiruvadur	465.41	462	1887	949	938	200	112	88	929	457	472	16	12	4
56	Kadugupattu	532	450	1765	874	891	196	105	91	908	459	449	0	0	0
57	Palur	435.21	204	840	449	391	99	60	39	468	256	212	29	17	12
58	Nelvoypalayam	428.82	116	454	224	230	41	20	21	257	127	130	11	5	6
59	Perumalcheri	65.83	88	413	211	202	40	20	20	138	69	69	0	0	0
60	Malrajakuppam	90.64	3	8	5	3	1	1	0	0	0	0	0	0	0
61	Kodur	778.55	775	2867	1442	1425	269	149	120	1846	944	902	60	28	32
62	Akkinambattu	1192.86	691	2553	1236	1317	223	107	116	837	412	425	26	13	13
63	Iranyasidhi	268.21	189	712	368	344	75	41	34	285	153	132	0	0	0
64	Nemanadam	131.67	153	538	267	271	50	26	24	37	17	20	0	0	0

Sr. No	Village/ To n	Area (in Hectares)	Total Household	Population			0 6 child Population			Schedule Cast Population			Schedule Tribe Population		
				Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
65	Sengattur	83.39	412	1745	875	870	154	77	77	888	436	452	0	0	0
66	Pakkavancheri	401.01	87	357	181	176	31	16	15	59	28	31	0	0	0
67	Thirupurakoil	56.28	42	211	112	99	19	10	9	0	0	0	0	0	0
68	Madayambakkam	613.59	309	1193	586	607	120	57	63	696	351	345	11	5	6
69	Atchivilagam	228.22	10	56	21	35	27	9	18	0	0	0	56	21	35
70	Paramankeni	1115.44	847	3325	1615	1710	349	172	177	1154	584	570	23	14	9
71	Pakkur	514.02	326	1229	599	630	111	56	55	636	300	336	15	9	6
72	Cheyyur	3385.24	2626	10664	5274	5390	1024	535	489	5188	2549	2639	131	65	66
73	Ammanur	571.82	589	2334	1167	1167	219	104	115	940	449	491	10	7	3
74	Maruderi	180.27	42	152	74	78	13	7	6	0	0	0	0	0	0
75	Chitharkadu	961.24	450	1859	887	972	189	87	102	1407	678	729	0	0	0
76	Kokkaranthangal	897.07	705	2846	1433	1413	262	134	128	1657	830	827	48	20	28
77	Pondur	320.85	372	1557	762	795	181	89	92	1176	574	602	41	16	25
78	Vilangadu	532.1	135	554	292	262	75	46	29	473	251	222	0	0	0
79	Porur	462.83	305	1191	584	607	95	53	42	720	362	358	0	0	0
80	Poongunam	1211.08	552	2212	1096	1116	291	143	148	1264	637	627	10	4	6
81	Kannimangalam	120.63	229	983	501	482	115	61	54	616	313	303	175	92	83
82	Polambakkam	656.72	570	2242	1117	1125	240	125	115	1073	533	540	23	12	11
83	Perambakkam	392.09	281	1096	560	536	125	61	64	387	204	183	5	3	2
84	Magundagiri	299.7	274	1067	548	519	122	69	53	430	221	209	0	0	0
85	Perukkaranai	869.65	586	2366	1172	1194	226	116	110	491	234	257	4	2	2
86	Vedal	1161.59	611	2472	1221	1251	262	128	134	1016	495	521	54	26	28
87	Sirumailur	736.5	463	1918	962	956	189	98	91	1267	633	634	0	0	0

Sr. No	Village/ To n	Area (in Hectares)	Total Household	Population			0 6 child Population			Schedule Cast Population			Schedule Tribe Population		
				Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
88	Edakalinadu (TP)	3400	6734	28172	13956	14216	3020	1530	1490	12133	5936	6197	179	90	89
Total		**30554.04**	**26051**	**105379**	**52464**	**52915**	**10926**	**5565**	**5361**	**49686**	**24668**	**25018**	**1185**	**582**	**603**
Grand Total		**48135.21**	**38582**	**154422**	**77029**	**77393**	**15657**	**7994**	**7663**	**76807**	**38266**	**38541**	**1914**	**952**	**962**

Source: *Primary Census Abstract 2011, Kancheepuram District, State Tamil Nadu*

TABLE 3.25: SUMMARY OF DEMOGRAPHIC STRUCTURE IN STUDY AREA

Demographic Parameters	Details
No. of State	1
No. of District	1
No. of Tehsils	2
No. of Villages	87
No. of Town	1
Total Area of surveyed village (ha)	48,135.21
Total No. of Households	38,582
Total Population	1,54,422
Density of Population (per km2)	321
Sex Ratio (No. of female\ 1000 males)	1005
Child Population	15,657(10.13%)
Scheduled Castes	76,807(49.73%)
Scheduled Tribes	1,914(1.23%)

Literacy	1,02,827(66.58%)
Male	56451(36.55%)
Female	46,376(30.03%)

Source: *Primary Census Abstract 2011, Kancheepuram District, State Tamil Nadu*

3.14.4 Salient Features of Demographic Structure

In the study area, Kancheepuram city town is likely to have high Population density. The reason for this could be equipped facilities like education, health, sanitization, banking, and transportation. In the study area, Poondi village is likely to have very low population density. The reason for this could be lack of facilities like education, health, sanitization, communication, transportation, and banking.

3.14.5 Infrastructure Resources

The infrastructure resources base of the 87 villages & 1 town in the study areas with reference to education, medical facility, water supply, post and telegraph, transportation, communication facility, power supply, sanitation, road, bank etc. according to the Village Directory Census CD 2011 & Town directory 2011is given in **Table 3.26**.

TABLE 3.26: INFRASTRUCTURE RESOURCE BASE OF THE STUDY AREA

Education facilities in number of villages /to ns									
Govt Primary School	Govt Middle School	Govt Secondary School	Govt Senior Secondary School	Private Arts and Science Degree College	Private Management Institute	Private Polytechnic	Private Vocational Training School/ITI	Government Non Formal Training Centre	
74	**39**	**12**	**5**	**1**	**1**	**2**	**1**	**73**	
Health/Medical facilities present in number									
Community Health Centre	Primary Health Centre	Primary Health Sub Centre	Maternity And Child Welfare Centre	TB Clinic	Dispensary	Veterinary Hospital	Family Welfare Centre	Medical facilities Medicine Shop	Hospital Allopathic
2	**7**	**41**	**10**	**8**	**8**	**7**	**8**	**12**	**1**
Water facilities in number of villages /to ns									
Tap Water-Treated	Tap Water Untreated	Covered Well	Uncovered Well	Hand Pump	Tube Wells/Borehole	Spring	River/Canal	Tank/Pond/Lake	
80	**67**	**41**	**51**	**30**	**31**	**6**	**2**	**9**	
Drainage facilities in number of villages /to n						**Communication facilities in number of villages /to n**			
Closed Drainage	Open Drainage	No Drainage	Open Pucca Drainage Covered with Tiles Slabs	Open Pucca Drainage Uncovered	Open Kuccha Drainage	Post Office	Sub Post Office	Telephone	Public Call Office

66	**66**	**86**	**4**	**10**	**61**	**4**	**28**	**78**	**38**
Transportation facilities in number of villages /to ns						**Road facilities in number of villages /to n**			
Public Bus Service	Private Bus Service	Railway Station	Auto/Modified Autos	Taxi	Vans	Black Topped (pucca) Road	Gravel (Roads	Water Bounded Macadam	Footpath
49	**39**	**0**	**25**	**13**	**14**	**76**	**77**	**63**	**88**
Ban ing/other facilities in number of villages /to n						**Po er facilities in number of villages /to n**			
Commercial Bank	Cooperative Bank	Agricultural Credit Societies	Nationalised Bank	Non-Agricultural Credit Society	Self - Help Group	Power Supply For Domestic Use	Power Supply For Agriculture Use	Power Supply For Commercial Use	Power Supply For All Users
3	**14**	**18**	**1**	**1**	**77**	**88**	**84**	**35**	**39**

Abbreviations:

EDUCATION	MEDICAL FACILITY	WATER	TRANSPORTATION	SANITATION	COMMUNICATION
AC: Anganwadi Center	AH: Allopathic Hospital	TWT: Tap Water Treated	GBS: Govt. Bus Service PBS: Private Bus Service	OD: Open Drainage	PO: Post Office
GPS: Govt. Primary School	PHC: Primary Health Centre	TWU; Tap Water Untreated	A/MA: Auto/Modified Autos	OPDC: Open Pucca Drainage Covered	SPO: Sub Post Office
PPS: Private Primary School	PHSC: Primary Health Sub Centre	CW; Covered Well	V:Van CPR: Cycle-pulled Rickshaws	OPDU: Open Pucca Drainage Uncovered	P&TO: Post &Telegraph office
GMS: Govt. Middle School	M&CWC: Maternity And Child Welfare Centre	UW: Uncovered Well	T:Taxi Trc: Tractor	ND: No Drainage	TP: Telephone
PMS: Private Middle	FWC: Family Welfare	HP; Hand Pump	SH: State Highway	OKD: Open Kuccha	PCO: Public Call Office

School	Centre			Drainage	
		SR: Service Reservoir	NH: National Highway	PL: Public Latrine	DNA: Data Not Available
GSS: Govt. Secondary School	D: Dispensary	R/C: River/Canal	**ROAD**	**BANK**	**POWER**
GSS: Govt. Secondary School	VH: Veterinary Hospital	T/P/L: Tank/Pond/Lake	BTPR: Black Topped pakka Road	CB: Commercial Bank	PSDU: Power Supply for Domestic use
	MHC: Mobile Health clinic			NB: Nationalize Bank	
PEC: Private Engineering College			PR: Pakka Road		
GSSS: Govt. Senior Secondary School	NA: Not Applicable	TWB: Tube Wells/Borehole	GKR: Gravel (kuchha) Road	COB: Co Operative Bank	PSAU: Power Supply Agriculture use
PSSS: Private Senior Secondary School	**SHG: SELF HELP GROUP**	OHT: Over Head Tank	AWR: All Weather Road	ACS: Agriculture Credit Society	PSCU: Power Supply For Commercial Use
DC: Degree College			F:Foothpath	PCB: Private Commercial Bank	PSIU: Power Supply For Industrial Users

3.14.6 Socio Economic Survey Sampling Methodology

To assess and evaluate the likely impacts arising out of any developmental projects on socio-economic environment, it is necessary to gauge the apprehensions of the people in the project area. Socio-economic survey serves as an effective tool for fulfilling this requirement. Sarpanch, ward members, school teachers, medical practitioners, self-help group members and village youth and other respondents (adult's male-female) are involved for awareness and opinion, by using judgmental or purposive sampling methods representing different socioeconomic sections of the community. The respondents were asked for their awareness/opinion about the project, job opportunities, drinking water, road and drainage construction, education, health care, housing, transportation facility and economic status.

Data Collection Method

To assess and evaluate the likely impacts arising out of any developmental projects on socio-economic environment, it is necessary to gauge the apprehensions of the people in project area. For the process of data collection through primary and secondary sources certain methods are used as given below:

Field Survey and Observation

Field survey and observations is made at each sampling villages and the quality of life of that region is studied. Visits are made to hospitals, primary health centres to know the health status of the region. Various governmental organizations such as statistical department, department of census operations are visited to collect the population details of that region.

Intervie Method

Structured interview method is used to collect data regarding the awareness and opinion of sample selected from various socio-economic sections of the community. Structured interviews involve the use of predetermined set of questions that includes fixed and alternative questions. The questionnaire mainly highlights the parameters such as income, employment and working conditions, housing, food, clothing, water supply, sanitation, health, energy, transportation, communication, education, environment, and pollution to assess the quality of life of that particular region, general awareness and opinion of the respondents about the project. Interview method helps to collect error free and accurate information to the interviewer during the field survey. The respondents were asked for their awareness / opinion about the project and also the impacts of the project which is an important aspect of socio-economic environment, viz. job opportunities, education, health care, transportation facility and economic status.

Focus Group Discussion

A focus group discussion is a small, but demographically diverse group of people It is a form of qualitative research consisting of interviews in which a group of people are asked about their perceptions, opinions, beliefs, and attitudes towards an employment, income, transport, education, Medical facilities, Sanitation, housing, health, agriculture, pollution etc. Questions are asked in an interactive group setting where participants are free to talk with other group members. During this process, the researcher either takes notes.

Through the focus group discussion of all these factors, the proposed project helps in evaluating socio-economic conditions in the study area.

The study was carried out with a participatory approach by involving the stakeholders, particularly the project beneficiaries and probable affected persons through a series of consultative process. The population groups consulted include beneficiary group of people shopkeepers, farmers, school teachers, gram panchayat sarpanch/members, village leaders, etc.

Observations on Infrastructure Resources:

The significant features of these important parameters for each study area are discussed as follows:

a. **Education Facilities**: In the study area, education is available from Primary School to Sr. Secondary school, only 1 Private Arts and Science Degree College is preset in the study area. Higher education facilities including colleges and other diploma courses are available at Veeranakunnametc, Maduranthakam, Thiruvadur, Melmaruvathur etc., at 15+ km respectively from the project site
b. **Medical Facilities**: There are Eighty-six (86) government healthcare facilities available within the study area. However, fifty (50) villages in the study areas were lacking in medical facilities. In the study area. Cheyyur village has highest (24) health care facilities. Table 3.23 is given in. Hospitals and other better medical facilities were available at Veeranakunnametc, Maduranthakam, Thiruvadur, Melmaruvathur at a distance of above15 km.
c. **Drin ing Water**: The main water supply in the surveyed villages is through tap water, hand pump, well and tube well.
d. **Po er Supply**: All villages are accessed with electricity supply.
e. **Transportation**: For transportation purpose Government/private bus Auto and Taxi Service are available in the study area. Transportation facilities were not frequently available in the region. Private vehicles like Bicycles and Motor Cycles were mostly used by villagers for transportation purpose.
f. **Communication Facilities**: For communication purpose mainly Sub Post Office, Telephone, Mobile phones and newspaper are available in most of the villages.

g. **Agriculture**: Most of the respondents are engaged in labor work, agriculture, and livestock activities. Farming is the main occupation; a few respondents service in government sectors. Most of the respondents are labors and others are trying to migrate towards other city places.
h. **Houses**: Most of the houses are pakka and Semi pakka with good construction in the study area.
i. **Employment**: **:** Main occupations of the people in the study area are agriculture and labor work. The labors were getting daily wage in the range of Rs. 500-600, depending on the type of work involved
j. **Fuel**: The primary source of cooking fuel is LPG and wood. Kerosene is also been as per the requirement.
k. **Main Crops**: The principal crops grown in agricultural farm are Paddy & Groundnut.
l. **Language**: The official language of Tamil Nadu is Tamil. The most widely spoken language within the study area is Tamil, English and Hindi.
m. **Migration**: During survey it was found that local population were migrating maximum towards the Kancheepuram city as a purpose of employment and some to other states.
n. **Sanitation**: Systems of individual and combined septic tanks are in use at some places of this Study area. Toilet facility is one of the most basic facilities required in a house. Most of the households were having toilet facilities in their houses. There was no proper drainage line in the villages
o. **Road Connectivity**: Most of the roads are tar and connects to the villages. Both tar and gravel roads were commonly seen in the villages.
p. **Mar et Facility**: Study area was predominantly semi urban type. In villages, small shops were available for daily needs. Weekly market facility was available in some villages. Wholesale markets were available at town place. Kancheepuram city is major hub for all type of facilities in the area.
q. **Recreation**: Temples, Samajbhawan, Television and Radio are the main recreation facilities in the study area. Newspaper/Magazine is also used by the villagers.

3.14.7 Employment Pattern

Economic resource base of any region mainly depends upon its economically active group i.e. the working population involved in productive work. Work may be defined as participation in any economically productive activity. Such participation may be physical or mental in nature. Work not only involves actual work but also effective supervision and direction of work. It also includes unpaid work on farm or in family enterprise.

There are different types of workers that may be classified as - those persons who had worked for at least six months or 180 days are treated to be Main Workers, on the other hand if person categorized as worker has participated in any economic or productive activity for less than six months or 180 days during the last one year is treated as Marginal Worker. Non–workers are those who have not worked any time at all in the year preceding the enumeration.

The workers coming under the main and marginal workers category are those involved in activities such as cultivation, agriculture, livestock, forestry, fishing, hunting, plantations, orchards and allied activities, mining and quarrying, manufacturing, processing, servicing and repairs in household industry, construction, trade and commerce, transport, storage and communication and other services. **Table 3.27.**

Table 3.27: Summary of Economic Attributes in Study Area

Demographic Parameters	Details
Total Worker	76970(49.84%)
Marginal Worker	30593(19.81%)
Non Worker	77452(50.16%)
Main Worker	46377(30.03%)
Cultivators	6891(14.86%)
Agriculture	22836(49.24%)
Household	930(2%)
Others	15720(33.9%)

Source: *Primary Census Abstract 2011, Kancheepuram District, State Tamil Nadu*

3.14.8 Health Status

Diarrhea / Cholera, Malaria, Could, Cough; viral fever, eye disease, skin disease and Unhygienic are the general health problems which are attributed due to improper sanitation, mosquito nuisance and water logging. Malaria is one of the most frequently occurring diseases and also respiratory infection in the region.

3.14.9 Cultural and Aesthetic Environment

There is no, culturally and aesthetically important of tourist places in the study area. Hence, there shall be no impact on places of interest.

3.14.10 Quality of Life

The average Quality of life for the study area is leading to satisfactory level due to satisfactory status like, educational facilities, also availability of basic needs viz., food, clothing & housing. Medical, Sanitation, and Bank facilities were not adequate in the

study area; Improvement in these fields will help to increase quality of life of the study area.

3.14.11 Rehabilitation and Resettlement Plan (R & R Plan)

As there is no existing settlement on the proposed project area, there are no issues of resettlement or rehabilitation.

3.14.12 Basic Amenities

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

A review of infrastructure facilities available in the area has been given on the basis of field survey. In this study the villages which fall within 10 km radius around the site has been covered. Infrastructure facilities available in the area are presented below.

All basic amenities Education (higher education, colleges, universities, Medical college, Transport facilities, Railway station, Bus station area are all available in the district headquarters Kancheepuram).

3.14.13 Recommendation and Suggestion

- Awareness program should be conducted to make the population aware to get education and a better livelihood.
- Health care centre and ambulance facility can be provided to the population to get easy and accessible medical facilities.
- Vocational training programme can be organized to make the people self - employed, particularly for women and unemployed youth.
- On the basis of qualification and skills local youths may be employed.
- Long term and short-term employments can be generated.
- Maternity facility should be made available at the place to avoid going too far off places for treatment which involves risks. Apart from that as these areas are prone to various diseases a hospital with modern facilities should be opened on a priority basis in a central place to provide better health facilities to the villagers around the project.
- While developing an Action Plan, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.

3.14.4 CONCLUSION

The socio-economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis. The proposed project will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve. The nearby villages within 5kms radius have PHC, Anganwadi school, post office, telegram, Government and Private school, bus connectivity besides. To achieve the above objective, a detailed study of the area was undertaken in 10 km radius from the proposed project area.

CHAPTER 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 INTRODUCTION

This chapter provides a brief overview of the potential impacts on various environmental components due to the Rough stone mining project which will be operated by mechanized method with controlled blasting. The opencast mining operations involve development of benches, approach roads, haul roads, excavation and loading and unloading, manual sorting and transportation of materials. If adequate control measures are not taken to prevent/mitigate the adverse environmental impacts, these operations may cause environmental degradation and ultimately lead to irreversible damage to the ecosystem. Various environmental impacts, which are identified due to mining project, are discussed in the following sections:

4.2 ENVIRONMENTAL IMPACT ASSESSMENT & MITIGATION MEASURES

Mining activities causes environmental problems such as degradation of land, deteriorating air, water and soil quality, affecting the biological and socio-economic environment of the area. The impacts of mining on various environmental parameters were assessed and are given below.

4.3 IMPACT ON AIR QUALITY

To assess the impact of the Rough stone mining, crushing and transportation operations from the Rough stone Mine, air quality modeling was carried out for the mining operations and the mineral transportation activities. The modeling was carried out using MoEF/CPCB approved Lakes AERMOD model. The incremental ground level concentration of PM_{10} due to mining and allied activities was predicted using the above-mentioned models and the resultant concentration of PM_{10} were compared with the National Air Quality Standards.

4.3.1 Ground Level Concentration Increment

4.3.1.1 Air Environment

Base line ambient air monitoring report reveals air pollutant concentrations of SPM, SO2 and NOx are well within the permissible limits as prescribed by National Ambient Air Quality Standards (NAAQS). The major air pollutant from the mining activity will be suspended particulate matter. SPM will be emitted during various stages of the mining activity like excavation, drilling, blasting, loading, Haulage, etc. The pollutants released into the atmosphere will disperse in the down wind direction and finally reach the ground at farther distance from the source. The concentration of ground level

concentrations mainly depends upon the strength of the emission source and micrometeorology of the study area.

4.3.1.2 Meteorological data

The meteorological data for the monitoring date, i.e., 01/12/2021 to 28/02/2022 was considered for the study. Data included for the AERMET processing were daily wind speed, wind direction, temperature, relative humidity, station pressure, precipitation, solar radiation, and cloud cover recorded during the period. AERMET reformats raw meteorological data as to be availed as input for AERMOD model.

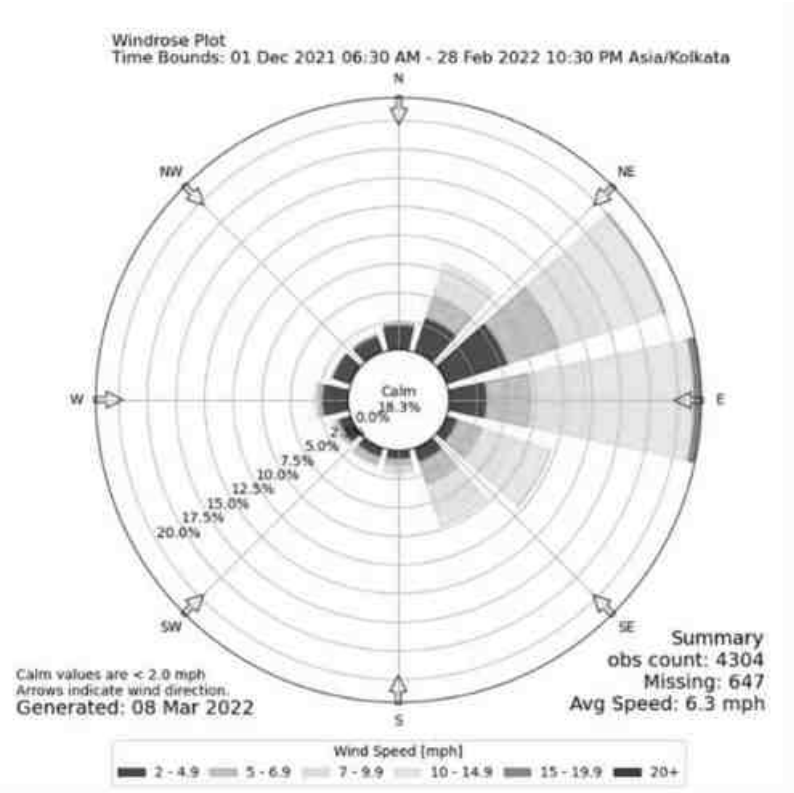

FIGURE 4.1: WINDROSE DIAGRAM OF THE PRO ECT SITE DECEMBER 2021 TO FEBRUARY 2022

Site eather summary for December 2021 to February 2022	
Average Temperature (°C)	25.3
Predominant Wind direction from	E & NE
Relative Humidity (%)	80.5
Average Wind speed (mph)	6.3

4.3.1 EMISSION CALCULATIONS FROM MINING AREA

Excavation by various activities in project area is construed as an area source which includes excavation pit(s) and activities happening in the excavation area like digging,

dozing, hauling, and loading/unloading. The dust emission from these areas will be fugitive in nature. The excavator operations, loading/unloading operations will also cause dust emission though it will be confined to the area of operation of the machinery. The gaseous emission from their operation shall be minimal and limited within the project. Transportation of excavated material from the project site to dumping sites are categorized as line source. Since the dumper movement on haul road will be within the project area, no adverse impact shall be felt in the settlement area.

Dust Dispersion Modeling for Excavation Operation

In the present study, United States Environmental Protection Agency (USEPA–42 series) approved mathematical equations have been used to predict concentrations for different operations in project including the material transportation. To predict the particulate emissions, Envitrans AERMOD Cloud. (Air Dispersion Modeling Software) an interface based on ISCST3 – was used to predict changes in air quality i.e., maximum ground level concentration (GLC's) of Particulate Matter. Short term model options were opted for uniform emissions rates. The air modeling was restricted to determination of PM10, PM2.5, SO2 and NO2 in the present case. The emission factors adopted for various project operations are mentioned below:

Emission Factor for Excavation and Material Loading/unloading

For excavation and material handling the emission factor has been adopted as per USEPA – 42 series.

For Dozing Operation:

EFPM10 (kg/hr) = 0.34 X s1.5(%) / M1.4(%)

Where,

EFPM10 (kg/hr) = emission factor in kg/hr

S = silt contents in percentage by weight

M = moisture content in percentage by weight

For Material Loading/unloading:

EFPM10 (kg/hr) = 0.34 [0.119 / M0.9]

Where,

EFPM10 (kg/hr) = emission factor in kg/ton

M = moisture content in percentage by weight.

Emission Factor for Material Haulage within Project:

The emission rate is dependent on several factors which include soil properties, climatic conditions, vehicular traffic, wind forces and machinery operation. The Empirical equation for calculation of emission rate is as under.

E= k*(1.7) *(s/12) *(S/48) *(W/2.7)0.7*(W/2.7)0.7 (w/4)0.5 * (365-p/365) g/VKT

Where,

E=Emission Rate

K = Particle size multiplier
s=Silt Content of the Road surface material
S= Mean Vehicle Speed (km/hr)
W=Mean Vehicle Weight (tons)
w=Mean number of wheels
p= Number of days with at least 0.254mm of precipitation per year

The Isopleths developed are shown in Figure 1.1 (a), Figure 1.1 (b), Figure 1.1 (c) and Figure 1.1 (d) for PM10, PM2.5, SO2 and NO2 respectively. The maximum GLC due to excavation, loading & unloading activities for PM10, PM2.5, SO2 and NO2 was found to be 10.4 µg/m^3 , 6.6 µg/m3 , 5.3 µg/m3 and 6.0 µg/m3 respectively and has been shown in Table 4.1

TABLE 4.1: MA IMUM GROUND LEVEL CONCENTRATION

S.No.	Pollutants	Max. GLC observed, (g/m3)	Distance and Direction
1	PM_{10}	10.4	1000, W
2	$PM_{2.5}$	6.6	1000, W
3	SO_2	5.3	1000, W
4	NO_2	6.0	1000, W

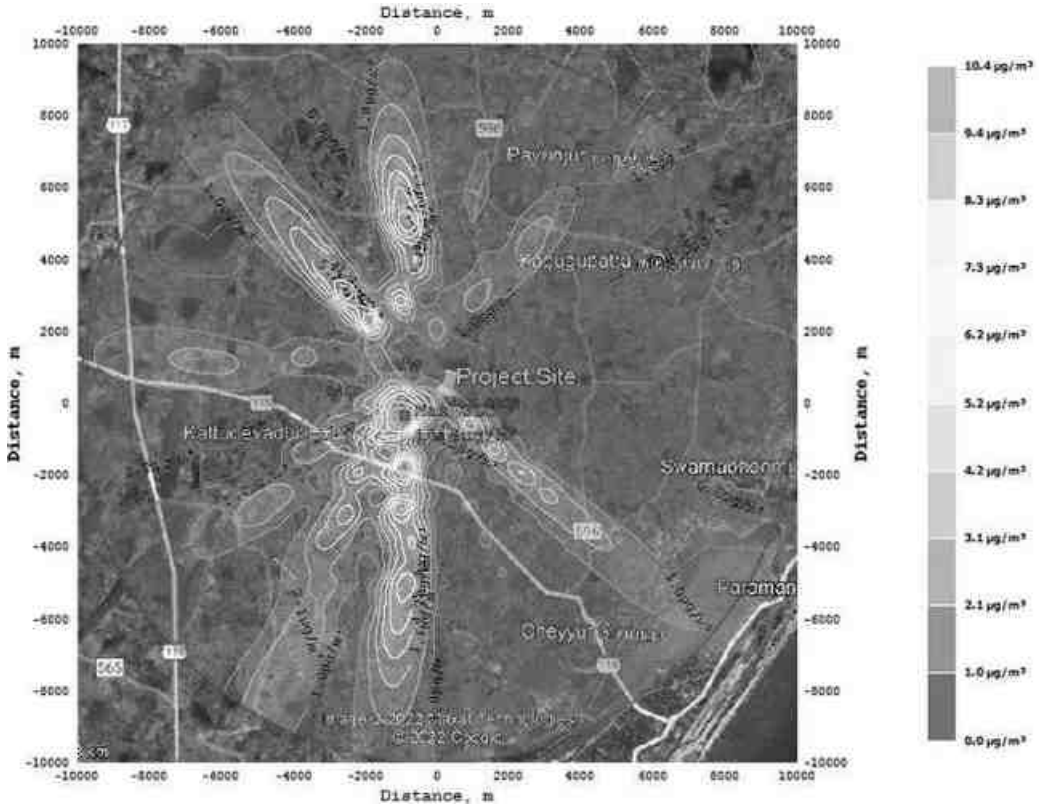

FIGURE 4.2: ISOPLETH OF MA IMUM PREDICTED 24 HOURLY GROUND – LEVEL CONCENTRATIONS FOR PM10

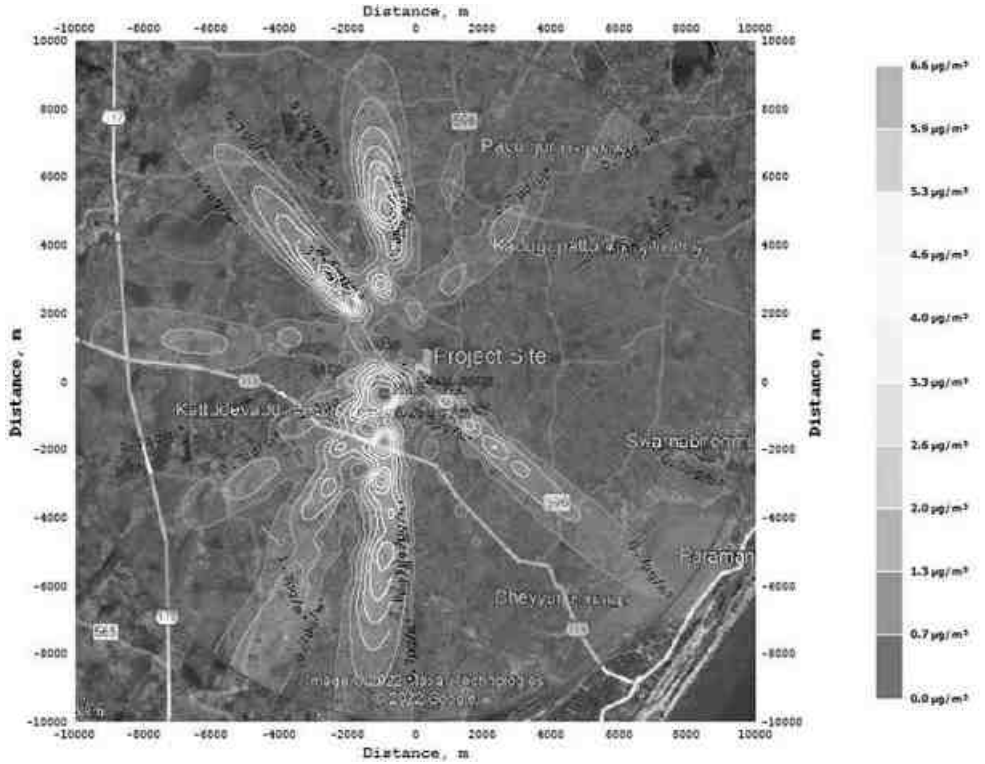

FIGURE 4.3: ISOPLETH OF MA IMUM PREDICTED 24 HOURLY GROUND – LEVEL CONCENTRATIONS FOR PM 2.5

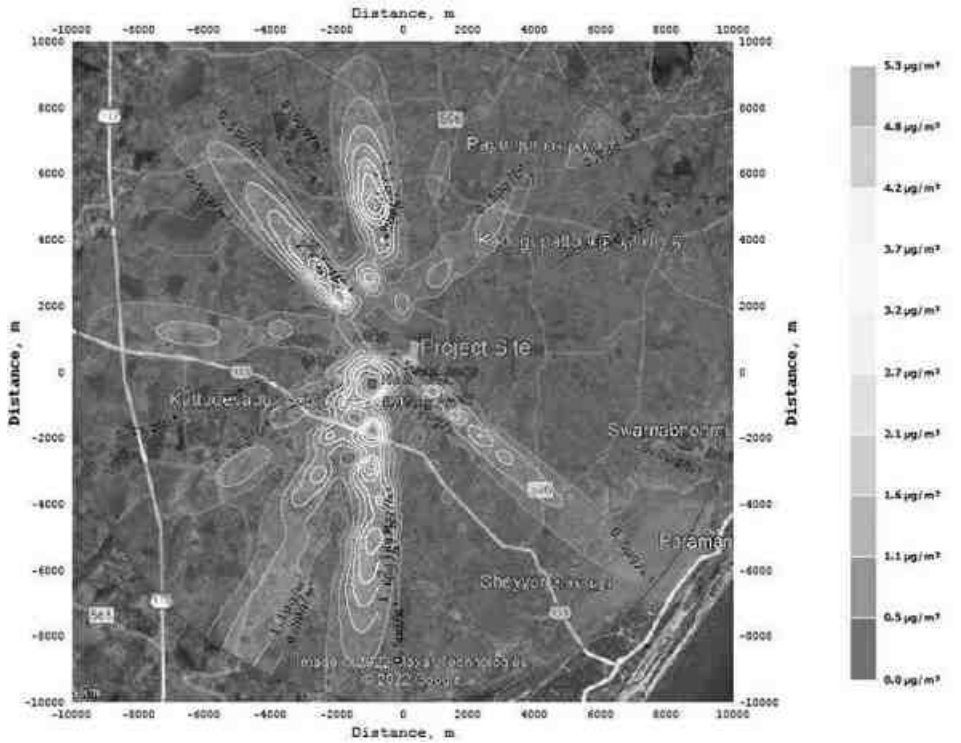

FIGURE 4.4: ISOPLETH OF MA IMUM PREDICTED 24 HOURLY GROUND – LEVEL CONCENTRATIONS FOR SO2

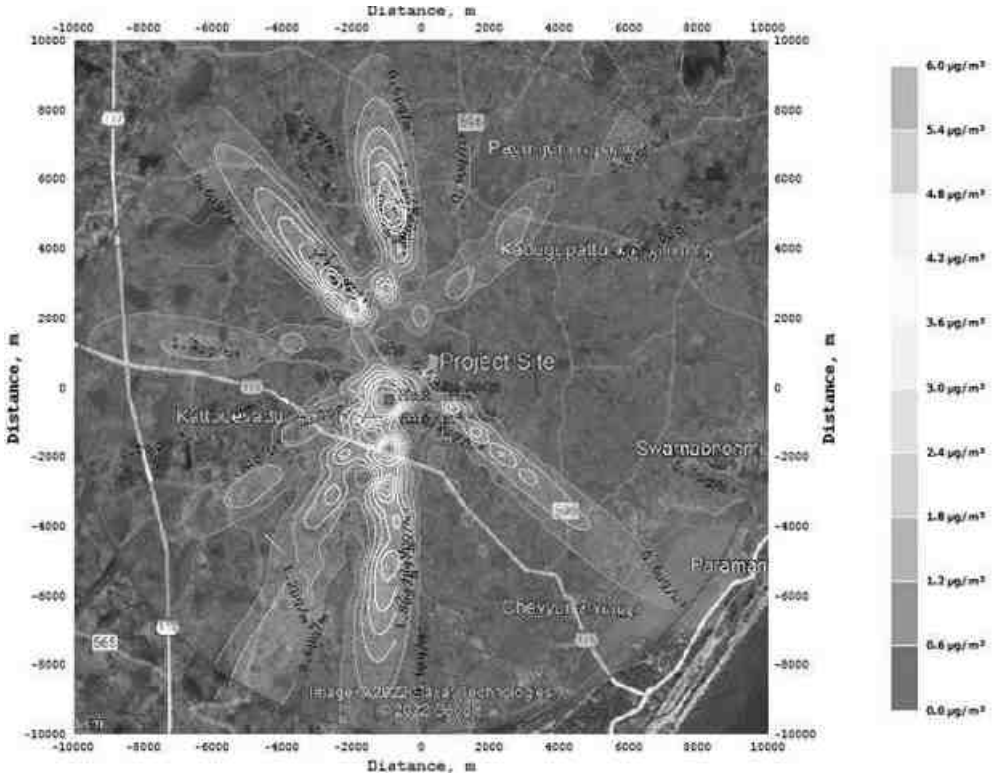

FIGURE 4.5: ISOPLETH OF MA IMUM PREDICTED 24 HOURLY GROUND – LEVEL CONCENTRATIONS FOR NO2

4.3.2 RESULTANT IMPACT

The resultant impact due to construction activities (excavation and crushing) on the ambient air quality for PM_{10}, $PM_{2.5}$, SO_2 and NO_2 at monitoring station project site respectively is presented in **Table 4.2** which shows that, the resultant concentration level is within the NAAQS.

TABLE 4.2: RESULTANT LEVELS DUE TO E CAVATION

S.No.	Locations	PM_{10} (g/m³)			$PM_{2.5}$ (g/m³)			SO_2 (g/m³)			NO_2 (g/m³)		
		Inc	Max	Total	Inc	Max	Total	Inc	Max	Total	Inc	Max	Total
1	AAQ-1	2.2	62.7	64.9	1.2	35.6	36.8	1	9.8	10.8	0.6	27.8	28.4
2	AAQ-2	4.4	61.5	65.9	2.3	34.5	36.8	1.5	10.4	11.9	2	28.2	30.2
3	AAQ-3	1	60.7	61.7	0.3	33.7	34	0.1	10	10.1	0.1	27.7	27.8
4	AAQ-4	1	60.1	61.1	0.3	32.9	33.2	0.1	11.9	12	0.1	31	31.1
5	AAQ-5	0.3	62.7	63	0.1	36.3	36.4	0.1	11.1	11.2	0.1	30.1	30.2
6	AAQ-6	2.4	62.4	64.8	1.2	35.3	36.5	1	11.3	12.3	1	29.3	30.3
7	AAQ-7	1.2	61.7	62.9	0.5	35.1	35.6	0.2	10.6	10.8	0.3	28.6	28.9
NAAQS (g/m³)		100			60			80			80		

4.3.3 OCCUPATIONAL HEALTH IMPACT

Progressive deposition of inhaled particles or dust results in major health problems. Smaller the particle size (less than PM2.5) higher is the chemical and biological reactivity. These smaller particles reach the deepest portion of the lungs. These micron sized particles, once air-borne, are extremely difficult to be collected or trapped. Lung functions are impaired due to both respirable and non-respirable dust particles. Chronic exposure leads to respiratory illnesses like asthma, emphysema, severe dyspnoea (shortness of breath), and bronchitis and in extreme cases pneumoconiosis or the black-lung disease of miners. The effect of dust may be harmful to the human health.

4.3.4 MITIGATION MEASURES IMPACT ON AIR QUALITY

Mitigate measures suggested for air pollution controls are based on the baseline ambient air quality of the area. From the point of view of maintenance of an acceptable ambient air quality in the region, it is desirable that air quality is monitored on a regular basis to check compliance of standards as prescribed by regulatory authorities. In case of non-compliance, appropriate mitigative measures need to be checked.

4.3.5 MEASURES TO PREVENT GENERATION AND DISPERSAL OF DUST

Dust particles, which are normally generated during mining operations, become air borne, thus leading to increase in particulate matter level in the ambient air. In the proposed mining activity adequate control measures will be adopted during both, mining operations as well as transportation of rough stone within the area.

Water sprinkling system already provided throughout the mine area especially on the mine roads carrying overburden dumpers. Presently tankers used for the dust suppression. The control measures already adopted are given below:

- Regular cleaning and removal of spillage from the roads are done regularly.
- Water spraying on haul roads, service roads and overburden dumps will help in reducing considerable dust pollution.
- Proper and regular maintenance of mining equipment.
- The treated mine water can be utilized for dust suppression in and around mine areas.
- Comprehensive green belt around overburden dumps has to be carried out to reduce to fugitive dust emissions in order to create clean and healthy environment.
- Land reclamation may be carried out for dumps where mining activities have been completed.
- The following additional measures will also be adopted such as,
- Dust generation will be reduced by using sharp teeth of shovels.
- Wet drilling will be carried out to control the dust.

- Controlled blasting techniques will be adopted.
- Charge per hole and charge per round will be optimized.
- Cabins for shovel and dumpers and dust masks to workmen will be provided.
- Information on wind direction and meteorology will be considered while planning, so that pollutants, which cannot be fully suppressed by engineering technique, will be prevented from reaching the residential areas.
- A good housekeeping and proper maintenance will be practiced which will help in controlling pollution.

The objective of the system is to eliminate the air borne dust or suppress the dust at its source. The system involves confinement of the dust within the dust producing area by a curtain of moisture and wetting the dust by direct contact between the particles and droplets of water. Adequate number of precision anti-clog nozzles will be installed at suitable locations for suppressing dust by spraying water mixed with suppressant. Suitable control for dust suppression will be provided and the system will be so inter-locked that it functions only when the conveyor system is operating, or the loading operation is on.

4.3.6 GREENBELT

Even with the various dust suppression measures in place, dust generated from mine faces, fine dust produced during blasting operations are difficult to control. Therefore, in addition to the above mitigative measures, it is proposed to have dense green belt in and around the mine site.

4.3.7 OCCUPATIONAL HEALTH & SAFETY MEASURES TO CONTROL DUST INHALATION

All the above precautions will be adopted to minimize dust generation at site and prevent dispersion in the outside environment. However, for the safety of workers at site, engaged at the strategic locations/dust generation points like drills, loading & unloading points, crushing etc., dust masks will be provided. Dust masks will prevent inhalation of RPM thereby reducing the risk of respiratory disorders. Regular health check-up of workers and nearby villagers in the impacted area (1 km from the core zone) should be carried out by the contractor and regular occupational health assessment of employees should be carried out as per the Factories Act.

4.4 IMPACT OF NOISE / VIBRATIONS & MITIGATION MEASURES

4.4.1 Noise Impact Due to Wor ing Environment

High noise levels pose a major health risk to the mine workers. When noise in the form of waves impinges the eardrum, it begins to vibrate, stimulating other delicate tissues and organs in the ear. If the magnitude of noise exceeds the tolerance limits, it is

manifested in the form of discomfort leading to annoyance and in extreme cases to loss of hearing. Detrimental effects of noise pollution are not only related to sound pressure level and frequency, but also on the total duration of exposure and the age of the person. The adverse effects of high noise levels on exposed workers may result in:

- Annoyance;
- Fatigue;
- Temporary shift of threshold limit of hearing;
- Permanent loss of hearing; and
- Hypertension and high blood cholesterol, etc.
- The following are the sources of noise in the Rough stone mine:
- Drilling & Blasting;
- Loading & unloading;
- Vehicular Movement.

The likely generation of noise levels, due to various mining activities will be as given in following **Table 4.3.**

TABLE 4.3 E PECTED NOISE LEVELS FROM MINING OPERATIONS AT SOURCE

Equipment's	**Expected Noise Levels dB(A)**
Drilling	80-90
Shovel	75-85
Tippers (2)	65-75
Compressor	75-85

TABLE 4.4: PREDICTED NOISE INCREMENTAL VALUE

Location ID	**Bac ground Value (Day) dB(A)**	**Incremental Value dB(A)**	**Total Predicted dB(A)**	**Residential Area Standards dB(A)**
Habitation Near Proposed Project Site	46.8	40.8	47.8	55

The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone)

4.4.2 IMPACTS DUE TO GROUND VIBRATION AND FLY ROCKS

As per the approved Mining Plan Controlled blasting will be carried out with the help of delayed detonators.

Ground vibration due to mining activities in the area are anticipated due to operation of mining machines like excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from this mine is blasting. The major impact of the ground vibrations can be observed on the domestic houses located in the villages surrounding the mine lease area. The kachha houses are more prone to cracks and damage due to the vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agriculture fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest major habitation from the mine lease area is in Venmani Village at 0.73 Km, NE. The ground vibrations at Venmari Village due to the blasting in Rough stone Mines are calculated using the empirical equation: It is proposed to use about 92Kg /day explosives for blasting for obtaining the desired stone production.

The empirical equation used for assessment of peak particle velocity (PPV) is:

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

Where

V= Peak particle velocity in mm/s

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

Q=Quantity of explosive per blasting in kg

TABLE 4.5: ESTIMATED PEAK PARTICLE VELOCITY FOR E PLOSIVE CHARGE

Distance from blasting site, m	Quantity of Explosive/Blast, Kg	PPV, mm/s
200	92	9.0
225	92	6.8
235	92	5.4
245	92	4.4
255	92	3.7
265	92	3.2
275	92	2.8
300	92	2.5
325	92	2.2

Distance from blasting site, m	Quantity of Explosive/Blast, Kg	PPV, mm/s
335	92	2.0

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

The standards for safe limit of PPV are established by Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. Permissible standards of Ground vibration due to blasting as per guidelines of Director General of Mines Safety (DGMS), Dhanbad are given in **Table 4.6**

TABLE 4.6: PERMISSIBLE PEAK PARTICLE VELOCITY (mm/s)

Type of Structure	Dominant Excitation Frequency, H		
	8 H	8 – 25 H	25 H
A Buildings/structures not belonging to the o ner			
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 Buildings belonging to o ner ith limited span of life			
Domestic houses/structures (Kuchha brick and cement)	10	15	25
Industrial buildings (RCC& framed structures)	15	25	50

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

From the above table, the blasting will not cause any significant ground vibrations in the area. The ground vibrations at nearest habitation will be well within the permissible limits recommended by DGMS. However, additional control measures needs to be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3 MEASURES FOR MINIMI ING IMPACTS NOISE CONTROL MEASURES

The following control measures will be adopted to keep the ambient noise levels well below the limits. The same will be continued and strengthen in proposed expansion project:

- Drilling will be carried out with sharp drill bits which help in reducing noise.
- Secondary blasting will be totally avoided, and Hydraulic rock breaker/jack hammer drills will be used for breaking boulders.

- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained.
- The blasting will be carried out during favorable atmospheric condition and between 12.00 Noon to 2.00 PM when there is less human activity.
- Proper maintenance, oiling and greasing of machines at regular intervals will be done to reduce generation of noise.
- Provision of sound insulated chambers for the workers deployed on machines producing higher levels of noise.
- Green Belt/Plantation will be developed around the mining activity area and a long haul roads.
- Personal Protective Equipment (PPE) like earmuffs/ear plugs will be provided to the operators and
- Periodical monitoring of noise will be done.

4.4.4 MEASURES TO CONTROL GROUND VIBRATION & FLY ROCKS

The blasting operations in the mine are carried out by deep hole drilling and blasting using delay detonators, which reduce the ground vibrations. The measures that are generally followed and currently proposed for abatement of ground vibration and fly rocks are detailed below:

- Proper quantity of explosive, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting.
- Proper blast design will be made to control ground vibration and fly rocks.
- Adequate safe distance from blasting will be maintained.
- The charge per delay will be minimized and preferably more number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity will be temporarily stopped;
- Drilling parameters like burden, depth, diameter and spacing will be properly designed to give proper blast.
- Muffle blasting using wire mesh and sand bags will be conducted at mine working near ML boundary towards habitation.

4.5 IMPACT ON WATER ENVIRONMENT & MITIGATION MEASURES

4.5.1 IMPACT ON IMPACT ON SURFACE WATER

There is no seasonal stream or nallah flowing through the mining area

The changed topography will alter the drainage within the mining lease area. However, there will not be any changes in the topography or drainage pattern outside the mining lease area. At the end of mining activities after reserves are exhausted, the area will be restored to an acceptable level of self-sustaining eco-system, green belt will be developed in safety zone and upper benches of mine area. No surface water will be utilized for mining operation. Moreover, there would not be any discharge from mine into the surface water body as no process waste water generation in the mine and allied activities. Hence there would not be any impact on surface water.

Only domestic effluent will be generated from the mine office and rest shelter. The domestic effluent is discharged in septic tank followed by soak pit. Besides, there will be no toxic element in the mined out material, which may contaminate ground/ surface water. It is, therefore, apparent that there will be negligible impact of mining on the surface water regime.

4.5.2 IMPACT ON GROUND WATER

The Rough stone and associated soil in the area does not contain any toxic material. Rough stone constitute of inert and chemically non-reactive ingredients. Also, there is no use of chemicals or hazardous substances in the mining process. Thus, ground water pollution is not envisaged due to the mining operations.

The Water in the area is 47-50m in summer pre monsoon season and 45-48m in post monsoon season which is observed from the nearby bore wells and data obtained from existing private boreholes The lease area is fully covered by Massive Charnokite formation. Hence the Ground water problem will not arise. The ultimate depth of mine will be 37m (2m Gravel + 35m Rough Stone).

Thus, the mining activities will not intersect ground water. The ground water may seep into the working mine pits. This water will be collected in mine sump created in the lower most part and will be allowed to accumulate. This water will be used for dust suppression and plantation. Considering small scale of mining operations, only small quantity of seepage water is expected. Thus, there will not be any significant impact in terms of lowering of ground water table in the nearby villages

Based on the experience in the nearby quarries, pumping of seepage water from the mine pit is not required due to small seepage potential. After completion of mining, the mined out pit will be developed into a reservoir by accumulating rainwater into it. Thus, this will help in improving ground water table in the area.

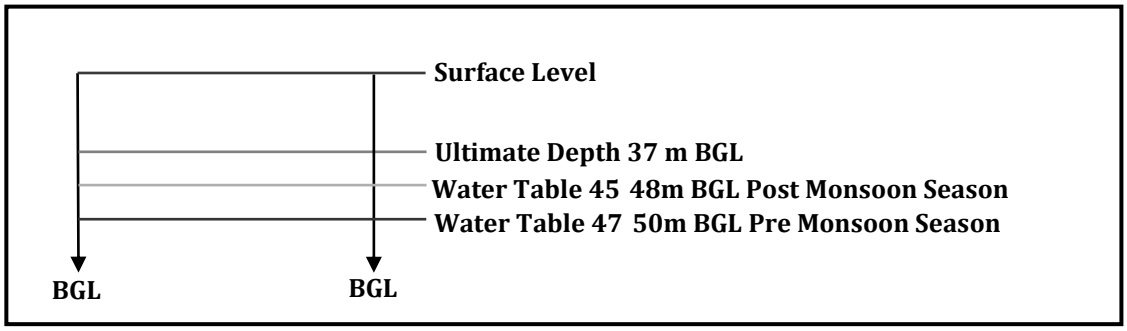

FIGURE 4.6: SCHEMATIC DIAGRAM OF MINE WORKINGS W.R.T. GROUND WATER TABLE

4.5.3 MITIGATION MEASURES FOR WATER ENVIRONMENT

- No wastewater will be generated during mining operation.
- Septic tanks and soak pits will be provided for the disposal of domestic wastewater generated from mine office.
- Garland drains will be provided to prevent the entry of rainwater into the mining pit.
- Construction of settling tanks at points to arrest silt.
- Rainwater falling in the mining pit will be collected in lower benches & will be used for dust suppression & plantation.
- Regular monitoring of ground water quality will be carried out.

4.5.4 MITIGATION MEASURES FOR WATER ENVIRONMENT

- No waste water will be generated during mining operation.
- Septic tanks and soak pits will be provided for the disposal of domestic wastewater generated from mine office.
- Garland drains will be provided to prevent the entry of rainwater into the mining pit.
- Construction of settling tanks at points to arrest silt.
- Rainwater falling in the mining pit will be collected in lower benches & will be used for dust suppression & plantation.
- Regular monitoring of ground water quality will be carried out.

4.5.4 ARTIFICIAL RECHARGE AND RAIN WATER HARVESTING

The mine management will Roof top harvesting structures in the public buildings in nearby villages with prior consent from local gram panchayats to collect rainwater and charge to ground through available dug well/ tube well**.** Also, the reservoir/dam in the nearby area will act as an additional source of water to the nearby villagers and will also help in recharging ground water table of the area.

The cluster area has potential to harvest rainwater water will be harvested in mining area in nonworking mining pits and will be utilized for dust suppression and plantation.

4.6 IMPACT ON LAND ENVIRONMENT& MITIGATION MEASURES

The land environment comprises of Geology, land use and soil the impact and mitigation of land all land environment component is given below.

4.6.1 IMPACT ON GEOLOGY

Mining is the extraction of valuable minerals or other geological materials from the earth. Mining activity is hence exploitation of Geology. Mining will lead to change in geological setting of the area. Mining will also change the geomorphology of the area i.e. the flat land topography of the area will change to undulating topography with pits. If mining is not done systematically, it may also generate hazards such as landslides i.e. dump failure in terms of mining. The impact of mining activity on geology will be limited to only cluster area of 5.96.00 Ha. The area is structurally with no occurrence of fault and no karst topography observed in area.

4.6.2 IMPACT ON LANDUSE

The Rough stone mining activity will slightly change the present landscape of the ML area. The land use of the area at the time of lease grant was Govt Land for which LOI issued by District Collector, Kancheepuram District. Any change in land use will lead to land degradation as the ecosystem of the area gets disturbed. The present topography of the ML area will be affected mainly due to Rough stone Mine and allied activities i.e. mineral transport and manual crushing. The potential adverse impact of opencast Rough stone mining will be in the form of change in land use pattern. So reclamation of mined out land will be given due importance as a step for sound land resource management in the form of reclaimed land and water body. The land use of mine lease area at present, at the end of mining plan period and at the end of mine life as per closure plan will be as follows:

TABLE 4.7: LAND USE OF LEASE AREA

Sr. No.	Activity	Area in Ha	
		Present	End of Plan Period (5Yrs)
1	Area under quarrying	0.44.4	1.87.7
2	Infrastructure	Nil	0.01.0
3	Roads	0.01.0	0.02.0
4	Plantation	Nil	0.45.0
5	Unutilized land	2.04.6	0.14.3
Total		**2.50.0**	**2.50.0**

No adverse impact is anticipated on land use of buffer zone associated due to the Rough stone mining, as all the activities will be confined within the project site only. Mined out Rough stone will be and will be further transported to the consuming industries to nearby consumers

4.6.3 IMPACT ON SOIL

No OB is expected to be generated during plan period. 100% ROM is saleable. The soil will be properly preserved in safety zone and will be utilized for plantation purpose. The silt may get carried to the nearby seasonal streams with the surface runoff during rains and may cause siltation of the seasonal water bodies located outside the mining area.

Sub grade material there is no overburden available in the lease which can be readily available for backfilling. There is no O/B or waste material available in the lease or nearby areas.

4.6.4 MITIGATION MEASURES FOR LAND ENVIRONMENT

- Mining activity will be carried out in planned manner as per approved mine plan.
- Mining bench dimension will be maintained for stability of area.
- Land reclamation will be carried out as per approved progressive mine closure plan.
- Thick Plantation will be carried out in safety zone to maintain the eco system of area which will be disturbed due to land degradation.
- Construction of Garland drains around mine lease area connected to settling tank will control soil erosion.
- Development of green belt around mine lease area and grasses plantation to control soil erosion.

4.7 SOCIO ECONOMIC ENVIRONMENT

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

4.7.1 IMPACT ON HUMAN SETTLEMENT

There is no human settlement in or adjacent to the cluster area of Rough stone Mine. Nearest human settlement from cluster area as Venmani Village~ 0.73 Km NE, there will not be any impact on the human settlement in the area. The operation of the Rough stone mine and associated activities will improve the economic development, civic amenities, and educational facilities in the project vicinity. Overall, due to employment

generation and economic progress, there will be positive changes in the socio-economic condition of the people residing in the vicinity of the project site.

4.7.2 EMPLOYMENT

This is a Rough stone mining project. The mine will provide manpower for 26 nos of persons (each Mine Block) for mine management and another for activities such as excavation, transportation etc. Mostly local persons will be employed in the mine. Additional manpower requirement in the mine will be employed from the nearby villages. Thus, there will not be any population growth in the area due to the Rough stone mining project.

4.7.3 IMPACT ON CIVIC AMENITIES

The existing infrastructure facilities are sufficient to cater the needs of the Rough stone mine. However, the mine management will take efforts as a part of CER for improvement in civic amenities like sanitation, drinking water facilities, transport road, etc in the nearby villages.

4.7.4 IMPACT ON HEALTH CARE FACILITIES

There are primary health care facilities in the nearby villages and hospital is available in Kancheepuram town. Mine management will also conduct periodic medical camps in the nearby villages as a part of CER.

4.7.5 IMPACT ON ECONOMIC ASPECTS

The mine will have fulltime (26 nos.) for mine management such as excavation, transportation etc. Mostly local persons will be employed in the mine. The local population will be given preference in employment. The employment potential will improve economic conditions of these families directly and provide employment to many other families indirectly who are involved in business and service oriented activities. This will, in-turn improve the quality of life in the region.

4.8 OCCUPATIONAL HEALTH & SAFETY

4.8.1 IDENTIFICATION OF WORK RELATED HEALTH HA ARDS

Details of the principle environmental and occupational risks that are likely to be created are given in **Table 4.8.**

TABLE 4.8: WORK RELATED HEALTH HA ARDS

Sr. No.	Ha ardous Activities	Type of Ha ards	Severity of Injury
1	Drilling	Exposed to high level of Noise	Hearing impairment
		Exposed to dusty environment	Respiratory diseases
2	Blasting	Struck by fly rock	Serious Physical injury
		Exposed to dusty environment	Respiratory diseases
		Exposed to high level noise	Hearing impairment
		Exposed to excessive vibration	Cracks to permanent structures
3	Loading	Struck by rolling big boulders	Serious injury and equipment damage
		Struck by fall of objects	Serious Physical injury
4	Transportation	Accidental runaway of vehicle	Serious injury, and equipment damage
		Fall of vehicle from height while reversing	
		Exposed to high level noise	Hearing impairment
		Fire in engine due to over heating	Serious Physical injury
5	Storage of oil, lubricant	Leaks and spills	Fire & vigorous chemical reaction
6	Battery maintenance handling	Acid spillage	Acid burns
7	Use/repair of hydraulic jacks & pumps	High pressure operation	Physical injury
		Oil spillage	
		Rupture of hydraulic hoses	

The mine management takes full responsibility for the protection of the workers against sickness, disease and injury arising out of their employment and have adopted certain principles about occupational health services, like establishing and maintaining a safe and healthy working environment which will facilitate optimal physical and mental health in relation to work.

The following occupational health measures shall also be adopted**:**

a) Identification and assessment of the risks from health hazards in the workplace;
b) Surveillance of the factors in the working environment and working practices which may affect workers health, including sanitary installations and canteens; and
c) Planning and organization of work, including the design of workplaces, choice, maintenance and condition of machinery and other equipment and substances used in work.

4.8.2 MEDICAL SURVEILLANCE AND E AMINATIONS

To evaluate the impacts from Rough stone mining project activities on health of workers, baseline health studies will be conducted on every worker before joining their duties.

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline status for determining changes in health
- Evaluating the effect of dust and noise on workers
- Enabling corrective action to be taken when necessary
- providing health education and awareness
- The medical surveillance program will consist of the following:
- Pre-employment medical examinations
- Periodic medical examinations
- Health & Safety awareness and training
- Record keeping

4.8.2.1 HISTORY:

The initial medical and occupational history cover previous exposure to dust, personal habits (e.g. smoking, etc.) and history of present or past respiratory disorders (particularly tuberculosis).

4.8.2.2 OCCUPATIONAL HEALTH MONITORING

All the employees in the mine will be subjected to pre-employment & periodic medical examination to assess the occupational health impacts. The tests will be conducted as per Form O as given in the Mines Rules, 1955 for the following parameters:

1. Height & Weight
2. Eyes
3. Ears
4. Respiratory Systems
5. Circulatory Systems
6. Abdomen
7. Nervous systems
8. Locomotory systems
9. Skin
10. Hydrocele
11. Hernia
12. Any other abnormality

13. Urine tests
14. Skiagram of chest
15. Complete Blood picture
16. Any other test considered by the Doctor

Based on the medical findings, the worker will be placed for appropriate jobs and necessary safety training will be provided.

4.8.2.3 AWARENESS AND TRAINING PROGRAM

All workers will be subjected to pre-employment and periodic awareness program on health and safety issues of mining and related activities. They would also be imparted with proper training and would be made to understand the health impacts of inhaling high concentration of dust laden air. All the workers will also be provided training in first aid.

- Holders of first aid certificate will be given refresher training once in two years
- Rescue trained person will acquire highest standards of proficiency in first aid
- Ambulance van will be provided fully equipped with life saving drugs, medicines and appliances needed in emergency

RECORD KEEPING

A Registered Medical Practitioner (Doctor) will be appointed for examining the workers. All the health records of the workers will be maintained in separate file in site office and the records will be regularly updated.

IMPLEMENTATION OF OH&S

For implementation of Occupational Health & Safety in the mining project, a safety committee will be formed. The hierarchy of the committee and responsibilities of individual members will be as shown in **Table 4.9.**

TABLE 4.9: OH&S COMMITTEE & ITS RESPONSIBILITIES

Sr. No.	Designation	Responsibility
1.	Mines Manager	Overall responsibility of Occupational Health & Safety in the Mines
2.	Mining Engineer / Foreman	Adherence to OH&S guidelines and provision of training and conducting awareness programs
3.	EH&S Manager	Assisting mines manager in ensuring Occupational Health, Safety and environmental compliance
4.	Doctor	Pre-employment and periodic examination / health check up

Sr. No.	Designation	Responsibility
		and updating the records, provision of first aid training.

4.8.3 PUBLIC HEALTH IMPLICATIONS OF THE PRO ECT

There is no human settlement in or adjacent to the cluster area of Rough stone Mine. Nearest human settlement from cluster area as Venmani Village~ 0.73 Km, NE direction. As observed from the modeling results, the dust emissions and noise from the mining project will not cause any significant impact on the ambient air quality and ambient noise levels in the surrounding villages. The mine will be operated during day time only. Thus, there will not be any disturbance to the nearby habitations during night. The mineral transportation will be carried out through existing mines road from mines. Thus, there will not be any disturbance to the normal traffic of the area. Also, the mine management will conduct periodic medical camps in the nearby villages to provide medical facilities to the villagers. Thus, no significant impact is envisaged on the public health due to the project.

4.9 IMPACT ON LOCAL TRANSPORT INFRASTRUCTURE I.E. TRAFFIC STUDY

SH-115 Cheyur to Vandavasi – 2.0 km SW direction

The total production from Lease is 3,19,240 m^3 of Rough stone will be handled per day for proposed mining project. The excavated Rough stone will be dispatched to the consuming industries through 20tonne capacity trucks/Dumpers to consumers from mine site. Considering 300 days of mine working in a year. About approx. 35-36 trips of 20 tonne capacity trucks will be required for transportation of Rough stone to user consuming industry. The Rough stone will be transported through the existing roads network.

Traffic study measurements were performed at one locations at confluence of SH-115 Cheyur to Vandavasi – 2.0 km SW direction to assess impact on local transport infrastructure due to this mining project.

The mineral from the proposed mining project will be loaded and transported through at SH-115 Cheyur to Vandavasi – 2.0 km SW. Excavated Rough stone will be dispatched as accordingly mentioned in **Table 4.10.**

TABLE 4.10: TRANSPORT ROAD DETAILS

Name of Road	Direction		Distance from project site
	Up	Do n	
Highway (SH 115)	Cheyur	Vandavasi	2.0 Km, SW direction

Traffic data was collected continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift- one person on each of the two directions for counting the traffic. Counted data sheet is provided in **Table 4.11** and PCU is also calculated**.** At the end of each hour, fresh counting and recording was undertaken.

FIGURE 4.7: ROAD CONNECTIVITY MAP WITH FOR TRAFFIC MONITORING

TABLE 4.11: TRAFFIC VOLUME COUNT SURVEY (HOURLY)

S. No.	Vehicle Distribution	No. of Vehicles/Day		Total Number of Vehicle in PCU/Day		
		To ards Cheyur	To ards Vandavasi	Equivalent Factor	To ards Cheyur	To ards Vandavasi
1.	Two Wheelers	65	69	0.5	33	35
2.	Three Wheelers	28	31	1	28	31
3.	Cars	35	38	1	35	38
4.	Bus	15	16	3	45	48
5.	Tractor	8	6	4	32	24
6.	Trucks	21	24	3	63	72
	TOTAL	**172**	**184**		**236**	**248**

TABLE 4.12: E ISTING TRAFFIC SCENARIO AND LOS

Road	Total V (Volume in PCU/day)	C (Capacity in PCU/day.)	Existing V/C Ratio	LOS
High ay (SH 115)	484	1500	0.32	B

V = Volume in PCU's /hr, C= Capacity PCU's /hr, LOS = Level of Service

V/C	LOS	Performance
0.0 – 0.2	A	Excellent
0.2 – 0.4	B	Very Good
0.4 – 0.6	C	Good
0.6 – 0.8	D	Fair/ Average
0.8 – 1.0	E	Poor
1.0 & Above	F	Very Poor

Note: IRC is accepting the fact that, in Indian roads the real congestion starts when V/C ratio is >1, i.e. for forced flow. Till this limit the road is free for traffic movement without any impediments. Hence it is acceptable as normal up to V/C = 1 and the performance will be taken as good only.

During Mine Operation

Total Capacity of cluster mine	327178 M^3
No. of working days	300
Extraction and Transportation of mineral	218.11 m^3/day
Working hours per day	8
Dumpers Capacity m^3	6
Frequency of trucks/Dumpers deployed/day	36 trips per day approx..

TABLE 4.13: MODIFIED TRAFFIC SCENARIO AND LOS

Road	Increased Volume in PCU/day	Volume (V)	Capacity (C)	Modified V/C Ratio	LOS
High ay (SH115)	136	484+36=1506	1500	0.34	B

Not much impact on local transport. The LOS value from the proposed mining project will not change; the performance change remains Very Good (B). The existing roads network will be sufficient to cater the transport needs of the mine. However, mine management will periodically maintain the transport road in proper condition to avoid any impacts on traffic infrastructure. Rough stone will be transported in trucks covered with tarpaulin. Major part of transportation will comprise of local or state highway which will be periodically maintained.

4.10 IMPACT ON BIOLOGICAL ENVIRONMENT

IMPACT ON TERRESTRIAL FLORA

- Dust deposition on leaf lamina observed on nearby local plant species which may results in decline the rate of photosynthesis and retards the plant growth.

MEASURES FOR MINIMI ING IMPACT ON FLORA

- Dust issues are mainly raised in the area due to unpaved road, cumulative fugitive dust emissions by various mining activities.
- To mitigate the impact regular water sprinkling will be carried out within the mine lease area as well as approach road.
- Stabilization of soil/waste dumps by grass cover shall be done.

IMPACT ON WILDLIFE

- There is no Wildlife Sanctuary and Biosphere Reserve within 10 km radius of the project site.
- No rare, endemic & endangered species are reported in the buffer zone. However, during mining, the management will practice scientific method of mining with proper Environmental Management Plan including pollution control measures especially for air and noise, to avoid any adverse impact on the surrounding wildlife.
- Fencing around the mine lease area to restrict the entry of stray animals
- Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

MEASURES FOR MINIMI ING IMPACT ON FAUNA

Following measures will be adopted to minimize the impact of mining on faunal environment of the area.

- Measures will be taken to curb pollution due to mining activities on air, water, land & noise environment. Plantation around mine area will help in creating habitats for

small faunal species and to create better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

STUDY OF IMPACT ON AQUATIC ECOLOGY

- Mining activities will not disturb the existing aquatic ecology as there is no effluent discharge proposed from the Rough stone mine.
- Mining activity may increase sediment load and total dissolved solids in streams due to, surface run off, erosion activity of loosened soil especially during rainy season and may affect water quality of natural water body and stream within mine lease area.

4.10.1 MITIGATION MEASURES

- Periodic maintenance of mineral transport road.
- Covered Transport of stone mine to consuming industry.
- Development of thick plantation around mine lease area
- Monitoring of dust fall at agriculture land located nearby the mining area

4.11 GREENBELT DEVELOPMENT & PLANTATION PROGRAMME

Proposed Greenbelt Development & Plantation Programme

It is proposed to develop plantation at 2 M x 2 M spacing, the rate of survival is aimed at 70 to 80% by regular watering & fencing to keep plants safe from animal grazing. Local species will be planted in consultation with local horticulturist. Diseased plants will be replaced by planting new saplings.

The basic approach towards the development of Green belt /plantation in the lease area is with a view to provide an aesthetic look, eliminating fugitive emissions and for controlling the impact of noise, etc. A Green Belt will be developed based on the following principles:

- Plants that grow fast will be preferred.
- Preference for high canopy covers plants with local varieties
- Perennial and evergreen plants will be preferred.
- Plants having a high Air Pollution Tolerance Index (APTI) will be preferred.
- The development of green belt is an important aspect for any project because:
- It improves the ambient air quality by controlling Suspended Particulate Matter in air.
- It helps in noise attenuation for the surrounding area.
- It helps in attracting new birds and insects as their habitation.
- It maintains the ecological balance.
- It increases the aesthetic value of site.

Plantation along the Safety one

Thick plantation will be carried out on the safety barrier and undisturbed area within the mine lease. Also, plantation will be developed around temporary waste dumps. Soil generated during mining will be separately stacked and will be used for plantation.

TABLE 4.14: PROPOSED AFFORESTATION PROGRAM

Year	No. of tress proposed to be planted	Survival	Area to be covered sq.m	Name of the species	No. of trees expected to be gro n
I	100	80%	900	Neem, Pongamia pinnata, Casuarina, etc.,	80
II	100	80%	900		80
III	100	80%	900		80
IV	100	80%	900		80
V	100	80%	900		80

Selection of plant species with special reference

TABLE 4.15: SELECTION OF PLANT SPECIES WITH SPECIAL REFERENCE

Sr. No.	Plant species	Common Hindi Name	Purpose of plantation of species
1.	*Aegle marmelos*	Bael	Pollution Tolerant Plants Automobile
2.	*Albizzia lebbeck*	Shirish ke phool	
3.	*Butea frondosa*	Palash	
4.	*Alstonia scholaris*	Saptaparna	Best dust filtering capacity Plants
5.	*Ailanthus excelsa*	Adu Ghoda Neem	
6.	*Ficus benghalensis*	Banyan	
7.	*Ficus religiosa*	Peepal	
8.	*Cassia fistula*	Amalatas	Exhaust pollution Control Plants
9.	*Delonix regia*	Gulmohar	
10.	*Phyllanthus emblica*	Amla	Medicinal value Plants
11.	*Terminalia cattapa*	Jungali Badam	
12.	*Azadiracta indica*	Neem	
13.	*Tectona grandis*	Sagwan	Economic value Plants
14.	*Pongamia pinnata*	Karanj	
15.	*Shorea robusta*	Sal	
16.	*Cymbopagon martini*	Gandhabel	Soil Conservation Plants
17.	*Ziziphus jujube*	Bada Bare	Fruit bearing Plants
18.	*Psidigium guava*	Amrud	
19.	*Syzygium cumini*	Jamun	
20.	*Mangifera indica*	Mango	

Sr. No.	**Plant species**	**Common Hindi Name**	**Purpose of plantation of species**
21.	*Dalbergiasisso*	Seesam	Nitrogen Assimilation Plants
22.	*Cassia siamea*	Kassod	
23.	*Polyalthia longifolia*	Devdaru	Aesthetic beautification Plants

CHAPTER 5: ANALYSIS OF ALTERNATIVES

5.1 SITE ALTERNATIVES

A comparison of alternatives helps to determine the best method of achieving the project objectives with minimum environmental impacts or indicates the most environment friendly and cost-effective options. Every mine needs to be planned in a way that the mineral is extracted to the maximum extent without causing severe irreversible environmental damages. The mine plan and mine closure plan has been approved by the competent Authority prior to submission of the Form-1 and PFR.

5.2 ANALYSIS OF ALTERNATIVE TECHNOLOGY

5.2.1 CHOICE OF METHOD OF MINING

The mechanized method will be adopted because of the following reasons:

- Mining operations is proposed to be carried out by opencast mechanized method by deploying drilling and blasting method, loader and tipper/dumper combination.
- There is no overburden present.
- The mineral i.e. Rough stone is available at surface.
- The mining by opencast method is highly productive & economical as compared to underground method; and
- Underground mining is not economical and practically not feasible in the present case.

Hence, conventional open cast mechanized method of mining involving excavation through drilling and blasting will be done with excavated material will be loaded with into tipper and transported to consumer.

CHAPTER 6: ENVIRONMENTAL MONITORING PROGRAMME

6.1 INTRODUCTION

Post Environmental Clearance Monitoring is an essential part to check the impact of project related activity. Hence monitoring of various environmental parameters will be carried out on a regular basis to ascertain the following as:

- Status of Pollution within the mine site and in its vicinity.
- Generate data for predictive or corrective purpose in respect of pollution.
- Examine the efficiency of pollution control system adopted at the site.
- To assess environmental impacts.

Monitoring will be carried out at the site as per the norms of CPCB. Environmental Monitoring Programme has been/will be conducted for various environmental components as per conditions stipulated in Environmental Clearance Letter issued by SEIAA & Consent to Operate issued by TNPCB.

Six monthly compliance reports will be submitted to TNPCB/MOEF for the periods of January to June and July to December will be submitted on regular basis on 1st June and 1st December of each calendar year. Quarterly compliance Report for conditions stipulated in Consent to Operate will be submitted to TNPCB on regular basis.

6.2 FORMATION OF ENVIRONMENTAL MANAGEMENT CELL (EMC)

Monitoring is as important as that of control of pollution since the efficacy of pollution control measures adopted can only be determined by monitoring. An Environmental Management Cell will be established for implementing the Environmental Management Plan and conducting periodic environmental monitoring of important and crucial environmental parameters to assess the status of environment regularly during mine operations. With the knowledge of baseline conditions, the monitoring program will serve as an indicator for any deterioration in environmental conditions due to operation of the mine and so that suitable additional mitigation steps could be taken in time to safeguard the environment. The organizational chart of Environment Management Cell is as given in **Figure 6.1**.

6.3 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

The mitigation measures suggested in **Chapter 4** will be implemented to reduce the impact on environment due to the operations of the Rough stone mining projects. To

facilitate easy implementation of mitigation measures, these are phased as per the priority implementation as given in **Table 6.1**.

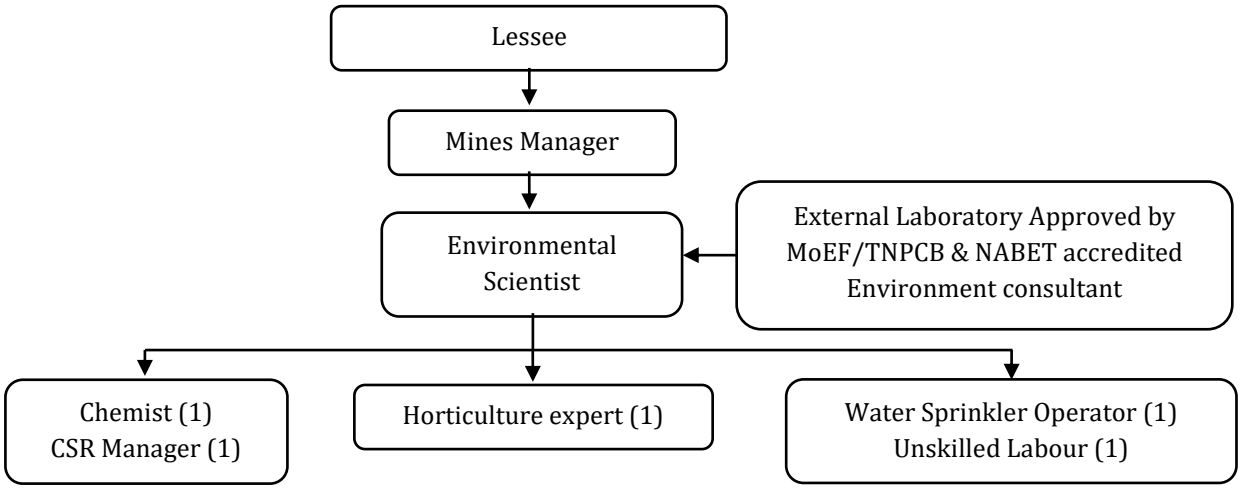

FIGURE 6.1: ORGANI ATION CHART OF ENVIRONMENTAL MANAGEMENT CELL (EMC)

6.3.1 RESPONSIBILITIES OF EMC

The responsibilities of the EMC include the following:

A. Environmental monitoring of the core and buffer zone.
B. Commissioning of pollution control equipment.
C. Specification and regulation of maintenance schedules for pollution control equipment.
D. Ensuring that standards are maintained.
E. Developing the green belt.
F. Ensuring optimum water usage.
G. Carrying out the Environmental Management Plan.
H. Organizing meetings of the Environmental Management Committee and reporting to the committee.

TABLE 6.1: IMPLEMENTATION SCHEDULE

Sr. No.	Recommendations	Time Requirement	Schedule
1	Air pollution control measures	Will be further improved at the time of start of mine after grant of EC and lease renewal.	Immediate
2	Water pollution control measures	Will be further improved at the time of start of mine after grant of EC.	Immediate

Sr. No.	Recommendations	Time Requirement	Schedule
3	Noise control measures	Will be further improved at the time of start of mine after grant of EC.	Immediate
4	Ecological preservation and upgrade	May be started before grant of EC and will be continued in phase-wise manner till life of the mine.	Immediate & Progressive

6.4 MEASUREMENT METHODOLOGIES

6.4.1 INSTRUMENTS TO BE USED

The following instruments are being used for data collection work in the monitoring schedule:

1. Respirable Dust Sampler (RDS)
2. Fine Particulate Sampler (FPS)
3. Dry and Wet Bulb Thermometer.
4. Sound Level Meter
5. Micro Meteorological Station
6. Water Level Indicator
7. Global Positioning System (GPS)

In addition to the above instruments, the data on land use, vegetation and agricultural crops will be collected by the field team by meeting with many local inhabitants in the study area and different government departments /agencies.

6.4.2 MONITORING PROGRAMME

The environmental monitoring for the Rough stone mine operations will be conducted for following aspects:

- Ambient Air quality
- Water table depth
- Surface and ground water quality
- Ambient Noise Levels
- Soil Quality
- Green belt & Plantation
- CSR Activities

The following routine monitoring program will be implemented under the post-project

monitoring. Environmental monitoring of ambient air quality, surface and ground water quality, ambient noise levels, etc. will be carried out through MOEF accredited agencies regularly and reports will be submitted to TNPCB/MoEF.

Air Pollution

The ambient air quality will be monitored as per EC Conditions/Central Pollution Control Board guidelines at one location in mine lease area and four locations in nearby villages.

Water Table Depth

The depth of ground water table in the area will be monitored regularly in the wells/ borewell located in four nearby villages. The water table depth at Pre-monsoon (May month) and Pre-Monsoon (November Month) will be measured and records will be maintained.

Water quality

Ground water samples from four villages surrounding the project area will be analyzed. The water quality monitoring will be carried out once during every season. Surface water sample will be collected from mine pit, when available.

Ambient Noise Levels

Noise levels in the core zone and in surrounding villages will be monitored regularly. Ambient noise level monitoring will be carried out at 1 location in mine lease area and in 7 locations in nearby villages. Noise level monitoring will be conducted once in each season.

Soil quality

Soil quality monitoring will be carried out in the plantation area within the mine lease area and in the agricultural fields located nearby the mine lease area. 1 sample from core zone in mine lease and 3 samples from nearby villages will be collected and analyzed, once in a year, preferably during dry season.

CSR Activities

Social welfare activities conducted in nearby villages will be regularly monitored for their effectiveness and accordingly new activities will be planned.

6.4.2.1 MONITORING SCHEDULE

The proposed environmental monitoring schedule is given in **Table 6.2**.

TABLE 6.2: PROPOSED ENVIRONMENTAL MONITORING SCHEDULE

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, $PM_{2.5}$, PM_{10}, SO_2 and NO_x.
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

6.5 ENVIRONMENTAL POLICY

6.5.1 Environmental Policy of the Company

Environmental policy by lessee is attached as **Annexure I**

6.5.2 Organi ation Set up

The company has clearly defined duties and responsibilities for the employees. Organizational setup for environment management is shown in **Figure 6.1.**

6.5.3 Environmental Management Cell

An Environmental Management Cell (EMC) will be established in the mine under the control of Mines Manager. The EMC will be headed by an Environmental scientist having adequate qualification and experience in the field of environmental management. The responsibilities of EMC will be as follows:

1. Implementation of pollution control measures as suggested in Environmental Management Plan and recommended in EC
2. Conducting environmental monitoring as per EMP and EC stipulation through external laboratories approved by MoEF/TNPCB and NABL
3. Ensuring compliance with other conditions stipulated in Environmental Clearance for the project.
4. Ensuring compliance with the conditions stipulated in 'Consent to Operate' for the project.
5. Timely submission of compliance status to MoEF/ TNPCB
6. Seeking experts' guidance, as and when required.
7. Conducting CSR activities in nearby villages.

6.5.4 Audit & Revie

Review and audit is essentially a management tool. However, its application is crucial at the operational level for verification and feedback on the effectiveness of organization system and environmental performance. Basically, auditing involves in the following items:

- Line management system
- Awareness and training
- Procedures: standards, targets
- Plans: Waste, contingency, pollution control compliance
- Verify environmental impact assessment
- Verify mitigation
- Reporting and communication
- Documentation
- Feedback

Internal Audit:

A system of auditing will be undertaken for mining operations and includes the use of trained internal and external auditors. In addition, auditing should be undertaken to ensure compliance with all the applicable legislations.

Audit Type Frequency:

- Internal: - From other site in-charge every 6 months
- External - independent expert Every 12 months

The company shall depute internal / external auditors who are trained and certified as competent EMS auditors by an independent and external standard organization. The results of monitoring and auditing shall be regularly reported through the senior management team to ensure that action items are addressed.

6.5.5 Non conformity, Corrective Action and Preventive Action

As per the Environmental Policy of the company, non-conformities, corrective actions, and preventive actions shall be managed in accordance with *Nonconformance, Preventive and Corrective Action Procedure.* This procedure, which relates to all projects of the company, details the processes to be utilized with respect to the identification of non-conformances, the application of appropriate corrective actions(s) to address non-conformances and the establishment of preventive actions to avoid non-conformances. The key elements of the process include:

- identification of Non-conformance and /or Non-compliances
- Recording of Non-conformance and/or Non-compliance
- Evaluation of the Non-conformance and/or Non-compliance to determine specific corrective and preventive actions
- Corrective and preventive actions to be assigned to responsible persons and
- Management Review of corrective actions to ensure the status and effectiveness of the actions

6.5.6 Management Revie

A comprehensive review of the objectives and targets associated with the individual project of the company shall be undertaken on an annual basis via the business planning (1 year outlook) and business strategy (5-year outlook) processes. These reviews, which include involvement from the senior site management and other key personnel, assess the performance of the mine over the previous year and develop goals and targets for the following period.

6.6 OCCUPATIONAL HEALTH AND SAFETY

Occupational health and safety are very closely related to productivity and good employer-employee relationship. The main factors of occupational health in mine are fugitive dust and noise. Safety of employees during operation and maintenance of mining equipment and handling of explosive materials is to be taken care of as per the Mine Regulations, 1965 and circulars of DGMS. To avoid any adverse effects on the

health of workers due to dust, heat, noise and vibration, sufficient measures are proposed in the EMP. These include:

- Provision of rest shelters for mine workers with amenities like drinking water, toilets etc.;
- Provision of personnel protection devices for the workers;
- Rotation of job for workers exposed to high noise areas;
- First-aid facilities.
- Occupational Health Survey of the employees will be carried out at regular intervals.

6.7 BUDGETARY ALLOCATION FOR ENVIRONMENTAL MONITORING

The details of monitoring of pollution along with annual recurring cost are given in **Table 6.3**.

TABLE 6.3 COST OF ENVIRONMENTAL MONITORING PROGRAMME

S. No.	Description of item	Capital Cost (Rs.)
1	Air Pollution Control - Water sprinkling on haul road & plantation	52,000
2	Water Pollution Control (Settling tank, Garland Drains, etc.)	18,000
3	Noise Level Monitoring	2,000
4	Ground Vibration Test	4,000
Total EMP Cost		**76,000**
Total EMP Cost for five years		**3,80,000**

CHAPTER 7: ADDITIONAL STUDIES

7.1 PUBLIC CONSULTATION

Draft EIA/EMP for Proposed Rough stone Mine in an area of 2.50.0 Ha, located in Survey Nos. Survey Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District., Tamil Nadu is prepared as per the TOR issued by SEIAA, Tamil Nadu and the report is submitted for public consultation process as per the provisions of EIA Notification 2006 and amendments thereof.

After completing the public consultation process, the issues raised and commitment of Project Proponent during the public hearing will be incorporated in the final EIA/EMP report. The following Additional Studies were/will be carried out in as per Terms of Reference: Risk Assessment & Disaster Management Plan.

7.2 RISK ASSESSMENT

Hazard analysis involves the identification and quantification of various hazards (unsafe conditions) that exist in the mines. On the other hand, risk analysis deals with the identification and quantification of risks, mining equipment and personnel are exposed to, due to accidents resulting from the hazards present in the mine. Risk analysis follows an extensive hazard analysis. It involves the identification and assessment of risks the neighboring populations are exposed to because of hazards present.

In the sections below, the identification of various hazards, probable risks, maximum credible accident analysis, and consequence analysis are addressed which gives a broad identification of risks involved. Based on the risk estimation disaster management plan must be prepared.

The mining will be carried out under the management control and direction of a qualified Mine Manager holding a second-class manager's certificate of competency. The DGMS have been regularly issuing standing orders, model standing orders and circulars to be followed by the mine management in case of disaster, if any. Moreover, mining staff will be sent to refresher courses from time to time to keep them alert. However, following natural/industrial hazards may occur during normal operation:

- Accident due to explosives;
- Accident due to heavy mining equipment; and

To take care of above hazard/disasters, the following control measures will be adopted:

- All safety precautions and provisions of the Mine Act, 1952 and the Mines Rules, 1955 will be strictly followed during all mining operations;
- Entry of unauthorized persons will be prohibited;

- Firefighting and first-aid provisions in the mine office and mining area;
- Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use;
- Training and refresher courses for all the employees working in hazardous premises; Under mines rules all employees of mines shall have to undergo the training at a regular interval;
- Working of mine, as per approved plans and regularly updating the mine plans;
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines;
- Suppression of dust on the haulage roads;
- Increasing the awareness of safety and disaster through competitions, posters and other similar drives.

7.2.1 Measures to Prevent Accidents due to Truc s and Dumpers

- All transportation within the main cluster area would be carried out under the direct supervision and control of the management;
- The vehicles will be maintained in good repairs and checked thoroughly at least once a week by a competent person authorized for this purpose by the management;
- Broad signs would be provided at each and every turning point specially for the guidance of the drivers;
- To avoid dangers while reversing the vehicles, all areas as far as possible, will be made man free and
- A statutory provision of the fence, constant education, training etc. will go a long way in reducing the incidence of such accidents.

7.2.2 POST COVID HEALTH MANAGEMENT PLAN FOR P1 TO P3

COVID – 19 ailments as a result of SARS-CoV-2 Coronavirus is exceptionally a brand new disorder, with sparkling data being known on a dynamic basis approximately the natural history of the ailment, specifically in terms of post-healing occasions.

After acute COVID-19 illness, recovered sufferers might also preserve to record wide sort of signs and signs and symptoms including fatigue, body pain, cough, sore throat, trouble in respiration, and so forth. As of now there is limited evidence of submit-COVID sequalae and similarly studies is needed and is being actively pursued. A holistic method is needed for follow up care and nicely-being of all post COVID getting better patients.

Post COVID Follo Up Protocol –

- Keeping COVID appropriate behavior (use of mask, hand & respiratory hygiene, bodily distancing).
- Drink adequate amount of heat water (if not contra-indicated).

- Make sure your places of work are smooth and hygienic
- Surfaces (e.g. desks and tables) and gadgets (e.g. phones, helmet) want to be wiped with disinfectant often
- Positioned sanitizing hand rub dispensers in prominent locations around the place of work. make certain these dispensers are regularly refilled
- Displaying posters regarding hand-washing
- Make certain arrangement that workforce, contractors and clients have get right of entry to places wherein they could wash their fingers with soap and water
- Display posters promoting breathing hygiene.
- Brief your personnel, contractors and clients that if COVID-19 starts off evolved spreading for your community everyone with even a mild cough or low-grade fever (37.three°C or extra) want to live at home. They must additionally stay home (or earn a living from home) in the event that they have had to take easy medications, consisting of paracetamol/acetaminophen, ibuprofen or aspirin, which may also mask symptoms of infection
- Keep communicating and selling the message that people need to stay at home even though they have just moderate signs of COVID-19.
- Recall whether a face-to-face assembly or occasion is wanted. ought to it be replaced by way of a teleconference or online event?
- Should the assembly or event be scaled down in order that fewer humans attend?
- Pre-order sufficient supplies and materials, such as tissues and hand sanitizer for all employees. Have surgical mask available to provide every person who develops respiration signs.
- it's also suggested with the aid of the Ministry of AYUSH that the use of Chyawanprash within the morning (1 teaspoonful) with luke heat water/milk is tremendously advocated (underneath the path of Registered Ayurveda physician) as in the clinical exercise Chyawanprash is believed to be powerful in put up-restoration duration.
- If there's continual dry cough / sore throat, do saline gargles and take steam inhalation. The addition of herbs/spices for gargling/steam inhalation. Cough medicinal drugs must be taken on recommendation of clinical medical doctor or qualified practitioner of Ayush.
- Search for early warning symptoms like high grade fever, breathlessness, Sp02 < 95%, unexplained chest ache, new onset of misunderstanding, focal weakness.
- Avoid smoking and intake of alcohol.
- Talk in your personnel and contractors approximately the plan and ensure they are aware of what they need to do – or no longer do – below the plan. Emphasize key points which include the importance of staying faraway from work even though they have got only moderate symptoms or have had to take easy medicines (e.g. paracetamol, ibuprofen) which can also masks the signs

- The plan must deal with a way to preserve your commercial enterprise running although a extensive variety of personnel, contractors and suppliers cannot come for your administrative center - both because of local restrictions on journey or because they're unwell.

7.3 DISASTER MANAGEMENT PLAN

The disaster management plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this order of priorities. The disaster/ emergency situations will be countered with an organizational chart entrusting responsibility to various mine personnel with their specific roles during emergency and will be updated from time to time.

- Aid and medical care for victims;
- Protect other people;
- Minimize damage to property and the environment;
- Initially contain and finally control the accident;
- Ensure the safe rehabilitation of the affected area; and
- Retain relevant documents and equipment for later investigation of the cause and circumstances of the emergency

The composition of the disaster management team will be:-

1. Mines Manager
2. Site Supervisors/ Foremen
3. Personnel/Administrative Manager/Environmental Manager
4. First Aid Expert/ Medical Coordinator
5. Transport in-charge

For effective implementation of the disaster management plan, the following facilities would be widely circulated and personnel training through rehearsals/drills.

Infrastructure at site

1. Emergency Control Room

Site office will be used as Emergency Control Room. Following facilities will be kept ready at the site office for use in emergency conditions:

a. Master plan of the mines.
b. First aid boxes.
c. Gas masks.
d. Mobile phone with charging facility.
e. Loud speakers

f. Emergency lighting system.
g. Stretchers.
h. Transport facility.

- ***Assembly Points***

Assembly points will be set up in the Mine lease at farthest from the location of likely hazardous events, where pre-designated persons from the works, contractors and visitors would assemble in case of emergency. Up-to-date list of pre-designated employees of various departments will be available at these points so that roll call could be taken. Pre-designated persons would take charge of these points and mark presence as the people come into it.

- ***Communication System***

Different types of alarms to differentiate types of emergencies will be assigned and communicated. Alarms will be followed by an announcement over Public Address System. In case of failure of alarm system, communication will be made through Public Address System (loud speakers). If everything fails, a messenger will be used for sending the information.

- ***Warning System and Control***

The Control Centres will be located at an area of minimum risk or vulnerability in the premises concerned, considering the wind direction, areas which might be affected by fire/explosion, toxic releases, etc. For promptness and efficiency, the premises/storage sites will be divided into number of zones, which will be clearly marked on the site plan.

- ***Emergency Services***

This includes the fire-fighting system, first aid centre, ambulance etc. Alternate sources of power supply, communication with local bodies, fire brigade etc., will be identified and clearly demarcated at control room. Adequate number of external and internal telephone connections will be provided.

- ***Fire Protection System***

The fire protection system in the proposed Rough stone mine consist of portable fire extinguishers of suitable types and capacities to be placed in transport vehicles and additional fire extinguishers at site office. Water pumps will be used for supporting the firefighting arrangements.

Emergency control procedure –

The onset of the emergency will likely begin with a major fire or explosion or wall collapse along the excavation and will need to be detected by various safety devices as well as by operating personnel in service. If located by a member of the staff on duty, the latter (according to the emergency procedure of the site of which he is sufficiently informed) will go to the nearest alarm point, break the windows, and trigger the alarms. He will also do his best to inform the location and nature of the incident to the emergency control room. In accordance with the emergency procedure at work, the following key activities will take place immediately to interpret and take control of the emergency.

- An on-scene fire crew, led by a firefighter, will arrive with fire foam tenders and other essential equipment at the scene of the event.
- The emergency security controller's duties will begin at the main gate office.
- The incident controller will rush to the scene of the emergency and, with the assistance of the rescue team, begin dealing with the situation.
- The site's chief controller will arrive at MECR with members of his advisory and communication teams and take complete leadership of the facility.
- He will get constant information from the incident controller and make choices and provide orders to:
    - Incident commander
    - Mine command center's
    - Control panel for emergency security

Alarm system during disaster –

On getting the message of disaster from Site Controller, putting out fires group, the mine control room orderly will sound alarm howling for 5 minutes. Occurrence regulator will orchestrate to communicate debacle message through open location framework. On getting the message of "Crisis Over" from Incident Controller the crisis control room chaperon will give "All Clear Signal", by sounding caution straight for 2 minutes. The elements of alert framework will be disclosed to the whole gang to try not to freeze or misjudge during calamity. To forestall or deal with peril/calamities assuming any the accompanying control measures have been taken on.

Generally security precautionary measures and arrangements of Metalliferous Mines Regulations (MMR), 1961 is completely followed during all mining tasks.

- Recognition of generally wellbeing safeguards for impacting and capacity of explosives according to MMR 1961.
- Section of unapproved people into mine and partnered regions is totally restricted.
- Putting out fires and first-help arrangements in quite a while office complex and mining region are given.
- Arrangements of all the wellbeing apparatuses, for example, security boot, head protectors, goggles, dust veils, ear attachments and ear muffs and so forth are made

accessible to the representatives and the utilization of same is totally stuck to through normal checking.

- Preparing and supplemental classes for every one of the representatives working in risky premises.
- Working of mine, according to supported plans and routinely refreshing the mine arrangements.
- Cleaning of mine appearances is routinely finished.
- Treatment of explosives, charging and impacting are done simply by qualified people following SOP.
- Checking and customary support of wreath channels and earthen bunds to stay away from any inflow of surface water in the mine pit.
- Arrangement of high limit reserve siphons with generator sets with enough diesel for crisis siphoning particularly during rainstorm.
- An impacting SIREN is utilized at the hour of impacting for sound sign.
- Prior to impacting and after impacting, red and green banners are shown as visual signs.
- Cautioning notice loads up showing the hour of impacting and NOT TO TRESPASS are shown at conspicuous spots.
- Standard support and testing of all mining gear were completed according to maker's rules.

7.4 CUMULATIVE IMPACT STUDY

Cluster Details:

Cod	Name of the lessee	S.F.Nos	Extent Area (Ha)	Period of lease
Lease Expired Quarries				
E1.	A.Jeevanatham	172/3, 172/4	7.52.50	25.05.2007 to 24.05.2012
E2.	S.Ganasekaran	181/2	2.03.00	02.01.2012 to 01.01.2017
E3.	O.Ganesan	174/1, 174/2, 174/3	2.07.50	02.01.2012 to 01.01.2017
Proposed				
P1.	Thiru. S. Raju	180/4, 180/5, 180/8, 180/9, 180/10, 180/11	2.50.00	ToR obtained vide Lr. No. SEIAA-TN/F.No.8686/SEAC/ToR-1045/2022 Dated:27.01.2022
P2.	Thiru. S. Dharmaraj	180/1, 180/2, 180/3, 181/1	2.08.50	Under process with Department of geology and Mining

P3.	Thiru. S. Ravisundar	174/5, 174/6, 180/12	1.37.30	Under process with Department of geology and Mining
		Total Extent	**5.96.00**	

TABLE 7.1: SALIENT FEATURES OF PROPOSAL "P1"

Name of the Mine	Thiru. S. Raju	
Survey Nos	180/4, 180/5, 180/8, 180/9, 180/10, 180/11	
Land Type	Patta Land	
Extent	2.50.0 ha	
Mining Plan Period / Lease Period	5Years/10Years	
Ultimate Pit Dimension	192 m (L) x 146 m (W) x 37m (D)	
Latitude between	12°24'03.58"N to 12°24'09.72"N	
Longitude between	79°58'15.82"E to 79°58'23.00"E	
Highest Elevation	67 m	
Machinery Proposed	Jack Hammer	6
	Compressor	2
	Excavator bucket & Rock breaker attached	1
	Tippers (20 tonnes Capacity)	3
Proposed Blasting Method	Controlled Blasting Method	
Manpower Proposed	26 Nos	
Total Project Cost	Rs. 67,60,900/-	

Source: Approved Mining Plan

TABLE 7.2: SALIENT FEATURES OF PROPOSAL "P2"

Name of the Mine	Thiru. S. Dharmaraj
Survey Nos	180/1, 180/2, 180/3, 181/1
Land Type	Patta Land
Extent	2.08.50 ha
Latitude between	12°24'11.77"N to 12°24'7.02"N
Longitude between	79°58'13.13"E to 79°58'17.80"E
Highest Elevation	29 m
Mining Plan is under Preparation	

TABLE 7.3: SALIENT FEATURES OF PROPOSAL "P3"

Name of the Mine	Thiru. S. Ravisundar
Survey Nos	174/5, 174/6, 180/12
Land Type	Patta Land

Extent	1.37.30 ha
Latitude between	12°24'8.01"N to 12°24'4.35"N
Longitude between	79°58'11.97"E to 79°58'15.48"E
Highest Elevation	30 m
Mining Plan is under Preparation	

TABLE 7.4: SALIENT FEATURES OF PROPOSAL "E1"

Name of the Mine	A.Jeevanatham
Survey Nos	172/3, 172/4
Extent	7.52.50
Mining Plan/Lease Period	26.05.2007 to 24.05.2012 (Expired)
Note: Project E1 as stopped due to expiry of quarry lease period (expired on 24.05.2012) and is not considered for cumulative impact as there are no mining operations ongoing during the Baseline Monitoring Period December 2021 to February 2022.	

TABLE 7.5: SALIENT FEATURES OF PROPOSAL "E2"

Name of the Mine	S.Ganasekaran
Survey Nos	181/2
Extent	2.03.0 ha
Mining Plan/Lease Period	02.01.2012 to 01.01.2017 (Expired)
Note: Project E2 as stopped due to expiry of quarry lease period (expired on 01.01.2017) and is not considered for cumulative impact as there are no mining operations ongoing during the Baseline Monitoring Period of December 2021 to February 2022.	

TABLE 7.6: SALIENT FEATURES OF PROPOSAL "E3"

Name of the Mine	Thiru. S. Ravisundar
Survey Nos	174/1, 174/2, 174/3
Extent	2.07.50 Ha
Mining Plan/Lease Period	02.01.2012 to 01.01.2017 (Expired)
Note: Project E3 as stopped due to expiry of quarry lease period (expired on 01.01.2017) and is not considered for cumulative impact as there are no mining operations ongoing during the Baseline Monitoring Period of December 2021 to February 2022.	

The Cumulative Impact is anticipated due to drilling & blasting and excavation and transportation activities from proposed mines within the 500 meter radius from the

proposed mines and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting. The current monitoring was done as existing quarry are working which gives the ambient or present condition of air quality as well as noise.

TABLE 7.6: PREDICTED AIR INCREMENTAL VALUE

Locations	PM_{10} (g/m³)			$PM_{2.5}$ (g/m³)			SO_2 (g/m³)			NO_2 (g/m³)		
	Inc	Max	Total	Inc	Max	Total	Inc	Max	Total	Inc	Max	Total
AAQ-1	2.2	62.7	64.9	1.2	35.6	36.8	1	9.8	10.8	0.6	27.8	28.4
AAQ-2	4.4	61.5	65.9	2.3	34.5	36.8	1.5	10.4	11.9	2	28.2	30.2
AAQ-3	1	60.7	61.7	0.3	33.7	34	0.1	10	10.1	0.1	27.7	27.8
AAQ-4	1	60.1	61.1	0.3	32.9	33.2	0.1	11.9	12	0.1	31	31.1
AAQ-5	0.3	62.7	63	0.1	36.3	36.4	0.1	11.1	11.2	0.1	30.1	30.2
AAQ-6	2.4	62.4	64.8	1.2	35.3	36.5	1	11.3	12.3	1	29.3	30.3
AAQ-7	1.2	61.7	62.9	0.5	35.1	35.6	0.2	10.6	10.8	0.3	28.6	28.9
NAAQS (g/m³)	100			60			80			80		

TABLE 7.7: MA IMUM GROUND LEVEL CONCENTRATION

Pollutants	Max. GLC observed, (g/m³)	Distance and Direction
PM_{10}	10.4	1000, W
$PM_{2.5}$	6.6	1000, W
SO_2	5.3	1000, W
NO_2	6.0	1000, W

Noise Environment –

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. Cumulative Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities. Predictions have been carried out to compute the noise level at various distances around the different quarries within the 500 m radius. For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using model based on first principle.

$$Lp_2 = Lp_1 \quad 20 \log (r_2/r_1) \quad Ae_{1,2}$$

Where:

Lp_1& Lp_2 are sound levels at points located at distances r_1& r_2 from the source.

$Ae_{1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

$$Lp_{total} = 10 \log \ 10^{(Lp1/10)} + 10^{(Lp2/10)} + 10^{(Lp3/10)} + \ldots\ldots\}$$

Attenuation due to Green Belt has been taken to be 4.9 dB (A). The inputs required for the model are: Source data has been computed taking into account of all the machinery and activities used in the mining process.

TABLE 7.8: PREDICTED NOISE INCREMENTAL VALUE

Location ID	Bac ground Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near Proposed Project Site	46.8	40.8	47.8	55

The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone)

TABLE 7.9: ESTIMATED PEAK PARTICLE VELOCITY FOR E PLOSIVE CHARGE FOR PROPOSED MINES

Distance from blasting site, m	Quantity of Explosive/Blast, Kg	PPV, mm/s
200	92	9.0
225	92	6.8
235	92	5.4
245	92	4.4
255	92	3.7
265	92	3.2
275	92	2.8
300	92	2.5
325	92	2.2
335	92	2.0

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

The nearest habitation from cluster is Venmani Village at 0.73 Km, at NE direction. From the above table, the blasting will not cause any significant ground vibrations in the area. The ground vibrations at nearest habitation will be well within the permissible limits recommended by DGMS.

TABLE 7.10: SOCIO ECONOMIC BENEFITS FROM 6 MINES

Particulars	Project Cost in Rs.	CER @ 2 in Rs.
P1	67,60,900	1,35,200
P2	Mining Plan Under Preparation	
P3	Mining Plan Under Preparation	
E1	Lease Expired	
E2	Lease Expired	
E3	Lease Expired	
Total	**67,60,900**	**1,35,200**

CER allocation has been made as per MoEF & CC OM F.No.22-65/2017-IA.III, Dated: 01.05.2018. As per para 6 (II) of the office memorandum, all the mines being a green field project & Capital Investment is ≤ 100 crores, they shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC and the total CER amount from the 6 mines is Rs. 1,35,200/-.

TABLE 7.11: EMPLOYMENT BENEFITS FROM 6 Mines

	Direct Employment	Indirect Employment
P1	26 Nos	35 Nos
P2	Mining Plan Under Preparation	
P3	Mining Plan Under Preparation	
E1	Lease Expired	
E2	Lease Expired	
E3	Lease Expired	
Total	**26 Nos**	**35 Nos**

A total of 26 people will get employment due to these mines in cluster.

Greenbelt Development –

TABLE 7.12: GREENBELT DEVELOPMENT BENEFITS FROM 6 Mines

CODE	No of Trees proposed to be planted	Survival	Area Covered Sq.m	Name of the Species	No. of Trees expected to be gro n
P1	500	80%	4500	Neem, Pungan, Casuarinas and other regional trees	400
P2	Mining Plan is under Preparation				
P3	Mining Plan is under Preparation				
E1	Lease Expired				
E2	Lease Expired				
E3	Lease Expired				
Total	**500**	**80**	**4500**		**400**

Based on the Proposed Mining Plans its anticipated that there shall growth of native species of Neem, Casuarina, Pungan etc in the Cluster at a rate of 500 Trees Planted over a period of 5 Years with Survival Rate of 80% and expected growth is around 400 Trees over an area of 4500 Sq.m.

CHAPTER 8: PRO ECT BENEFITS

8.1 NEED BASED ASSESSMENT

Socio-economic survey conducted in the villages located within 10 km radius of the Rough stone Mine area 2.50.0 Ha, located in Survey Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 of Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District, Tamil Nadu brings out that villages are lacking in basic amenities like healthcare, transportation, treated drinking water, higher education and sanitation facilities etc. The survey also reveals that the literacy rate in the area is low and the people are mostly engaged in mining and agriculture related activities.

8.2 PROPOSED WELFARE MEASURES

To address some of the expectations of local people and as a commitment towards the Corporate Social Responsibility, the project proponent through the mine management will adopt following socio-economic welfare measures in the nearby villages within 2.0 km distance. Further need will be assessed as per issues raised during public hearing.

8.2.1 WELFARE ACTIVITIES

Apart from direct and indirect employment opportunities, the mine management will carry out welfare activities in the surrounding two villages for improving the conditions of the villages.

8.3 EMPLOYMENT POTENTIAL

The mine will provide fulltime employment for mine management to 26 nos. for activities such as excavation, transportation etc. Mostly local persons will be employed in the mine. The impact of mining on the economic aspects can be clearly anticipated. The employment potential will ameliorate economic conditions of these families directly and provide employment to many other families indirectly who are involved in business and service-oriented activities.

The employment of local people in project will upgrade the prosperity of the region. These will in-turn marginally improve the socio-economic conditions of the area.

8.4 BUDGET FOR SOCIO ECONOMIC WELFARE ACTIVITIES

Considering this case greenfield project. As per Memorandum No:F NO 22-65/2017-IA-III dated 01/05/2018 the applicable CER is 2% in greenfield of project cost. The proposed utilization of the budget of CSR activities affidavit furnished to SEIAA-TN. Further CSR activities will be identified as per public comments during public hearing.

TABLE 8.1: CER COST

Project Cost in Rs.	CER @ 2 in Rs.
67,60,900	1,35,200

8.5 SUMMARY

The project activity and the management will support the local Panchayat and provide other forms of assistance for the development of public facilities in this region. The mine management will recruit semi-skilled & unskilled workers from the nearby villages. The overall effect will improve the buying power of employees and thus a higher standard of living. Transport, medical, educational, and other civic amenities will get a boost in future. This is envisaged as a major positive benefit.

CHAPTER 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

9.0 ENVIRONMENTAL COST BENEFIT ANALYSIS

As per EIA Notification dated 14th September, 2006; as amended from time to time, this Chapter on 'Environmental Cost Benefit Analysis' is applicable only if it is recommended at the Scoping stage.

Post, mining activities, the area under mining will be utilized as water reservoir after discontinuation of the mining activity.

In post-mining, the left-out voids of opencast mines behave as huge groundwater reservoirs and contain groundwater runoff. Thus, development of water reservoir will help in maintaining and conserving the groundwater levels of the area.

CHAPTER 10: ENVIRONMENTAL MANAGEMENT PLAN (EMP)

10.1 INTRODUCTION

The environmental management plan consists of following set of mitigation, management, monitoring and institutional measures to be taken during implementation and operation of the project, to eliminate adverse environmental impacts or reduce them to acceptable levels.

- Overall conservation of environment.
- Minimization of natural resources and water.
- Safety, welfare and good health of the work force and populace.
- Ensure effective operation of all control measures.
- Vigilance against probable disasters and accidents.
- Monitoring of cumulative and longtime impacts.
- Ensure effective operation of all control measures.
- Waste generation and pollution.
- Judicious use of the present environmental management plan addresses, the components of environment, which are likely to be affected by the different operations in expansion project.

Environmental Management Plan, which will be implemented in the proposed project, is detailed under the following heads:

- Air Quality Management
- Noise Management
- Water Management
- Solid Waste Management
- Land Reclamation
- Greenbelt Development & Plantation

10.2 AIR QUALITY MANAGEMENT

To minimize impacts of mining on different environmental parameters and to keep air and water quality within prescribed limits of CPCB, an Environmental Management Plan (EMP) has been prepared. This will help in resolving all environmental and ecological issues due to mining in the area

The environmental management plan includes all preventive as well as mitigation measures to minimize impact on environment along-with reclamation and rehabilitation measures for mined out land.

The individual operations which will generate particulate matter are excavation, loading, unloading and transportation etc. The general air pollution in case of mining

operation includes dust, smoke, Sulphur dioxide, Nitrogen dioxide etc. These can have adverse effects on the human health conditions, depending upon the concentration, particle size and duration of exposure with the above pollutants. However, proper precautions will help in minimizing the adverse impact due to air pollution.

10.2.1 PREVENTION AND CONTROL OF AIR POLLUTION

A. Dust Pollution

The main pollutant in air is Particulate Matter (PM10), which is generated due to various mining activities. However, to reduce the impact of dust pollution the following steps will be taken during various mining activities.

a) During drilling and blasting operations

- Use of dust aprons on drilling equipment and adopting wet drilling methods.
- Avoiding blasting during adverse weather conditions.
- Use of controlled blasting practice

Thus, pollution generated will be minimized due to drilling & blasting.

b) During loading and transportation operation

- The ripped and fragmented Rough Stone would be raised using Hydraulic Excavator & Front-End Loader and will be loaded to the tippers.
- Regular sprinkling of water on haul and access roads.
- Periodic maintenance of haul roads
- All tippers would be covered by tarpaulin sheets at top and avoid spillage.
- Regular maintenance of all equipment to minimize particulate matter and gaseous emissions from diesel engines.

c) Monitoring of air pollution

- Periodic ambient air quality monitoring will be carried out to assess the quality and for timely corrective actions.

B. Prevention and Control of Gaseous Pollution

In mining activities, the only source of gaseous emissions is from diesel engines, other vehicles, and equipment's.

The emissions from diesel engines of the machinery could be visible as smoke or invisible gases such as Sulphur Dioxide, Oxides of Nitrogen and un-burnt Hydrocarbons due to incomplete combustion of fuel. The reasons may be quality of fuel, improper operation of the engine, etc.

Proper maintenance of machines improves combustion process and brings the reduction in pollution. The effect of these gases will be limited to the surrounding of the equipment in operation only and will not affect the nearby community.

10.3 NOISE & GROUND VIBRATION MANAGEMENT

10.3.1 NOISE ABATEMENT AND CONTROL

- Small scale blasting will be carried out.
- Charge per delay will be kept optimum.
- Blasting will be conducted during lunch (noon) time when no employees are present in mine working area.
- Periodic maintenance of all mining machinery and transport vehicles
- Provision of effective silencers to all mine machinery
- Provision of ear plugs/ear muffs to workers exposed to high noise generating operations
- Development of thick plantation around mine lease boundary to act as a noise screen.
- Regular noise monitoring will be carried-out.

10.3.2 VIBRATION ABATEMENT

- Even though there is no habitation in the vicinity of the lease, the blasting pattern would be designed to keep the ground vibrations & noise to a minimum.
- The frequency of blasting too would be optimized by adopting multi-row blasting using delay detonators.
- Fly rock control would be given high priority and the blasting pattern, stemming column, charge per hole, etc., as discussed earlier, are likely to control fly rock. In addition, the detonating cord trunk line would be covered with drill chips and cutting to keep the air blast to a minimum.

10.4 WATER MANAGEMENT

10.4.1 SURFACE WATER MANAGEMENT

The changed topography will alter the drainage within the mining lease area. However, there will not be any changes in the topography or drainage pattern outside the mining lease area. At the end of mining activities after reserves are exhausted, the area will be restored to an acceptable level of self-sustaining eco-system, which will comprise of will be developed in upper benches and safety zone and at the end of lease period mining pits will be converted into water reservoir with suitable slope and fenced boundaries

No surface water will be utilized for mining operation. Moreover, there would not be any discharge from mine into the surface water body as no process wastewater generation in the mine and allied activities. Hence there would not be any impact on

surface water. Only domestic effluent will be generated from the mine office and rest shelter. The domestic effluent is discharged in septic tank followed by soak pit. Besides, there will be no toxic element in the mined-out material, which may contaminate ground/ surface water.

10.4.2 GROUND WATER MANAGEMENT

The Water in the area is 50m in summer season and 45m in rainy season which is observed from the nearby bore wells and data obtained from existing private boreholes. The lease area is fully covered by Massive Charnokite Formation. Hence the Ground water problem will not arise. Thus, the mining activities will not intersect ground water.

10.4.3 WASTEWATER MANAGEMENT

- Septic tanks and soak pits will be provided for the disposal of domestic wastewater generated from mine office.
- Garland drains will be provided to prevent the entry of rainwater into the mining pit.
- Construction of settling tanks at points to arrest silt.
- Rainwater falling in the mining pit will be collected in lower benches & will be used for dust suppression & plantation.
- Regular monitoring of ground water quality will be carried out.

10.4.4 WATER CONSERVATION MEASURES

Optimum Utili ation of Water

Initially, water will be sourced which will be met from mine pit water (when available) and by tankers from nearby bore wells**.** Water for drinking purposes will be supplied from nearby borewell.

Water Recycling

No wastewater generation envisaged. Septic tanks and soak pits will be provided for the disposal of domestic wastewater generated from mine office while rainwater falling during rainy season i.e., Monsoon in the mining pit will be collected in lower benches & will be used for dust suppression & plantation

Rain ater Harvesting

The mine management will Roof top harvesting structures in the public buildings in nearby villages with prior consent from local gram panchayats to collect rainwater and charge to ground through available dug well/ tube well**.** Also, the reservoir developed in mined out pit will act as an additional source of water to the nearby villagers and will also help in recharging ground water table of the area. The cluster has potential to harvest rainwater in non-mining pits and will be utilized for dust suppression and plantation.

10.5 SOLID WASTE MANAGEMENT

No topsoil or subgrade present within lease area. The Total excavated ROM is saleable; therefore, recovery is 100%.

10.6 LAND RECLAMATION

Land reclamation will be carried out as per approved progressive mine closure plan. Mined out area will be developed as water body, which will act as rain water harvesting structure help in increasing water level in nearby area. Plantation will be carried out all along the safety zone and upper benches.

10.7 GREEN BELT DEVELOPMENT

Green belt & plantation has been/shall be carried out in the lease area with a view to provide green belt and to give an aesthetic look, for eliminating fugitive emissions and controlling impact of noise etc. At the conceptual stage, Greenbelt /plantation will be developed on safety zone and upper benches of pit having area of 0.05 Ha. The trees will be planted @500 saplings.

10.8 CORPORATE SOCIAL RESPONSIBILITY

The mine management will support the local Panchayat and provide other forms of assistance for the development of public facilities in this region. The mine management will recruit semi-skilled & unskilled workers from the nearby villages. The overall effect will improve the buying power of employees and thus a higher standard of living viz. better education, improved health and sanitation facilities, housing and acquisition of consumer durables. Transport, medical, educational and other civic amenities will get a boost in future. This is envisaged as a major positive benefit.

10.9 INDUSTRIAL HYGIENE, OCCUPATIONAL HA ARDS AND SAFETY

The working conditions in the mines are governed by the enactments of the Director General of Mines Safety (DGMS). As per the guidelines of the Mines Act, the management will take all necessary precautions. Normal sanitary facilities will be provided within the lease area. The management will carry out periodic health checkup of workers.

Occupational hazards involved in mines are related to dust pollution, noise pollution, and injuries from moving belt conveyors, equipment and fall from high places. DGMS has given necessary guidelines for safety against these occupational hazards. The management will strictly follow these guidelines. All necessary first aid and medical facilities will be provided to the workers. The mine will be well equipped with proper fire protection and firefighting equipment. All operators and mechanics will be trained to handle fire-fighting equipment's. Further all the necessary protective equipment's

such as helmets, reflective jackets, safety goggles, earplugs, earmuffs, etc. will be provided to persons working in risky areas.

10.10 BUDGETARY ALLOCATION FOR ENVIRONMENTAL MANAGEMENT PROGRAMME

The details of Environmental Management Programme for different environmental protection and control activities along with capital and annual recurring cost are given in **Table 10.1**

TABLE 10.1: BUDGET FOR IMPLEMENTATION OF EMP

S. No.	Description of item	Capital Cost (Rs.)
1	Air Pollution Control - Water sprinkling on haul road & plantation	52,000
2	Water Pollution Control (Settling tank, Garland Drains, etc.)	18,000
3	Noise Level Monitoring	2,000
4	Ground Vibration Test	4,000
Total EMP Cost		**76,000**
Total EMP Cost for five years		**3,80,000**

10.11 CONCLUSION

As discussed, it is safe to say that the project is not likely to cause any significant impact on the ecology of the area, as adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Green belt development around the area would also be taken up as an effective pollution control technique, as well as to control the pollutants released due to mining.

CHAPTER 11: SUMMARY & CONCLUSION

11.1 INTRODUCTION

Rough Stone is the major requirements for construction industry. This EIA report is prepared by considering Cumulative load of all proposed & existing quarries of Periya Venmani Rough Stone Quarries Cluster consisting of 3 Proposed Quarries with total extent of Cluster of 5.96.00 Ha in Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District, Tamil Nadu State, cluster area calculated as per MoEF & CC Notification S.O. 2269(E), Dated 1st July 2016.

This EIA Report is prepared in compliance with ToR obtained vide –

- Letter No. SEIAA/TN/F.No.8686/SEAC/ToR-1045/2022, dated 27.01.2022

The Baseline Monitoring study has been carried out during the period of December 2021 to February 2022 and this EIA and EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) individually to minimize those adverse impacts.

"Draft EIA report prepared on the basis of ToR Issued & Standard ToR for carrying out Public Hearing for the Grant of Environmental Clearance from SEIAA, Tamil Nadu"

TABLE 11.1: DETAILS OF PRO ECT PROPONENT

Name of the Project	Thiru. S. Raju Rough stone quarry
S.F. No.	180/4, 180/5, 180/8, 180/9, 180/10 and 180/11
Extent	2.50.0 Ha
Land Type	Patta Land
Village Taluk and District	Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District.

TABLE 11.2: QUARRY DETAILS WITHIN 500 M RADIUS

Code	Name of the lessee	S.F.Nos	Extent Area (Ha)	Period of lease
Lease Expired Quarries				
E1.	A.Jeevanatham	172/3, 172/4	7.52.50	25.05.2007 to 24.05.2012

Code	Name of the lessee	S.F.Nos	Extent Area (Ha)	Period of lease
E2.	S.Ganasekaran	181/2	2.03.00	02.01.2012 to 01.01.2017
E3.	O.Ganesan	174/1, 174/2, 174/3	2.07.50	02.01.2012 to 01.01.2017
Proposed				
P1.	Thiru. S. Raju	180/4, 180/5, 180/8, 180/9, 180/10, 80/11	2.50.00	-
P2.	Thiru. S. Dharmaraj	180/1, 180/2, 180/3, 181/1	2.08.50	-
P3.	Thiru. S. Ravisundar	174/5, 174/6, 180/12	1.37.30	-
		Total Extent	**5.96.00**	

TABLE 11.3: SALIENT FEATURES OF THE PROPOSAL

<table>
<tr><th>S. No.</th><th>Particulars</th><th colspan="3">Details</th></tr>
<tr><td>1</td><td>Type of Project</td><td colspan="3">Rough Stone Mine</td></tr>
<tr><td>2</td><td>Mine area applied</td><td colspan="3">2.50.0 Ha</td></tr>
<tr><td>3</td><td>Project Location</td><td colspan="3">Survey Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 Periya Venmani Village, Maduranthagam Taluk, Kancheepuram District.</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">Mine Location on WGS 1984 datum</td><td>Latitude</td><td colspan="2">Longitude</td></tr>
<tr><td>12°24'03.58"N to 12°24'09.72"N</td><td colspan="2">79°58'15.82"E to 79°58'23.00"E</td></tr>
<tr><td>5</td><td>Boundary Pillars</td><td colspan="3"><table><tr><th>Sr. No.</th><th>Latitude</th><th>Longitude</th></tr><tr><td>1</td><td>12°24'04.52"N</td><td>79°58'15.82"E</td></tr><tr><td>2</td><td>12°24'07.29"N</td><td>79°58'16.24"E</td></tr><tr><td>3</td><td>12°24'06.89"N</td><td>79°58'18.08"E</td></tr><tr><td>4</td><td>12°24'09.72"N</td><td>79°58'18.58"E</td></tr><tr><td>5</td><td>12°24'08.57"N</td><td>79°58'21.80"E</td></tr><tr><td>6</td><td>12°24'06.17"N</td><td>79°58'21.43"E</td></tr><tr><td>7</td><td>12°24'05.83"N</td><td>79°58'23.00"E</td></tr><tr><td>8</td><td>12°24'03.58"N</td><td>79°58'22.65"E</td></tr></table></td></tr>
<tr><td>6</td><td>Topo sheet Number</td><td colspan="3">57 P/15</td></tr>
<tr><td>7</td><td>Land use at the proposed project site</td><td colspan="3">Patta Land
Land Cover: Barren Land which is not fit for vegetation/cultivation</td></tr>
<tr><td>8</td><td>Site Topography</td><td colspan="3">Undulated topography, the area has gentle sloping toward</td></tr>
</table>

S. No.	Particulars	Details		
		southern side		
9	Site elevation above Mean Sea Level	67 m (Max)		
10	Reserves	**Description**	**Rough stone in m3**	**Gravel in m3**
		Geological Reserves	8,75,000	50,000
		Mineable	3,19,840	7,338
		Recoverable Reserves (5 Years)	3,19,840	7,338
11	Lease period	5 years		
12	Ultimate depth of Mining	37m (2m Gravel + 35m Rough Stone)		
13	Existing Pit Dimension	89m (L) x 56m (W) x 4m (D)		
14	Ultimate Pit Dimension	192m (L) x 146m (W) x 37m (D) BGL		
15	Land Use Pattern	**Description**	**Area**	
		Area under quarry	1.87.7Ha	
		Infrastructure	0.01.0 Ha	
		Mine road	0.02.0 Ha	
		Green Belt	0.45.0 Ha	
		Un utilized area	0.14.3 Ha	
16	Climatic Conditions	IMD Data, Kancheepuram (1971-2000) • Avg. Ambient air temp – 25.3^{o}C Annual rainfall - 1214 mm		
17	Ground water level	The Ground water occurrence in this area is 50-47m depth below the ground level.		
18	Seismic zone	Seismically, this area is categorized under Zone-II as per IS-1893 (Part-1)-2002. Hence, seismically the site is medium Damage Risk Zone. With MSK scale of III.		
19	Nearest State/National Highway	NH45 – Chennai – Viluppuram – 15.0km - NW SH115 – Vandavasi – Odiyur – 2.0km – SW		
20	Nearest Railway Station	Maduranthagam Railway station – 15.0km – NW		
21	Nearest Air Port	Chennai Airport - 84km – NE		
22	Nearest village/major town	Periya Venmani :2.0km, NE Direction Cheyur : 6.5 Km, SE Direction		

<table>
<tr><th>S. No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td></td><td></td><td>Kanchipuram : 55.00 Km, NW Direction</td></tr>
<tr><td>23</td><td>Nearest Town, city, District Headquarters along with distance in kms.</td><td>Cheyur : 6.5 Km, SE Direction
Kanchipuram : 55.00 Km, NW Direction</td></tr>
<tr><td>24</td><td>Ecologically sensitive zone</td><td>No wildlife sanctuary, national park or biosphere reserve within 10m radius of mine lease area.</td></tr>
<tr><td>25</td><td>Reserved/Protected forests</td><td>No wildlife sanctuary, national park or biosphere reserve within 10m radius of mine lease area.</td></tr>
<tr><td>26</td><td>Historical/tourist places</td><td>None within 300m radius of mine lease area</td></tr>
<tr><td>27</td><td>Water bodies within 10 Km Radius</td><td><table><tr><th>Water bodies</th><th>Distance (m)</th><th>Direction</th></tr><tr><td>Tank</td><td>0.43</td><td>SE</td></tr><tr><td>Tank</td><td>0.60</td><td>NE</td></tr><tr><td>Odiyur Lake</td><td>8.30</td><td>SE</td></tr></table></td></tr>
<tr><td>28</td><td>Reserve Forest within 10Km Radius</td><td>None within 5km Radius</td></tr>
<tr><td>29</td><td>Nearest Hospital</td><td>Cheyur – 6.5km – SE</td></tr>
<tr><td>30</td><td>Details of other quarries for a radius of 500m around the quarry site</td><td>There are following quarries located within the radius of 500m from the proposed project site.
Details:
Abandoned quarry – Nil
Expired quarry – 3 Nos (11.63.0ha)
Existing Quarries – Nil
Proposed Quarries – 3 Nos (5.96.0ha)
The total extent of the Existing and proposed quarry within the radius of 500m is 5.96.0Ha. The project falls under the cluster situation.</td></tr>
<tr><td>31</td><td>Man power</td><td>Total Employees proposed for the quarry operation is 26 Nos.</td></tr>
<tr><td>32</td><td>Water requirement & source</td><td>Total water requirement for 3.0 KLD from water vendors & nearby Bore well.</td></tr>
<tr><td>33</td><td>Overburden /Waste</td><td>The overburden in the form of Gravel formation</td></tr>
<tr><td>34</td><td>Cost of the project</td><td>The Project Cost:
A. Project cost = Rs. 63,80,900/-
B. EMP cost = Rs. 3,80,000/-
Total Cost = Rs. 67,60,900/-</td></tr>
</table>

S. No.	Particulars	Details
		CER cost (2% of the project cost) = Rs. 1,35,200/-

11.1.1 STATUTORY DETAILS

PROPOSAL – P1

- The lessee has applied for Rough Stone Quarry Lease Dated: 18.11.2019
- Precise Area Communication Letter was issued by the District Collector, Kancheepuram district, Rc.No.269/Q2/2017, Dated: 18.11.2019.
- The Mining Plan was prepared by Recognized Qualified Person and approved by Assistant Director, Geology and Mining, Kancheepuram District, vide Rc.No.269/Q3/2017, Dated: 29.06.2021.
- The proposed project falls under "B1" Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018
- Proponent applied for ToR for Environmental Clearance vide. online Proposal No. SIA/TN/MIN/66125/2021 and ToR was granted by SEAC with letter no. SEIAA-TN/F.No.8686/SEAC/ToR-1045/2022, dated 27.01.2022.

11.2 PRO ECT DESCRIPTION

The proposed project is site specific and there is no additional area required for this project. There is no effluent generation/discharge from the proposed quarries. Rough Stone is proposed to be excavated by opencast mechanized method involving splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers and rock breakers to avoid secondary blasting.

TABLE 11.4: SITE CONNECTIVITY TO THE PRO ECT AREA

Nearest Roadway	NH45 – Chennai – Viluppuram – 15.0km - NW SH115 – Vandavasi – Odiyur – 2.0km – SW
Nearest Village	Periya Venmani :2.0km, NE Direction
Nearest Town	Cheyur: 6.5 Km, SE Direction
Nearest Railway	Maduranthagam Railway station – 15.0km – NW
Nearest Airport	Chennai Airport - 84km – NE

TABLE 11.5: LAND USE PATTERN OF THE LEASE APPLIED AREA

DESCRIPTION	PRESENT AREA IN (Ha)	AREA AT THE END OF LIFE OF QUARRY (HA)
Area under quarry	0.44.4	1.87.7
Infrastructure	Nil	0.01.0

Roads	0.01.0	0.02.0
Green Belt	Nil	0.45.0
Unutilized Land	2.04.6	0.14.3
TOTAL	**2.50.0**	**2.50.0**

TABLE 11.6: OPERATIONAL DETAILS OF LEASE APPLIED AREA

PARTICULARS	**DETAILS**	
	Rough stone in m^3 5 Years Plan	**Gravel in m^3 3 Years Plan**
Geological Resources in m^3	8,75,000	50,000
Mineable Reserves in m^3	3,19,840	7,338
Mining Plan Period	5 Years	
Number of Working Days	300 Days	
Production per day in m^3	213 m^3 of Rough Stone & 8 m^3 of Gravel	
No of Lorry loads ($6m^3$ per load)	36 Trips of Rough Stone Per Day & 2 Trips of Gravel per Day	
Total Depth of Mining	37m (2m Gravel + 35m Rough Stone)	

TABLE 11.7: YEAR WISE PRODUCTION PLAN

Year	**Rough stone in m^3 5 Years Plan**	**Gravel in m^3 3 Years Plan**
I	63,372	3484
II	61,375	1880
III	72,243	1974
IV	61,025	-
V	61,825	-
TOTAL	**3,19,840**	**7338**

11.2.1 METHOD OF MINING

Opencast Mechanized Mining Method is being proposed by formation of 5.0 meter height bench with a bench width not less than the bench height. The Rough Stone is a batholith formation and the splitting of rock mass of considerable volume from the parent rock mass will be carried out by deploying jackhammer drilling and Slurry Explosives will be used for blasting. Hydraulic Excavators attached with Rock Breakers unit will be deployed for breaking large boulders to required fragmented sizes to avoid secondary blasting and hydraulic excavators attached with bucket unit will be deployed for loading the Rough Stone into the tippers and then the stone is transported from pithead to the nearby crushers.

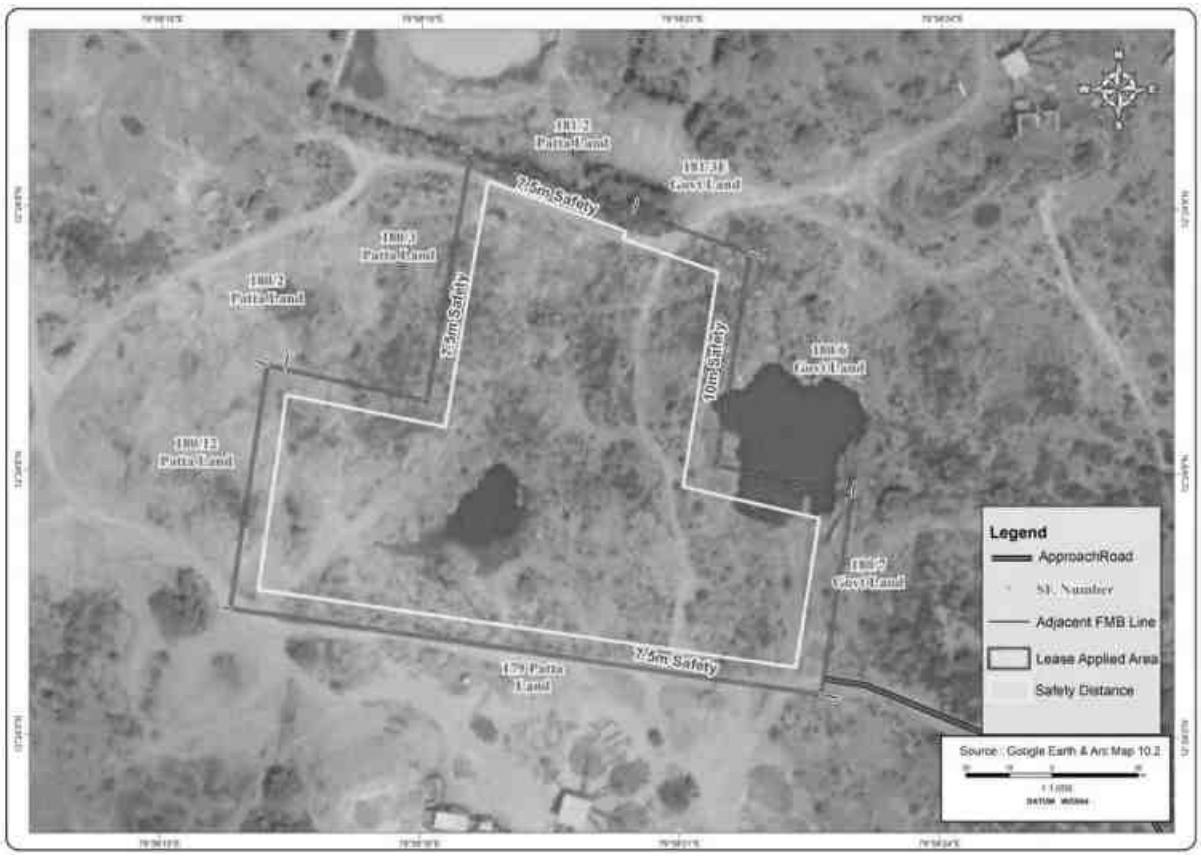

FIGURE 11.1: GOOGLE IMAGE SHOWING APPLIED QUARRY LEASE AREA

TABLE 11.8: PROPOSED MACHINERY DEPLOYMENT

S.No	Particulars	Si e capacity	Motive Po er	Nos
1.	Jack hammer (30-35mm dia hole)	1.2m to 2.0m	Compressed air	6
2.	Compressor	400 psi	Diesel drive	2
3.	Excavator with Bucket and Rock Breaker	300	Diesel drive	1
4.	Tippers	20 tonnes	Diesel drive	3

11.2.2 CONCEPTUAL MINING PLAN/ FINAL MINE CLOSURE PLAN

- At the end of life of mine, the excavated mine pit / void will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.
- After mine closure the greenbelt developed along the safety barrier and top benches and temporary water reservoir will enhance the ecosystem
- Mine Closure is a process of returning a disturbed site to its natural state or which prepares it for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety.

- The principal closure objectives are for rehabilitated mines to be physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting/ non-contaminating, and capable of sustaining an agreed post-mining land use.

TABLE 11.9: ULTIMATE PIT DIMENSION

Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max)
I	192	146	37 m Below Ground level

11.3 DESCRIPTION OF THE ENVIRONMENT

Field monitoring studies to evaluate the base line status of the project site were carried out during December 2021 to February 2022 as per CPCB guidelines. Environmental Monitoring data has been collected with reference to proposed quarry by Enviro Tech Services, Ghaziabad an NABL Certified & MoEF Notified Laboratory

11.10: ENVIRONMENT MONITORING ATTRIBUTES

S. No.	Attributes	Parameters	Frequency
1	Ambient Air Quality	PM_{10}, SO_2, NO_X, & mineralogical composition of PM_{10}, particularly for free silica	24 hourly samples, twice a week for three months at 7 locations.
2	Meteorology	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall	Continuous hourly recording (one season) at project site. Secondary data from the nearest IMD station.
3	Water quality	Physical and Chemical parameters.	Grab samples collected once during study period from 5 ground water locations.
4	Soil Quality	Physical and Chemical parameters.	Grab samples collected once during study period from 6 locations.
5	Ecology	• Existing terrestrial flora and fauna covering Core Zone (2.50.0 Ha) & Buffer Zone (10-Km radius). • Existing aquatic ecological status in Buffer Zone (10-Km radius).	Through field studies once during study period. Secondary data also collected.
6	Noise levels	Noise levels in dB (A) Day and Night.	Hourly Noise levels in and around the project area for 24 hours at each location once during study period at 7 locations.
7	Land use	Current land use scenario	Once during study period based

S. No.	Attributes	Parameters	Frequency
			on recent satellite imagery and ground-truthing at site.
8	Geology	Geological details	Once during study period. Data collected from secondary sources
9	Hydrogeology	Drainage area and pattern, nature of streams, aquifer characteristics, recharge and discharge areas, etc.	Based on primary and secondary sources, once during study period.
10	Socio-Economic aspects	Socio-economic aspects like demography, population dynamics, infrastructure resources, health status, economic resources, etc.	From primary and secondary sources (like census abstracts of census of India 2011) once during the study period.

TABLE 11.11: LAND ENVIRONMENT

S.No	Level I	Level II	Area (Km^2)	Percentage ( )
1	Built-up Land	Built-up Land	38.77	11.60
2	Forest	Dense Forest	3.74	1.12
3	Agricultural Land	Plantation	48.37	14.47
		Crops	100.56	30.08
4	Waste Land	Scub/Shrub	88.49	26.46
		Bare land	41.46	12.40
5	Water Body	Water Body	12.17	3.64
6	Others	Mining land	0.75	0.22
		Total	**334.31**	**100**

The cluster area of 5.96.00 Ha contributes about 0.22% of the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment

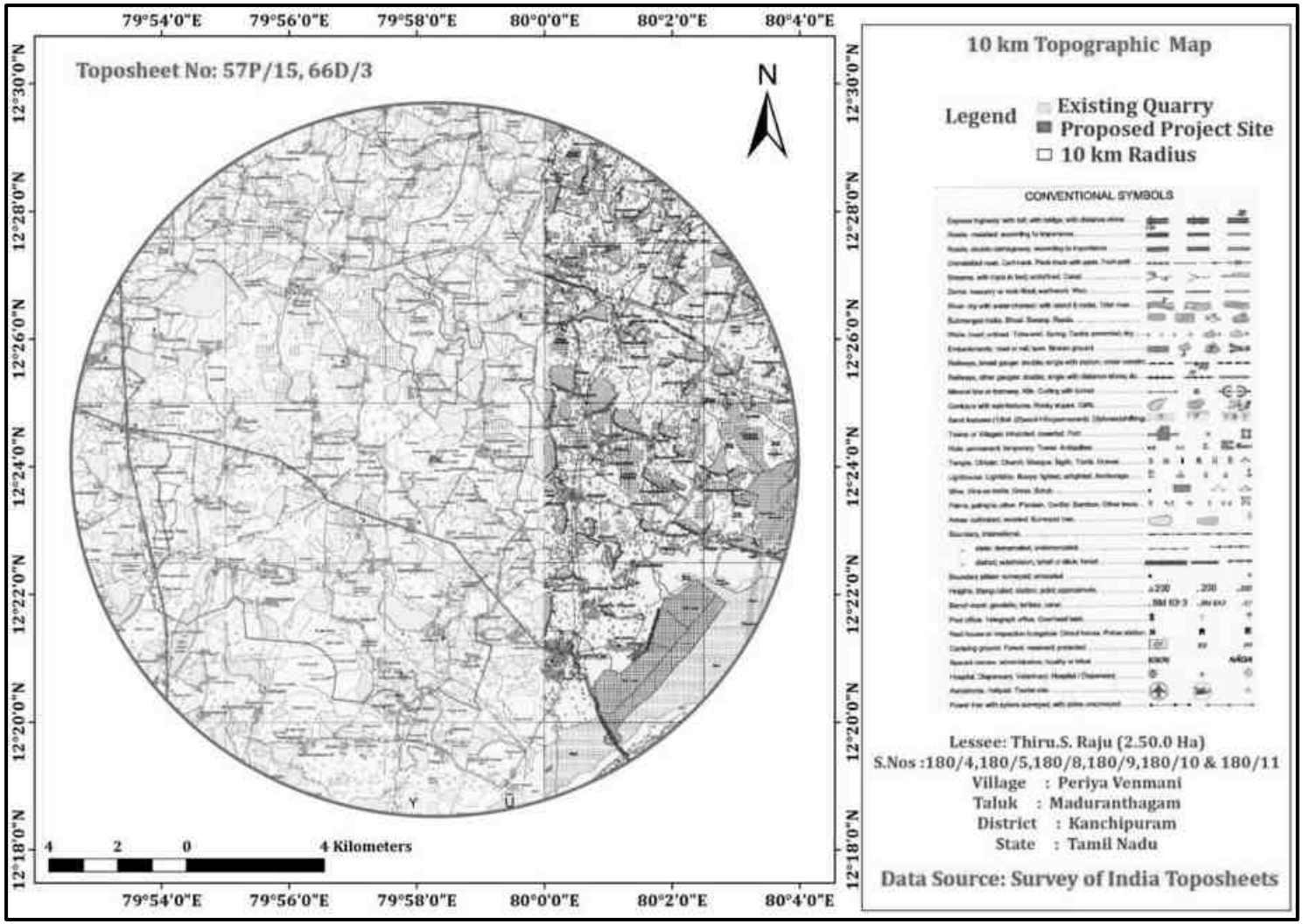

FIGURE 11.2: TOPOSHEET MAP COVERING 10 KM RADIUS

11.3.1 SOIL ENVIRONMENT

Physical Characteristics –

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay Loam Soil and Bulk Density of Soils in the study area varied between 0.83 to 1.27 g/cm^3. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e. ranging from 38 to 48.3%.

Chemical Characteristics –

1. The nature of soil is slightly alkaline to strongly alkaline with pH range 7.59 to 8.63
2. The available Total Nitrogen content range between 138.8 to 245 mg/kg
3. The available Phosphorus content range between 0.86 to 1.52 mg/kg
4. The available Potassium range between 26.5 to 52.6 mg/kg

11.3.2 WATER ENVIRONMENT

Surface Water

Nil within 5km Radius.

Ground Water

The physico-chemical characteristics of groundwater are presented in Table below and are compared with the standards. The pH of the water samples collected ranged from 6.96 to 7.67 and within the acceptable limit of 6.5 to 8.5. The total dissolved solids were found in the range of 455 to 516 mg/l in all samples. The total hardness varied between 122 to 216.6 mg/l for all samples collected at 5 locations.

In all samples, iron content is 0.10 to 0.21 mg/l, Nitrate in between 13 to 23 mg/l, fluoride varied between 0.14 to 0.21 mg/l, chloride 71 to 90.3 mg/l, Sulphate 18.6 to 28.5 mg/l, alkalinity 138 to 189 mg/l, calcium 27.5 to 46.2 mg/l and magnesium in between 16.2 to 23.7 mg/l. The overall ground water quality was found to be good in most of the villages. The levels of heavy metals content were found to be within permissible limits.

11.3.3 AIR ENVIRONMENT

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the proposed quarry forms the baseline information.

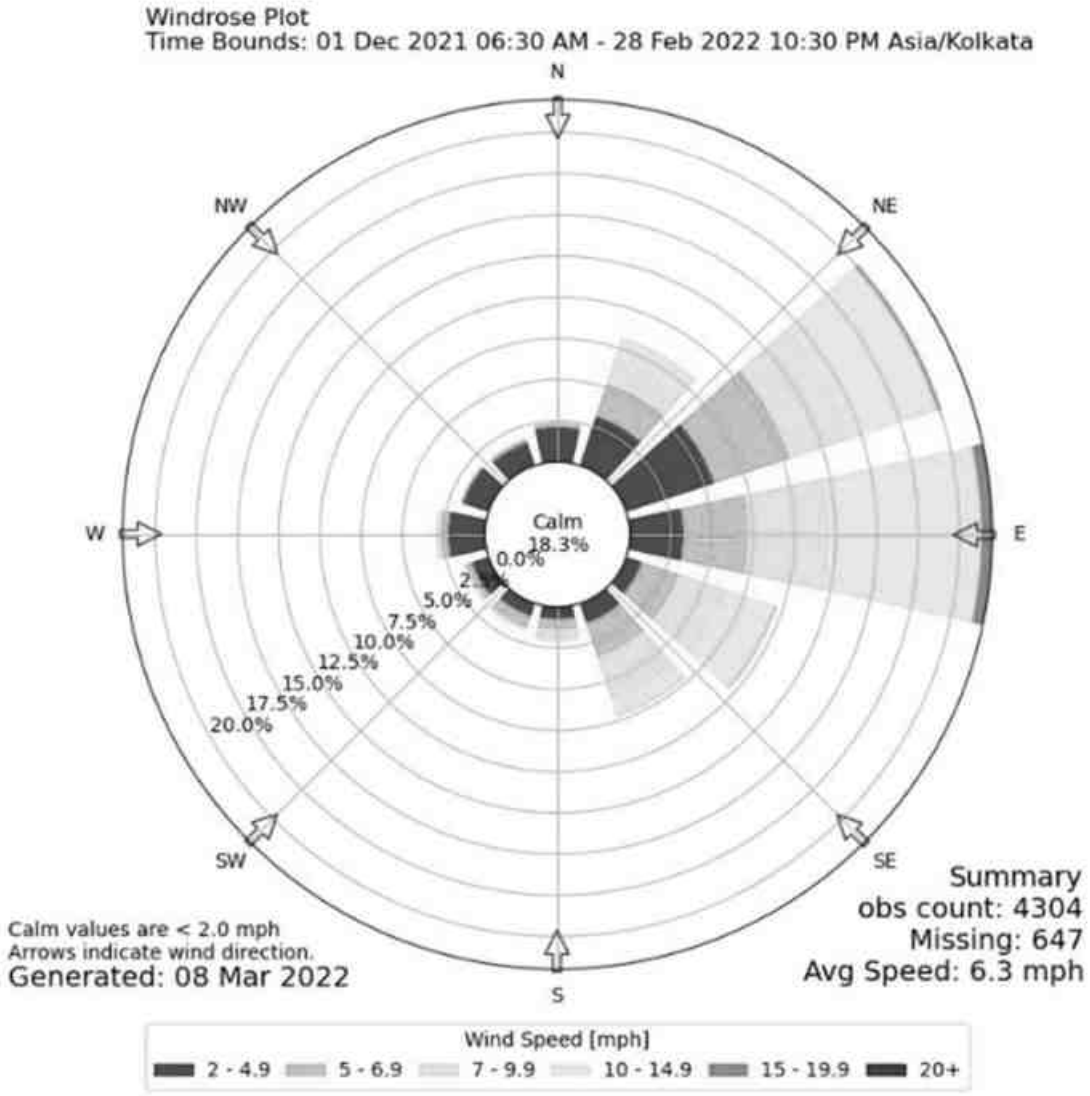

FIGURE 11.3: WIND ROSE DIAGRAM

The results of ambient air quality monitoring for the period (December 2021 to February 2022) are presented in the report. Data has been complied for three months. As per monitoring data, PM_{10} ranges from 50.3 to 62.7 µg/m^3, $PM_{2.5}$ data ranges from 26.4 to 36.3 µg/m^3, SO_2 ranges from 8.1 to 11.9 µg/m^3 and NO_2 data ranges from 22.2 to 31.0 µg/m^3. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

11.3.4 NOISE ENVIRONMENT

Ambient noise levels were measured at 7 (Seven) locations around the proposed project area. Noise levels recorded during day time were from 39.2 to 46.8 dB (A) Leq and during night time were from 34.4 to 46.1 dB (A) Leq.

11.3.5 ECOLOGICAL ENVIRONMENT

The study involved in the collection of primary data by conducting a survey in the field, examination of floral and faunal records in previously published reports and records. Analysis of the information is the view of the possible alteration in the environment of the project site. For the survey of fauna, both direct and indirect observation methods were used. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area. Hence this small operation over short period of time will not have any significant impact on the surrounding flora and fauna.

11.3.6 SOCIO ECONOMIC ENVIRONMENT

It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project. The socio-economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis. The proposed projects will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve.

11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES –

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

11.4.1 LAND ENVIRONMENT:

ANTICIPATED IMPACT

- Permanent or temporary change on land use and land cover.
- Change in Topography: Topography of the ML area will change at the end of the life of the mine.
- Movement of heavy vehicles sometimes cause problems to agricultural land, human habitations due to dust, noise and it also causes traffic hazards.
- Due to degradation of land by pitting the aesthetic environment of the core zone may be affected.

- Earthworks during the rainy season increase the potential for soil erosion and sediment laden water entering the water ways.

If no due care is taken wash off from the exposed working area may choke the water course & can also causes the siltation of water course

MITIGATION MEASURES

- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development of greenbelt etc.
- Construction of garland drains all around the quarry pits and construction of check dam at strategic location in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area
- Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt
- Thick plantation will be carried out on unutilized area, top benches of mined out pits, on safety barrier, etc.,
- At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir
- In terms of aesthetics, natural vegetation surrounding the quarry will be retained (such as in a buffer area i.e., 10 m safety barrier and other safety provided) so as to help minimize dust emissions.
- Proper fencing will be carried out at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle.

11.4.2 WATER ENVIRONMENT

ANTICIPATED IMPACT

- The major sources of water pollution normally associated due to mining and allied operations are:
    - Generation of waste water from vehicle washing.
    - Washouts from surface exposure or working areas
    - Domestic sewage
    - Disturbance to drainage course in the project area
    - Mine Pit water discharge
- Increase in sediment load during monsoon in downstream of lease area
- This being a mining project, there will be no process effluent. Waste from washing of machinery may result in discharge of Oil & grease, suspended solids.
- The sewage from soak pit may percolate to the ground water table and contaminate it.
- Surface drainage may be affected due to Mining

- Abstraction of water may lead to depletion of water table

MITIGATION MEASURES

- Garland drains, settling tank will be constructed along the individual mining leases. The Garland drains of the individual leases will be connected to settling tank and after settling the water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judicially utilize the rainwater as part of rainwater harvesting
- Providing benches with inner slopes and through a system of drains and channels, allowing rain water to descent into surrounding drains, so as to minimize the effects of erosion & water logging arising out of uncontrolled descent of water.
- Reuse the water collected during storm for dust suppression and greenbelt development within the mines
- Installing interceptor traps/oil separators to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will pass through interceptor traps/oil separators prior to its reuse;
- Using flocculating or coagulating agents to assist in the settling of suspended solids during monsoon seasons;
- Periodic analysis of quarry pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- De-silting will be carried out before and immediately after the monsoon season.
- Regular monitoring and analysing the quality of water in open well, bore wells and surface water

11.4.3 AIR ENVIRONMENT

ANTICIPATED IMPACT

- During mining, at various stages activities such as excavation, drilling, blasting, and transportation of materials, particular matter (PM), gases such as Sulphur dioxide, oxides of Nitrogen from vehicular exhaust are the main air pollutants.
- Emissions of noxious gases due to incomplete detonation of explosive may sometimes pollute the air.

- The fugitive dust released from the mining operations may cause effect on the mine workers who are directly exposed to the fugitive dust.
- Simultaneously, the air-borne dust may travel to longer distances and settle in the villages located near the mine lease area.

MITIGATION MEASURES

Drilling – To control dust at source, wet drilling will be practiced. Where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar.

Advantages of Wet Drilling:

- In this system dust gets suppressed close to its formation. Dust suppression become very effective and the work environment will be improved from the point of occupational comfort and health.
- Due to dust free atmosphere, the life of engine, compressor etc., will be increased.
- The life of drill bit will be increased.
- The rate of penetration of drill will be increased.
- Due to the dust free atmosphere visibility will be improved resulting in safer working conditions.

Blasting –

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e. at the time lunch hours, controlled charge per hole as well as charge per round of hole
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored

Haul Road & Transportation –

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin

- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Grading of haul roads and service roads to clear accumulation of loose materials

Green Belt –

- Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas

Occupational Health –

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical check-ups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
- Ambient Air Quality Monitoring will be conducted six month once to assess effectiveness of mitigation measures proposed

11.4.4 NOISE ENVIRONMENT

ANTICIPATED IMPACT

- Noise pollution poses a major health risk to the mine workers. Following are the sources of noise in the existing open cast mine project are being observed such as Drilling, & Blasting, Loading and during movement of vehicles.

MITIGATION MEASURES

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained;

- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise;
- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured though training and awareness.
- Regular medical check–up and proper training to personnel to create awareness about adverse noise level effects.

11.4.5 BIOLOGICAL ENVIRONMENT

ANTICIPATED IMPACT

There are no National Park and Archaeological monuments within project area. There are no migratory corridors, migratory avian-fauna, rare endemic and endangered species. There are no wild animals in the area. No breeding and nesting site were identified in project site. No National Park and Wildlife Sanctuary found within 10km radius. The dumps / bunds around the mine itself act as a good barrier for entry of stray animals. In the post mining stage, barbed wire fencing is proposed all around the mined-out void to prevent fall of animals in the mine pits.

MITIGATION MEASURES

To reduce the adverse effects on natural flora/fauna status of the area due to deposition of dust generated from mining operations, water sprinkling and water spraying systems will be ensured in all dust prone areas to arrest dust generation. Methodical and well-planned plantation scheme will be carried out.

Table 11.12: GREENBELT DEVELOPMENT PLAN

Year	No. of trees proposed to be planted	Survival	Area to be covered Sq.m	Name of the species	No. of trees expected to be gro n
I	100	80%	900	Neem, Pongamia pinnata, etc.,	80
II	100	80%	900		80
III	100	80%	900		80
IV	100	80%	900		80
V	100	80%	900		80

11.4.6 SOCIO ECONOMIC ENVIRONMENT

ANTICIPATED IMPACT

- Employment generation due to the project will provide direct employment for about 26 persons.

MITIGATION MEASURES

- Good maintenance practices will be adopted for plant machinery and equipment, which will help to avert potential noise problems.
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- Appropriate air pollution control measure will be taken to minimize the environmental impact within the core zone.
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules.
- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, DMF, NMET etc, from this project directly and indirectly.

11.5 ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

- The site has been selected based on geological investigation and exploration as below:
- Occurrence of minerals at the specific site.
- Transportation facility for materials & manpower.
- Overall impact on environment and mitigation feasibility
- Socio – economic background.
- The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise for this project.

11.6 ENVIRONMENT MONITORING PROGRAM

Usually, an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by natural or human activities. Hence regular monitoring program of Environmental parameters is essential to consider the changes in the Environment.

The Objective of Monitoring -

- To check or assess the efficiency of the controlling measures;
- To establish a data base for future impact assessment studies.

11.6.1 ENVIRONMENTAL MONITORING CELL

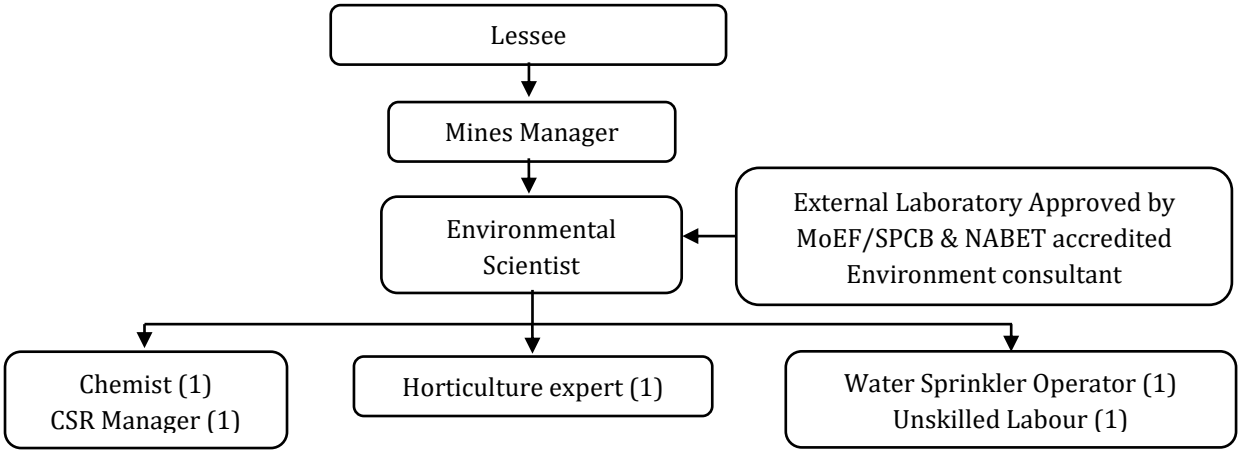

TABLE 11.13: POST ENVIRONMENTAL CLEARANCE MONITORING SCHEDULE

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, $PM_{2.5}$, PM_{10}, SO_2 and NO_x.
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative Humidity and Rainfall
3	Water Quality Monitoring	1 Locations (1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting Operation	Peak Particle Velocity

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

11.7 ADDITIONAL STUDIES

11.7.1 RISK ASSESSMENT

The methodology for the risk assessment has been based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad, vide Circular No.13 of 2002, dated 31st December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities. The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening.

11.7.2 DISASTER MANAGEMENT PLAN

The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

- Rescue and medical treatment of casualties;
- Safeguard other people;
- Minimize damage to property and the environment;
- Initially contain and ultimately bring the incident under control;
- Secure the safe rehabilitation of affected area; and
- Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency

11.7.3 CUMULATIVE IMPACT STUDY

TABLE 11.14: SALIENT FEATURES OF PROPOSAL "P1"

Name of the Mine	Thiru. S. Raju

Survey Nos	180/4, 180/5, 180/8, 180/9, 180/10, 180/11	
Land Type	Patta Land	
Extent	2.50.0 ha	
Mining Plan Period / Lease Period	5Years/10Years	
Ultimate Pit Dimension	192 m (L) x 146 m (W) x 37m (D)	
Latitude between	12°24'03.58"N to 12°24'09.72"N	
Longitude between	79°58'15.82"E to 79°58'23.00"E	
Highest Elevation	67 m	
Machinery Proposed	Jack Hammer	6
	Compressor	2
	Excavator bucket & Rock breaker attached	1
	Tippers (20 tonnes Capacity)	3
Proposed Blasting Method	Controlled Blasting Method	
Manpower Proposed	26 Nos	
Total Project Cost	Rs. 67,60,900/-	

Source: Approved Mining Plan

TABLE 11.15: SALIENT FEATURES OF PROPOSAL "P2"

Name of the Mine	Thiru. S. Dharmaraj
Survey Nos	180/1, 180/2, 180/3, 181/1
Land Type	Patta Land
Extent	2.08.50 ha
Latitude between	12°24'11.77"N to 12°24'7.02"N
Longitude between	79°58'13.13"E to 79°58'17.80"E
Highest Elevation	29 m
Mining Plan is under Preparation	

TABLE 11.16: SALIENT FEATURES OF PROPOSAL "P3"

Name of the Mine	Thiru. S. Ravisundar
Survey Nos	174/5, 174/6, 180/12
Land Type	Patta Land
Extent	1.37.30 ha
Latitude between	12°24'8.01"N to 12°24'4.35"N
Longitude between	79°58'11.97"E to 79°58'15.48"E
Highest Elevation	30 m
Mining Plan is under Preparation	

TABLE 11.17: SALIENT FEATURES OF PROPOSAL "E1"

Name of the Mine	A.Jeevanatham
Survey Nos	172/3, 172/4
Extent	7.52.50
Mining Plan/Lease Period	26.05.2007 to 24.05.2012 (Expired)
Note: Project E1 as stopped due to expiry of quarry lease period (expired on 24.05.2012) and is not considered for cumulative impact as there are no mining operations ongoing during the Baseline Monitoring Period December 2021 to February 2022.	

TABLE 11.18: SALIENT FEATURES OF PROPOSAL "E2"

Name of the Mine	A.Jeevanatham
Survey Nos	172/3, 172/4
Extent	7.52.50
Mining Plan/Lease Period	26.05.2007 to 24.05.2012 (Expired)
Note: Project E1 as stopped due to expiry of quarry lease period (expired on 24.05.2012) and is not considered for cumulative impact as there are no mining operations ongoing during the Baseline Monitoring Period December 2021 to February 2022.	

TABLE 11.19: SALIENT FEATURES OF PROPOSAL "E3"

Name of the Mine	Thiru. S. Ravisundar
Survey Nos	174/1, 174/2, 174/3
Extent	2.07.50 Ha
Mining Plan/Lease Period	02.01.2012 to 01.01.2017 (Expired)
Note: Project E3 as stopped due to expiry of quarry lease period (expired on 01.01.2017) and is not considered for cumulative impact as there are no mining operations ongoing during the Baseline Monitoring Period of December 2021 to February 2022.	

The Cumulative Impact is anticipated due to drilling & blasting and excavation and transportation activities from proposed mines within the 500-meter radius from the proposed mines and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting. The current monitoring was done as existing quarry are working which gives the ambient or present condition of air quality as well as noise.

TABLE 11.20: PREDICTED AIR INCREMENTAL VALUE

Locations	PM_{10} (g/m^3)			$PM_{2.5}$ (g/m^3)			SO_2 (g/m^3)			NO_2 (g/m^3)		
	Inc	Max	Total	Inc	Max	Total	Inc	Max	Total	Inc	Max	Total

AAQ-1	2.2	62.7	64.9	1.2	35.6	36.8	1	9.8	10.8	0.6	27.8	28.4
AAQ-2	4.4	61.5	65.9	2.3	34.5	36.8	1.5	10.4	11.9	2	28.2	30.2
AAQ-3	1	60.7	61.7	0.3	33.7	34	0.1	10	10.1	0.1	27.7	27.8
AAQ-4	1	60.1	61.1	0.3	32.9	33.2	0.1	11.9	12	0.1	31	31.1
AAQ-5	0.3	62.7	63	0.1	36.3	36.4	0.1	11.1	11.2	0.1	30.1	30.2
AAQ-6	2.4	62.4	64.8	1.2	35.3	36.5	1	11.3	12.3	1	29.3	30.3
AAQ-7	1.2	61.7	62.9	0.5	35.1	35.6	0.2	10.6	10.8	0.3	28.6	28.9
NAAQS (g/m^3)	100			60			80			80		

TABLE 11.21: MA IMUM GROUND LEVEL CONCENTRATION

Pollutants	Max. GLC observed, (g/m3)	Distance and Direction
PM_{10}	10.4	1000, W
$PM_{2.5}$	6.6	1000, W
SO_2	5.3	1000, W
NO_2	6.0	1000, W

Noise Environment –

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. Cumulative Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities. Predictions have been carried out to compute the noise level at various distances around the different quarries within the 500 m radius. For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using model based on first principle.

$$Lp_2 = Lp_1 \quad 20 \log (r_2/r_1) \quad Ae_{1,2}$$

Where:

Lp_1& Lp_2 are sound levels at points located at distances r_1& r_2 from the source.

$Ae_{1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

$$Lp_{total} = 10 \log \quad 10^{(Lp1/10)} + 10^{(Lp2/10)} + 10^{(Lp3/10)} + \ldots\ldots\}$$

Attenuation due to Green Belt has been taken to be 4.9 dB (A). The inputs required for the model are: Source data has been computed taking into account of all the machinery and activities used in the mining process.

TABLE 11.22: PREDICTED NOISE INCREMENTAL VALUE

Location ID	Bac ground Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)

Habitation Near Proposed Project Site	46.8	40.8	47.8	55

The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone)

TABLE 11.23: ESTIMATED PEAK PARTICLE VELOCITY FOR E PLOSIVE CHARGE FOR PROPOSED MINES

Distance from blasting site, m	Quantity of Explosive/Blast, Kg	PPV, mm/s
200	92	9.0
225	92	6.8
235	92	5.4
245	92	4.4
255	92	3.7
265	92	3.2
275	92	2.8
300	92	2.5
325	92	2.2
335	92	2.0

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

The nearest habitation from cluster is Venmani Village at 0.73 Km, at NE direction. From the above table, the blasting will not cause any significant ground vibrations in the area. The ground vibrations at nearest habitation will be well within the permissible limits recommended by DGMS.

TABLE 11.24: SOCIO ECONOMIC BENEFITS FROM 6 MINES

Particulars	Project Cost in Rs.	CER @ 2 in Rs.
P1	67,60,900	1,35,200
P2	Mining Plan Under Preparation	
P3	Mining Plan Under Preparation	
E1	Lease Expired	
E2	Lease Expired	
E3	Lease Expired	

Particulars	Project Cost in Rs.	CER @ 2 in Rs.
Total	**67,60,900**	**1,35,200**

CER allocation has been made as per MoEF & CC OM F.No.22-65/2017-IA.III, Dated: 01.05.2018. As per para 6 (II) of the office memorandum, all the mines being a green field project & Capital Investment is ≤ 100 crores, they shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC and the total CER amount from the 6 Mines is Rs. 1,35,000/-.

TABLE 11.25: EMPLOYMENT BENEFITS FROM 6 MINES

	Direct Employment	Indirect Employment
P1	26 Nos	35 Nos
P2	Mining Plan Under Preparation	
P3	Mining Plan Under Preparation	
E1	Lease Expired	
E2	Lease Expired	
E3	Lease Expired	
Total	**26 Nos**	**35 Nos**

A total of 26 people will get employment due to these mines in cluster.

Greenbelt Development –

TABLE 11.26: GREENBELT DEVELOPMENT BENEFITS FROM 6 MINES

CODE	No of Trees proposed to be planted	Survival	Area Covered Sq.m	Name of the Species	No. of Trees expected to be gro n
P1	500	80%	4500	Neem, Pungan, Casuarinas and other regional trees	400
P2	Mining Plan is under Preparation				
P3	Mining Plan is under Preparation				
E1	Lease Expired				
E2	Lease Expired				
E3	Lease Expired				
Total	**500**	**80**	**4500**		**400**

Based on the Proposed Mining Plans its anticipated that there shall growth of native species of Neem, Casuarina, Pungan etc in the Cluster at a rate of 500 Trees Planted over a period of 5 Years with Survival Rate of 80% and expected growth is around 400 Trees over an area of 4500 Sq.m.

11.8 PRO ECT BENEFITS

Proposed Project for Quarrying Rough Stone at Periya Venmani Village aims to produce 3,19,840 m^3 Rough Stone & 7,338 m^3 of Gravel during the Mining Plan Period. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

- Increase in Employment Potential
- Improvement in Socio-Economic Welfare
- Improvement in Physical Infrastructure
- Improvement in Social infrastructure

11.9 ENVIRONMENT MANAGEMENT PLAN

The Environment Monitoring Cell discussed formed by the mine management will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level.
The said team will be responsible for:

1. Implementation of pollution control measures as suggested in Environmental Management Plan and recommended in EC
2. Conducting environmental monitoring as per EMP and EC stipulation through external laboratories approved by MoEF/SPCB and NABL
3. Ensuring compliance with other conditions stipulated in Environmental Clearance for the project.
4. Ensuring compliance with the conditions stipulated in 'Consent to Operate' for the project.
5. Timely submission of compliance status to MoEF/ SPCB
6. Seeking experts' guidance, as and when required.
7. Conducting CSR activities in nearby villages.
8. Co-ordination of the environment related activities within the project as well as with outside agencies
9. Collection of health statistics of the workers and population of the surrounding villages
10. Green belt development
11. Monitoring the progress of implementation of the environmental monitoring programme
12. Monitoring of the water/ waste water quality, air quality and solid waste generated
13. Analysis of the water and air samples collected through external laboratory
14. Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, wastewater treatment plant, etc.

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

11.10 CONCLUSION

It can be concluded from overall assessment of the impacts, in terms of positive and negative effects on various environmental components, that the mining activities will not have any adverse effect on the surrounding environment.

To mitigate any impacts due to the mining activities, a well-planned EMP and a detailed post project monitoring system is provided for regular monitoring and immediate rectification at site. Due to the cluster quarrying activities, socio economic conditions in and around the project site will be improved substantially. Hence, the Prior Environmental Clearance shall be granted at the earliest.

CHAPTER 12: DISCLOSURE OF CONSULTANTS

12.1 Disclosure of Consultant

M/s Enviro Resources is a NABET Accredited EIA consultant as per NABET Certificate: NABET/EIA/1922/SA0133 valid upto 30th March 2022. The registered office of Enviro Resources is at E-604, Crystal Plaza, New Link Road, Andheri (W), Mumbai 400 053, Maharashtra. NABET Certificate is provided in **Figure 12.1.**

M/s Enviro Resources is engaged in providing following environmental consultancy services to their valuable clients:

1) Obtaining **Environmental Clearance** from Department of Environment of State Govt. and MoEF & CC, GOI
2) Environmental Impact Assessment **(EIA)** studies and Environmental Management Plan **(EMP)**
3) Environmental Due Diligence Services
4) Consent to Establish, Operate, Renewal& its amendments from State Pollution Control Board
5) **CR Clearance** from Central & State CZMA (Coastal Zone Management Authority)
6) **Forest Clearance** from MoEF & CC, GOI
7) Environmental **Compliance Report** preparation for Environmental Clearances, Consent to Establish and Consent to Operate
8) Designing and Commissioning of **ETP, STP, WTP**& Zero Liquid Discharge **(LD)** Plant
9) Preparation of Quantitative Risk Analysis **(QRA), HA OP, HA ID**, Disaster Management Plan **(DMP)** Reports.
10) Preparation of On-site & Off-site Emergency Preparedness Plan
11) Reply for legal directions & Revocation of closure.

QCI

NABET

Quality Council of India

National Accreditation Board for Education & Training

Certificate of Accreditation

Enviro Resources

1604 Roopnagar CHS, S.V.Road, Kandivali West, Mumbai- 400067, Maharashtra

*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)	B
2	River Valley	3	1(c)	A
3	Thermal power plants	4	1 (d)	A
4	Coal washeries	6	2 (a)	B
5	Metallurgical industries (ferrous & nonferrous)	8	3 (a)	A
6	Pesticide industry and pesticide specific intermediates	17	5 (b)	A
7	Petro-chemical complexes	18	5 (c)	A
8	Synthetic organic chemicals industry	21	5 (f)	A
9	Distilleries	22	5 (g)	A
10	Sugar Industry	25	5(j)	B
11	Isolated storage & handling of hazardous chemicals	28	-	B
12	Airports	29	7 (a)	A
13	Ports, harbours, break waters and dredging	33	7 (e)	A
14	Highways	34	7(f)	A
15	Building and construction projects	38	8 (a)	B
16	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SA AC minutes dated Dec.18, 2020 and supplementary minutes dated Mar. 24 and May 07, 2021 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/21/1774 dated June 12, 2021.The accreditation needs to be renewed before the expiry date by Enviro Resources, Mumbai following due process of assessment.

Sr. Director, NABET
Dated: June 12, 2021

Certificate No.
NABET/EIA/1922/SA 0133

Valid up to
30-03-2022

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

FIGURE 12.1 NABET CERTIFICATE ENVIRO RESOURCES, MUMBAI

ANNEXURE I: PREVIOUS EC LETTER

ENVIRONMENTAL CLEARANCE

STATE LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY – TAMIL NADU

सत्यमेव जयते

3rd Floor, PanagalMaaligai,
No.1,Jeenis Road, Saidapet,
Chennai-15.
Telephone :044 – 2435 9974

Thiru. V. Thangavelu, I.A.S. (Retd.)	Thiru V. Haridass	Dr. H. Malleshappa, I.F.S
Chairman	Member	Member Secretary

Lr. No.SEIAA-TN/F.No.3188/EC/1(a)/1919/2014 dated: 30.03.2015

To
Thiru D. Karthikeyan,
No 66, Rajendraprasad Road
Krishna Nagar
Chrompet
Chennai- 600 044

Sir,

Sub: SEIAA-TN –Proposed Rough Stonre & Earth Quarrying at S.F No.12/3A2, 12/3A3, Veeralur Village, Madurantakam Taluk, Kancheepuram District by Thiru D. Karthikeyan- Environmental Clearance – Regarding

Ref: 1. Your Application for Environmental Clearance dt: 25.11.2014
2. Minutes of the 64th SEAC meeting held on 20.03.2015 & 21.03.2015
3. Minutes of the SEIAA meeting held on 30.03.2015

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1. Preamble:-

This has reference to your application first cited. The proposal is for obtaining environmental clearance for Rough Stonre & Earth Quarrying at S.F No. 12/3A2, 12/3A3, Veeralur Village, Madurantakam Taluk, Kancheepuram District. The proposed mining area is reported as lying in Latitude - 12°23'13"N to 12°23'22"N; Longitude 79°58'27"E to 79°58'34"E in Topo Sheet No.57/P-15.

The mine lease area of this proposal is 2.89.5 ha. As per the proposals, the following is the land use pattern to be adopted by the proponent.

Description	Area at the end of lease period (Ha.)
Area under quarrying	1.55.4
Infrastructure	0.01.0
Roads	0.01.0
Green Belt	0.17.6
Unutilized	1.14.5
Total	**2.89.5**

The proponent shall carry out mining operation only in the area under quarry of 1.55.4 Ha. mentioned above.

MEMBER SECRETARY

ENVIRONMENTAL CLEARANCE

The total area of Proposed/Existing/abandoned quarries within 500 m radius exceeds 5 ha. Hence General condition is applicable, as per the Notification No. S.O.2601(E) of Ministry of Environment , Forest and Climate change, dated 07.10.2014. Hence, the proponent has furnished the following details in Form-I and Prefeasibility Report:

1. There are no protected areas notified under the Wildlife (Protection) Act, 1972 are located within 10km radius of the proposed project site.
2. There are no critically polluted areas as identified by CPCB constituted under Water (Prevention and Control of Pollution) Act, 1974, are located within 10km radius of the proposed project site.
3. There are no Eco Sensitive areas as notified, are located within 10km radius of the proposed project site.
4. There are no Interstate boundaries and International boundaries within 10Km radius from the boundary of the proposed site.

The proponent is squarely responsible to the correctness of the above affirmations.

In the above circumstances this proposal is treated as B2 category and public consultation is not required as per O.M. dated 24.12.2013 of MoEF, GoI.

No forest land is involved. Mine working will be open cast semi-mechanised mining and is proposed upto a depth of 22 metres. The production would be 201990 cu.m of Rough Stone & 16054 cu.m of Earth formation over a period of 5 Years. Water requirement of 0.3 KLD for drinking purposes will be sourced through Water vendors and 0.7 KLD required for dust suppression and green belt will be sourced from Existing bore hole. The proponent has submitted the mining plan approved by the Deputy Director, Geology and Mining, Kancheepuram District vide Rc. 185/2014-Q3 dated 27.08.2014. The precise area communication has been approved by the District Collector, Kancheepuram in letter 185/2014-Q3 dated 20.08.2014. The project cost is Rs.57.68 lakhs. EMP cost isRs.4.05 lakhs.

The proponent has furnished sworn affidavits in the Non judicial stamp paper stating the following and he is responsible to its correctness:

1. The total area of all quarries located within 500 meter radius from the periphery of my quarry does not exceed 25 hectares.
2. No habitations are located within 500 meters radius from the periphery of my quarry.

The proposal was appraised by the SEAC based on the project documents furnished and the explanation made before the Committee in its 64th meeting held on 20.03.2015 & 21.03.2015. The SEAC has recommended for the grant of environmental clearance for the said Rough Stonre & Earth quarry project.

MEMBER SECRETARY

STATE LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY

ENVIRONMENTAL CLEARANCE

The proposal was placed before the SEIAA in its 125th meeting held on 30.03.2015 and hence decided to grant environmental clearance to the said project subject to usual terms and conditions. Accordingly, the SEIAA hereby accords environmental clearance to the said project under the provisions of Environment Impact Assessment Notification, 2006 subject to strict compliance of the terms and conditions as follows:-

2. Conditions to be Complied before commencing mining operations:-

i. The project authorities should advertise with basic details at least in two widely circulated local newspapers, one of which shall be in the vernacular language of the locality concerned, within 7 days of the receipt of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at the web site of the SEIAA,TN at http://seiaa.tn.gov.in and a copy of the same is being sent to the Regional Office of Ministry of Environment and Forest, Government of India located at Chennai.

ii. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.

iii. Copy of the Environmental Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat/Panchayat union, Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.

iv. Provision shall be made for the housing of construction labour nearby the site with all necessary infrastructure and facilities such as fuel for cooking, toilets, safe drinking water, etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

v. The proponent shall ensure that First Aid Box is available at site.

vi. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.

3. Specific Conditions:

i. The environmental clearance will be coterminous with the mine lease period, however limited to a maximum period of 5 Years from the date of issue of EC.

MEMBER SECRETARY

ii. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.

iii. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.

iv. It shall be ensured that quarrying shall not be carried out below ground water table under any circumstances. If ground water table occurs/intervenes within the permitted depth, then also quarrying shall be stopped.

v. At the end of mine closure, the Proponent shall immediately remove all the sheds put up in the quarry and all the equipment in the area at the time of closure of the operation of quarry. The mine closure plan as furnished in the proposals shall be strictly followed with back filling and tree plantation.

vi. At the end of mining operations and wherever the mined out pit has to be left open as water reservoir, the Proponent shall immediately fence the entire area and access to the public is to be restricted. If the eater accumulated has to be used by the nearby inhabitants, then the water has to be tested periodically for potability and only when all parameters are within the prescribed limit it could be allowed for public consumption. A sign board indicating the potability of the water is to be erected for public information.

vii. The critical parameters such as RSPM (Particulate matter with size less than 10micron i.e., PM10) and NOX in the ambient air within the core zone shall be monitored periodically. The monitored data shall be uploaded on the website of the proponent as well as displayed on a display board at the project site .The Circular No. J-20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred to in this regard for its compliance.

viii. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Regional Office of the Ministry of Environment and Forests, Chennai.

ix. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.

x. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.

MEMBER SECRETARY

xi. Blasting shall be carried out after announcing to the public through adequate public address system to avoid any accident.

xii. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.

xiii. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.

xiv. The following measures are to be implemented to reduce Air Pollution during transportation of mineral

- Roads shall be graded to mitigate the dust emission.
- Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust

xv. The following measures are to be implemented to reduce Noise Pollution

- Proper and regular maintenance of vehicles and other equipment
- Limiting time exposure of workers to excessive noise.
- The workers employed shall be provided with protection equipment and earmuffs etc.
- Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.

xvi. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.

xvii. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.

xviii. Permission from the competent authority should be obtained for drawal of ground water, if any, required for this project.

xix. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.

xx. The following measures are to be adopted to control erosion of dumps:-

- Retention/ toe walls shall be provided at the foot of the dumps.
- Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.

MEMBER SECRETARY

xxi. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.

xxii. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

xxiii. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.

xxiv. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.

xxv. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydrogeological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.

xxvi. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.

xxvii. It shall be ensured that the total extent of nearby quarries located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares.

xxviii. It shall be ensured that there is no habitation is located within 500 meter radius from the periphery of the quarry site.

xxix. Ground water quality monitoring should be conducted once in 3 Months

xxx. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.

xxxi. Rainwater shall be pumped out Via Settling Tank only

xxxii. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.

MEMBER SECRETARY

ENVIRONMENTAL CLEARANCE

4. General Conditions:

i. The project proponent shall obtain Consent to Establish and Consent to Operate from the Tamil Nadu Pollution Control Board and effectively implement all the conditions stipulated therein.

ii. No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.

iii. No change in the calendar plan including excavation, quantum of mineral should be made.

iv. The project proponent shall ensure that the plan of mining is in conformity with the mine lease conditions and the Rules prescribed in this regard, clearly showing the no work zone in the mine lease i.e. the distance from the bridges structures adjacent private land, streams river lake etc.

v. The project proponent shall ensure that wherever deployment of labour attracts the Mines Act, the provision insurance thereof shall be strictly followed.

vi. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.

vii. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area and the approach road as per the sworn affidavit furnished.

viii. The proponent shall maintain the village road through which transportation of mineral is carried out at his own cost. The roads shall be blacktopped to the extent required.

ix. Quarrying should enrich rather than deplete the biodiversity as a corollary to their intervention in the ecology of their area of activity.

x. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the Proponent particularly in respect of

- Aerial distance of the nearest village is as mentioned in the proposal from the mining site boundary
- No structure is located within 500 m from the quarry site boundary.

xi. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.

xii. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.

MEMBER SECRETARY

xiii. The Regional Office of the Ministry located at Chennai shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

xiv. The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Chennai, the respective Zonal Office of Central Pollution Control Board, SEIAA, TN and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Chennai, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.

xv. The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Chennai by e-mail.

xvi. Precise mining area will be jointly demarcated at site by officials of Mining / Revenue department prior to mining operations for all proposals under consideration. Such site plan, duly verified by competent authority shall be submitted to Environment Department.

xvii. All necessary statutory clearances shall be obtained before start of mining operations

xviii. Mining shall be limited to 7 AM to 5 PM only. The loading shall not be done during night hours.

xix. Waste water, if any, shall be properly collected and treated so as to conform to the standards prescribed by MoEF/CPCB.

xx. No wildlife habitat will be infringed.

xxi. Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, if applicable.

xxii. Parking of vehicles should not be made on public places.

xxiii. Transportation of materials shall be done by covering the trucks / tractors with tarpaulin or other suitable mechanism so that no spillage of mineral/dust takes place. No overloading of trucks shall be allowed.

MEMBER SECRETARY

xxiv. Any change in mining area, SF numbers, entailing capacity addition with change in process and or mining technology, modernization and scope of working shall again require prior Environmental Clearance as per provisions of EIA Notification, 2006 (as amended from time to time)

xxv. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.

xxvi. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.

xxvii. The SEIAA, TN may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

xxviii. The SEIAA, TN may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, if, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.

xxix. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

xxx. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments,draft Minor Mineral Conservation & Development Rules , 2010 framed under MMDR Act 1957,National Commission for protection of Child Right Rules ,2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

xxxi. Hill area conservation Authority approval where ever necessary shall be obtained before commencing the quarrying operation.

xxxii. Any other conditions stipulated by other Statutory/Government authorities shall be complied.

xxxiii. If the periphery of any other quarry (sand, savudu, rough stone, granite etc.,) is located within 500 mts. from the periphery of this site and if the total extent of both the existing quarry and the quarry now cleared for Environmental Clearance exceeds

MEMBER SECRETARY

25 ha. of mining area, then this Environmental Clearance is not valid, since the activity shall become Category 'B1" project under the EIA Notification, 2006.

xxxiv. **In the event of the above condition is applicable, then the proponent concerned, is to file a fresh application under EIA Notification, 2006, seeking Environmental Clearance in respect of the cluster. [A cluster of mines is defined wherein more than one mining site is located within 500 mts., from the periphery of another nearby mining site and the total area of these mining sites exceeds 25 ha. Then a EIA study report along with Public Consultation are necessitated].**

xxxv. As CSR activity the project proponent shall take care of the needs of a nearby Government school by providing essential amenities.

xxxvi. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

MEMBER SECRETARY
SEIAA-TN

Copy to:

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

MEMBER SECRETARY

3942/2015

தமிழ்நாடு தமிலனாடு TAMILNADU

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23/9/2015
D.KARTHIKEYAN
Chennai - 44

A. VALLIMANAVALAN (S V
06 / CH (S) / 2008 Dt. 19-11-20(
West Tambaram, Chennai-4
Cell: 9840386492

APPENDIX – IV

(See Rule 19 and 22)

FORM OF AGREEMENT FOR QUARRYING AND CARRYING AWAY MINOR MINERALS FROM RYOTWARI LANDS IN WHICH THE MINERALS BELONG TO GOVERNMENT

(Reference No. 185 / Q3 / 2014 Dated 28. 10.2015)

AGREEMENT MADE THIS 28th day of October 2015 between Thiru.D.KARTHIKEYAN, S/o. K. DHANASEKAR, (M) 9942984513 No.66, Rajendra Prasad Road, Krishna Nagar, Chrompet. Chennai - 600 044 (hereinafter referred to as 'the registered holder / lessee ' which term shall include in these presents where the context so admits include also his heirs, executors administrators, legal representatives and assigns) of the one part and the Governor of Tamil Nadu (hereinafter called "the Government" which term shall where the context so admits, include also his successors in office and assigns) of the other part.

REGISTERED HOLDER / LESSEE

DISTRICT COLLECTOR,
KANCHIPURAM.

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SUB-REGISTRAR
PAYYUR

தமிழ்நாடு तमिलनाडु TAMILNADU

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23/9/2015

D.KARTHIKEYAN
Chennai - 44

A. VALLIMANAVALAN (S.V
06 / CH (S) / 2008 Dt. 19-11-200
West Tambaram, Chennai-45
Cell: 9840386492

-2-

WHEREAS, the registered holder holds (amongst others) the lands described in the schedule hereunder written (hereinafter referred to as the said lands);

AND WHEREAS, the registered holder has made application to the Collector of the District of Kancheepuram (hereinafter referred to as "the Collector") seeking grant of quarrying lease for quarrying Rough Stone and Earth in the said lands and to deposit mining waste thereon for a term of 5 years and has lodged with the Collector an accurate map or sketch of the said lands;

AND WHEREAS, the Collector, acting for and on behalf of the Government, has granted a quarrying lease to the registered holder and allowed him to commence quarrying operations for Rough Stone and Earth in the said lands and to deposit mining waste thereon by the registered holder for a term of Five years from 28.10.2015 to 27.10.2020.

REGISTERED HOLDER / LESSEE

DISTRICT COLLECTOR,
KANCHIPURAM

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SUB-REGISTRAR
CHEYYUR

தமிழ்நாடு தமிழ்நாடு TAMILNADU

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23/9/2015

D. KARTHIKEYAN
Chennai - 44

A. VALLIMANAVALAN (S.V.)
05 / CH (S) / 2008 Dt. 19-11-2008
West Tambaram, Chennai-45
Cell: 9840386492

AND WHEREAS, the registered holder has deposited with the Collector the sum of Rs. 5,000/- remitted at State Bank of India, Kancheepuram vide challan No. Nil, dated 23.09.2015 as security against loss or damage which may be incurred by the Government by reason by any of the said lands being rendered and unfit for cultivation by any mining operations therein of the registered holder or by deposit of mining waste thereon by the registered holder.

NOW THESE PRESENTS WITNESS and the registered holder doth hereby agree with the Government in the manner following, that is to say:-

01 The registered holder shall be at liberty at all times during the period of the lease to carry on mining operations for Rough Stone and Earth in the lands in a proper and workman like manner and to deposit mining waste on the lands and shall at all times be answerable and accountable to the Government for all acts and defaults by any of his nominees, servants or agents in carrying on such operations or in making such deposit.

REGISTERED HOLDER / LESSEE

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DISTRICT COLLECTOR,
KANCHIPURAM

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SUB-REGISTRAR
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23/9/2015

D. KARTHIKEYAN
Chennai-44

A. VALLIMANAVALAN (S.V.)
06/CH(S)/2008 Dt. 19-11-2008
West Tambaram, Chennai-45
Cell: 9840386492

-4-

02 The registered holder shall pay to the Collector for and on behalf of the Government in addition to the land assessment for the time being payable in respect of the said lands seigniorage on the minor minerals at the rates specified in the Appendix II to the Tamil Nadu Minor Mineral Concession Rules, 1959.

03 The registered holder shall and will keep correct accounts in such form as the Collector Shall from time to time require and direct showing the quantities and other particulars of all minerals obtained by the registered holder from the said lands and also the number of persons employed in carrying on the said mining operations therein and shall from time to time when so directed by the Collector prepare and maintain complete and correct plans of all mines and working in the said lands and shall allow any officer hereunto authorised by the Director of Geology and Mining, Tamil Nadu from time to time and at any time to examine such accounts and any such plans and shall when so required supply and furnish all such informations and returns regarding all or any of the matter aforesaid as the Government shall, from time to time required and direct.

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भारत

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23/9/15

D. KARTHIKEYAN
Chennai-44

A. VALLIMANAVALAN (S.V.)
06 / CH (S) / 2008 Dt. 19-11-2008
West Tambaram, Chennai-45
Cell: 9840386492

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04 The Registered holder shall and will at all times, allow any officer authorized by the Director of Geology and Mining, Tamil Nadu in that behalf to enter upon any part of the said lands where any mining operations may be carried on for the purpose of inspecting the same.

05 The registered holder shall forthwith send to the District Collector a report of any accident, which may occur at or in the said lands and also of the discovery of any mineral other than Rough stones.

06 It shall be lawful for the registered holder at any time to cease mining operations under these presents provided he shall pay to the Collector for and on behalf of the Government Land assessment, cess and seigniorage due to the Government and shall restore the said lands or fence, or fill in abandoned pits and excavations therein if required by the Collector and upon his so doing these presents shall cease and determine.

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KANCHIPURAM

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07 In case the registered holder shall relinquish the whole or any part of the said lands or in case of the expiry or sooner determination of this agreement then and in any such case, he shall restore the lands so relinquished or so much thereof as the Collector shall require to be restored to a state fit for cultivation or shall securely and permanently fence or fill in all such abandoned pits and excavations therein as the Collector shall require to be so fenced or filled in, and in case the registered holder shall fail or neglect to restore any such land which he shall be required to restore to a state fit for cultivation or to so fence, or fill in any such abandoned pit or excavation which he shall be required to so fence or fill in them in any such case, it shall be lawful for the Collector to so restore any such land, or as the case may be, to so fence or fill any such pits or excavation at the expense of the registered holder and to apply the said sum of Rs.5,000/- so deposited in or towards the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands which shall have been rendered unfit for cultivation. If however, the amount of deposit is not sufficient to cover the cost of such restoration or fencing or filling in or to meet thirty times the assessment on the area rendered and uncultivable, it shall be lawful for the Government to recover the balance by resort to civil court.

08. The registered holder shall not be entitled to any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by the carrying on of any mining operation or by the deposit of mining waste, unless thirty times the assessment thereon has already been deducted under the preceding clause.

09. The registered holder shall not assign, lease or part with the possession of the said lands or any part thereof for the whole or any part of the said term without previous intimation in writing to the Collector.

10. All land assessments, cess and seigniorage payable under these presents shall be recoverable under the provisions of the Tamil Nadu Revenue Recovery Act 1864, as if they were arrears of land revenue.

DOCT. NO. 2915

REGISTERED HOLDER / LESSEE

DISTRICT COLLECTOR,
KANCHIPURAM.

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SUB-REGISTRAR
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11 In the event of any breach by the registered holder by any of the conditions of this agreement, it shall be lawful for the Government to levy enhanced seigniorage or for the Collector to give notice in writing to the registered holder of his intention to cancel these presents where upon the same shall stand cancelled but without prejudice to any rights which the Government may have against the Pattadar in respect of any antecedent claim or breach of covenant or condition.

12. Any notice to be given to the registered holder may be addressed to his last known place of abode and where a notice has been so addressed, it shall be deemed to have been duly served for the purpose of these presents.

13. Should any question or dispute arise regarding the agreement executed in pursuance of these rules or any matter or thing connected therewith or the powers of the registered holder thereunder, the amount or payment of the seigniorage fee or area assessment made payable thereby, the matter in issue shall be decided by the Director of Geology and Mining. In case the registered holder / registered holders, lessee / lessees is / are not satisfied with the decision of the Director of Geology and Mining, the matter shall be referred to the State Government for decision.

14. The registered holder shall abide by the conditions laid down in the Payment of Wages Act 1936, (Central Act IV of 1936), the Mines Act, 1952 (Central Act XXXV of 1952) and the Explosives Act 1884 (Central Act IV of 1884).

15 Quarrying operations should be carried out in accordance with the approved mining plan. If the mining operations are not carried out in accordance with the approved mining plan, the District Collector may order suspension of all quarrying operations, by way of rectification to restore the conditions as may be necessary in the quarry as envisaged under the said mining plan.

நிபந்தனைகள்:-

1. குத்தகைதாரர் தனக்கு அளிக்கப்பட்ட குத்தகை பகுதியின் எல்லைகளை தெளிவாக காட்டும் வகையில் கல் நட்டு வண்ணம் இட்டு குத்தகை காலம் முழுமைக்கும் பராமரிக்க வேண்டும்.

2. குத்தகைதாரர் குவாரியின் அருகே குத்தகைதாரர் பெயர், கிராமத்தின் பெயர், வட்டத்தின் பெயர், புல எண். பரப்பு, குத்தகை ஆணை எண். குத்தகை காலம், கனிமத்தின் பெயர், போன்ற விபரங்கள் குறிக்கப்பட்ட தகவல் பலகையை நமது சொந்த செலவில் வைத்து நன்கு பராமரிக்க வேண்டும்.

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3. குவாரிக்கு சென்றுவரும் பாதை வசதிகள் குத்தகைதாரர்கள் அவர் தம் சொந்த பொறுப்பிலேயே அமைத்துக் கொள்ள வேண்டும்.

4. குத்தகை வழங்கப்பட்ட பாறையில் குண்டுக்கல், ஜல்லி, அரளை கல், வேலிக்கற்கள், போன்ற சிறுகனிமங்கள் உடைத்தெடுக்க மட்டுமே அனுமதியுண்டு. வெளிநாடுகளுக்கு ஏற்றுமதியாகும் மெருகூட்டும் கனவடிவ கற்கள் வெட்டி எடுக்கக் கூடாது.

5. குவாரியிலிருந்து கொண்டு செல்லப்படும் மேற்கண்ட வகை கற்களுக்கு 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் பின் இணைப்பு II-ல் கண்டுள்ளவாறு உரிமவரி செலுத்த வேண்டும். அரசு அவ்வப்போது அறிவிக்கும் உரிமவரி மாற்றங்களுக்கு ஏற்ப எவ்வித ஆட்சேபணை இன்றி செலுத்துதல் வேண்டும்.

6. குத்தகை அனுமதி வழங்கப்பட்ட நிலத்திலிருந்து கொண்டு செல்லப்பட்ட கற்களுக்கு முறையான கணக்குகளும், குழிவாயில் பதிவேடும் முறையாக பராமரித்தல் வேண்டும். அவற்றை சம்பந்தப்பட்ட அலுவலர்கள் தணிக்கைக்கு ஆஜர்படுத்த கோரினால் தவறாது சமர்ப்பிக்க வேண்டும்.

7. உதவி இயக்குநர் (புவியியல் மற்றும் கரங்கத்துறை)-ன் அலுவலக முத்திரை, கையொப்ப முத்திரையுடன் கூடிய உரிய அனுப்புகைச் சீட்டை வாகனங்களுக்கு கொடுக்கப்படும் போது அனுப்புகைச் சீட்டில் வாகன எண். தேதி, புறப்படும் நேரம், செலுத்துமிடம் ஆகியவற்றை முறையாகக் குறிப்பிட்டு கையொப்பம் இட்ட பின்னரே, குத்தகைதாரரோ அல்லது அவரது அனுமதி பெற்ற நபரோ கொடுக்க வேண்டும். மேற்கண்டவாறு குறிப்பிடுவதில் ஏதேனும் தவறுகள் இருந்தாலோ, கலங்கள் பூர்த்தி செய்யப்படாமல் இருந்தாலோ முறையற்ற வகையில் கனிமம் எடுத்துச் செல்வதாகக் கருதப்பட்டு வாகனத்தை கைப்பற்றி அபராதம் விதிப்பதோடு, அதற்கு குத்தகைதாரரை பொறுப்பாக்கி கனிம விதிகளின் படி மேல் நடவடிக்கை எடுக்கப்படும்.

8. இந்த ஆணையில் குத்தகை அனுமதி வழங்கப்பட்ட புலத்தை முழுமையாகவோ, பகுதியாகவோ எவருக்கும் உள் குத்தகைக்கு விடுவதோ அல்லது கிரையம் செய்வதோ கூடாது.

9. குத்தகைதாரர் ஒவ்வொரு நாளும் குவாரியில் இருந்து எவ்வளவு சிறுகனிமங்கள் எடுக்கப்பட்டது என்பதையும் எந்த அளவு கனிமங்கள் லாரி/ வண்டி மூலம் வெளியே அனுப்பப்பட்டது என்ற விபரத்தையும் காட்டும் பதிவேட்டினைப் பராமரித்து வரவேண்டும்.

10. குத்தகைதாரர், தமக்கு குத்தகை வழங்கப்பட்ட பகுதிக்கு அருகில் உள்ள பட்டா நிலத்திற்கு எவ்வித இடையூறும் இல்லாமல் குவாரிப் பணி செய்யப்பட வேண்டும்.

11. வண்டிப்பாதை மற்றும் நடைபாதைகளில் இருந்து 10 மீட்டர் தூரம் தள்ளி குவாரி செய்ய வேண்டும். ரோடுகள், புகைவண்டிப்பாதை, பொதுப்பணித்துறை, வாய்க்கால், பொதுமக்கள் உபயோகத்திற்கான பகுதிகள், மின்சாரம் மற்றும் தொலைபேசி கம்பி செல்லும் பகுதிகள், வழிபாட்டு இடங்கள் மற்றும் பழங்கால சின்னங்கள் உள்ள பகுதிகள் ஆகியவற்றில் இருந்து 50 மீட்டர் பாதுகாப்பு தூரம் விட்டு குவாரி செய்ய வேண்டும்.

12. குத்தகைக்கு விடப்பட்டுள்ள விஸ்தீரணத்தில் மட்டுமே குத்தகைதாரர் குவாரி செய்ய வேண்டும். அதற்கான கூடுதலான விஸ்தீரணத்தில் குவாரி செய்வது தெரியவந்தால் அபராத நடவடிக்கை மேற்கொள்வதுடன் குத்தகை இரத்து செய்ய நடவடிக்கை எடுக்கப்படும்.

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13. குத்தகை நிபந்தனை மீறப்பட்டால் குத்தகை இரத்து செய்யவோ, செய்யப்பட்ட தவறுதலுக்கு அபராத நடவடிக்கை எடுத்து தண்டம் விதிக்கவோ அல்லது கிரிமினல் வழக்குத் தொடுக்க மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு. குத்தகை ரத்து செய்யப்பட்டால் காப்புத் தொகை உட்பட அனைத்து தொகைகளும் அரசுக்கு ஆதாயமாக்கப்படும்.

14. குத்தகைதாரர் தமிழ்நாடு சிறுவகைக்கனிம சலுகை விதிகள் 1959ல் கண்டுள்ள விதிகளுக்கும் மற்றும் அரசு அவ்வப்போது அறிவிக்கும் சட்டதிட்டங்களுக்கும் உட்பட்டு குவாரிப்பணிகள் செய்ய வேண்டும்.

15. குவாரி குத்தகை உரிமம் காலாவதியான பின்பு எக்காரணத்தை முன்னிட்டும் மீண்டும் புதுப்பிக்கவோ அல்லது கால நீட்டிப்போ செய்து தரப்பட மாட்டாது.

16. வெடிபொருள் சட்டம் 1884ல் தெரிவிக்கப்பட்ட சரத்துக்கள்படி குறைந்த அளவு வெடிபொருளை உபயோகித்து கற்கள் வெளியே சிதறாமலும், சத்தம் அதிகம் ஏற்படாமலும், பொதுமக்களுக்கும், கால்நடைகளுக்கும், எவ்வித பாதிப்பும் இன்றியும் கல்குவாரி பணி செய்யப்பட வேண்டும்.

17. வெடிபொருள்கள் அரசு உரிமம் பெற்ற விற்பனைதாரரிடம் மட்டுமே பெற்று வெடிப்பதற்கு உரிமம் / அங்கீகாரம் பெற்ற வெடிப்பாளர்களை (Blaster / Mines mate) கொண்டு கல் குவாரியில் வெடி வைக்க வேண்டும்.

18. குழந்தை தொழிலாளர்கள் எவரையும் வேலைக்கு அமர்த்துதல் கூடாது.

மேற்குறிப்பிட்ட நிபந்தனைகள், சிறப்பு நிபந்தனைகள் மற்றும் கனிம சட்டம் விதிகளை மீறியுள்ளது உறுதிபடும் தருணத்தில் விதிமுறைகளின்படி குத்தகை இரத்து செய்ய நடவடிக்கை எடுக்கப்படும். மேற்கண்ட நிபந்தனைகள் ஒப்பந்தப் பத்திரத்தில் கண்டுள்ள நிபந்தனைகள், மாநில சுற்றுச் சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் நிபந்தனைகள் மற்றும் 1959-ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் ஆகியவற்றின் அடிப்படையில் குத்தகைதாரர் குவாரிப் பணி புரிய வேண்டும்.

Special Conditions:

1. 7.5 mtrs. safety distance to be provided to the adjacent patta lands.
2. 10 mtr. safety distance to be provided to the adjoining Kattudevadhur Village Road.
3. Quarrying should be restricted to the lease granted area only and barbed wire fencing should be erected all along the boundary of the lease granted area before the commencement of quarrying operation.
4. The grantee should obtain consent to establish and consent to operate from the Tamil Nadu Pollution Control Board and effectively implement all the conditions laid down under the Environment Clearance issued by the Member Secretary, State Level Environment Impact Assessment Authority vide letter No. SEIAA - TN / F. No. 2881 / EC / (a) / 1622 / 2014 dated. 19.02.2015.

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As per Approved Mining Plan and the Environmental Clearance accorded by the State Level Environment Impact Assessment Authority, Chennai in No. SEIAA - TN / F. No. 2881 / EC / (a) / 1622 / 2014 dated. 19.02.2015 the total production of Rough stone for the five years lease period is 201990 cubic meter. Hence for the purpose of calculating stamp duty the anticipated seigniorage fee is Rs.90,89,550/- (Rupees Ninety Lakhs Eighty Nine thousand Five Hundred and Fifty only) for the entire lease period of 5 years.

THE SCHEDULE

Name of the District : Kancheepuram

Name of the Taluk : Maduranthakam

Name of the Village : Viralur

Name of the Sub-Registration District : Cheyyur

Period : From 28.10.2015 to 27.10.2020 (Five years)

Area Assessment Rs.1448/-

S.No.	S.F. No.	Extent (In hects)	North	South	West	East
1	12/3A2	1.41.5	11/3A and 11/3B	12/3A3	Kattudevadur Village Road.	12/3A1 and 12/3B
2.	12/3A3	1.48.0	12/3A2	Kattudevadur Village boundary	Kattudevadur Village Road.	12/3C
	Total	2.89.5				

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IN WITNESS WHEREOF Thiru. KARTHIKEYAN, S/o. K.DHANASEKAR, No.66, Rajendra Prasad Road, Krishna Nagar, Chrompet, Chennai 600 044 the registered holder / lessee and Tmt.R.Gajalakshmi.,I.A.S., District Collector, Kancheepuram acting for and on behalf of and by the order and direction of the Governor of Tamil Nadu have hereunto set their hands.

REGISTERED HOLDER / LESSEE

DISTRICT COLLECTOR,
KANCHIPURAM.

(Signed by the above named the Permit holder in the presence of)

(Signed by the above named the Lessor in the presence of)

D. Arun kumar

1. D ARUN KUMAR
NO 30, THIRUMALAI NAGAR
1st MAIN ROAD, CHROMPET
CHENNAI - 64

1.

ASSISTANT DIRECTOR
(GEOLOGY AND MINING)
KANCHEEPURAM DISTRICT

2.

2.

Assistant Geologist
Geology and mining
Kancheepuram Dist

B. [signature]
3/198 Kamarajan St
Mettukuppam
Chennai - 97.

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Drafted by M. Sekar
Chayagam
L. C. No C.12/CGL/1984

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தமிழ்நாடு तमिलनाडु TAMILNADU

B 123321

10402
25-5-07

A. ஜீவானந்தம்
சென்னை-64

T.V. [illegible], (S.V
195, [illegible]
தாம்பரம், [illegible]
எண். 9593/தூ1/2000 நாள் 7-9-20
போன் : 2226 64 32

APPENDIX – IV
(See Rule 19(1) and 22)

FORM OF AGREEMENT FOR QUARRYING AND CARRYING AWAY MINOR MINERALS FROM RYOTWARI LANDS IN WHICH THE MINERALS BELONG TO GOVERNMENT

THE AGREEMENT MADE THIS 25th **day of MAY'2007 between Thiru.A.Jeevanandam S/o. Thiru. S.P.Ayyasamy, residing at No.25, 6th Street, Vinobaji Nagar, Hasthinapuram, Chennai-64** (hereinafter referred to as 'the registered holder / lessee ' which term shall include in these presents where the context so admits include also his heirs, executors administrators. legal representatives and assigns) of the one part and the Governor of Tamil Nadu (hereinafter called "the Government which term shall where the context so admits, include also his successors in office and assigns) of the other part.

A. Jeevanandam

REGISTERED HOLDER / LESSEE

COLLECTOR
Kanchipuram

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2007

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THE SEAL OF THE SUB-REGISTRAR OF CHEYYUR

Presented in the office of the Sub-Registrar of Cheyyur
fee of Rs. 5100 Paid
between the hours of 4 to 5 PM.
& on the 28.5 by May 2007

LEFT THUMB

A. [signature] S/O A.P. Iyyasa
Asthinapuram, Chennai-64.

1) LEFT THUMB

EXECUTION ADMITTED BY

A. [signature] S/O A.P. Iyyasamy Re
at No.25, 6th Street, Vinobaji
Astinapuram, Ch-64 ITPAN NO.
AFJPJ 6985N Dt 10/4/1962 Sec

IDENTIFIED BY

1 V. [signature] S/O. Venkatesan [signature]
2 [signature] S/O [signature]

28th DAY OF May 2007

(SUB-REGISTRAR)

தமிழ்நாடு तमिलनाडु TAMILNADU B 123322

10408
25-5-07

-2-

WHEREAS, the registered holder holds the lands described in the schedule hereunder written (herein after referred to as the said lands)

AND WHEREAS, the registered holder has made application to the Collector of District of Kanchipuram (herein after referred to as the "Collector") seeking grant of quarrying lease for quarrying **Rough Stone and Earth** in the said lands and to deposit mining waste in the said lands and has lodged with the Collector an accurate map or sketch of the said lands.

AND WHEREAS, the collector acting for and on behalf of the Government has granted a quarrying lease to the registered holder and allowed him to commence quarrying operations for **Rough Stone and Earth** the said land to deposit mining waste thereon by the registered holder for a term of **Five years** from **25.5.2007** to **24.5.2012**.

REGISTERED HOLDER / LESSEE

COLLECTOR
Kanchipuram

DOCT. No. 3402/07
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No: 2

भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU 15463

B 035020

B.L. சிவகுமார். S
திருவத்திபுரம். தி.மா
Chr. D.R. Order No.1263
ஆ1/91-" / Dt 30-3-1

AND WHEREAS, as the registered holder has deposited with the Collector the sum of **Rs. 5000/-** as security against loss or damage which may be incurred by the Government by reason by any of the said lands being rendered and unfit for cultivation by any mining operations therein of the registered holder or by deposit of mining waste thereon by the registered holder.

NOW THESE PRESENTS WITNESS and the registered holder both hereby agree with the Government in the manner following that is to say:

01 The registered holder shall be at liberty at all times during the period of the lease to carry mining operations for **Rough Stone and Earth** in the lands in a proper and workman like manner and to deposit mining waste on the lands and shall at all times the answerable and accountable to the Government for all acts and if default by any of his nominees, servants or agents in carrying on such operations or in making such deposits.

REGISTERED HOLDER / LESSEE **LESSOR.**

DOCT. NO. 3402/09 Page: 5 No: 2 Page: 14

भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU

B 035021

B.L. [illegible]
திருவத்திபுரம். [illegible]
Chr. B.R. Order No.1263
[illegible]1 / 91-[illegible] / Dt 30-3-[illegible]

02 The registered holder shall pay to the Collector for and on behalf of the Government in addition to the land assessment for the time being payable in respect of the said lands seigniorage on the minor minerals at the rates specified in the Appendix II to the Tamil Nadu Minor Mineral Concession Rules, 1959.

03 The registered holder shall and will keep correct accounts in such form as the Collector Shall from time to time required and direct showing the quantities and other particulars of all minerals obtained by the registered holder from the said lands and also the number of persons employed in carrying on the said mining operations therein and shall from time to time when so directed by the Collector Prepare and maintain complete and correct plans of all mines and working in the said lands and shall allow any officer hereunto authorized by the Director of Geology and Mining, Tamil Nadu from time to time and at any time to examine such accounts and any such plans and shall when so required supply and furnish all such information and returns regarding all or any of the matter aforesaid as the Government shall, from time to time required and direct.

REGISTERED HOLDER / LESSEE

COLLECTOR
Kanchipuram.

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04 The Registered holder shall and will at all times, allow any officer authorized by the Director Geology and Mining, Tamil Nadu in that behalf to enter upon any part of the lands where any mining operations may be carried on for the purpose of inspecting the same.

05 The registered holder shall forthwith send to the District collector a report of any accident, which may occur at or in the said lands and also of the discovery of any mineral other than Rough stones.

06 It shall be lawful for the registered holder at any time to cease mining operations under these present provided they shall pay to the Collector for and on behalf of the Government Land assessment, cess and seigniorage due to the Government and shall restore the said lands or force, or fill in abandoned pits and excavations therein if required by the Collector and upon his so doing these present shall cease and determine.

07 In case the registered holder shall relinquish the whole or any part of the said lands or in case of the expiry or sooner determination of this agreement then and in any such case, he shall restore the lands so relinquished or so much thereof as the Collector shall require to be restored to a state fit for cultivation or shall securely and permanently fence or fill in all such abandoned pits and excavations therein as the Collector shall require to be so fenced or filled in, and in case the registered holder shall fail or neglect to restore any such land which he shall be required to restore to a state fit for cultivation or to so fence, or fill in any such abandoned pit or excavation which he shall be required to so fence or fill in them in any such case, it shall be lawful for the Collector to so restore any such land, or as the case may be to so fence or fill any such pits or excavation at the expense of the registered holder and to apply the said sum of Rs.5000/- so deposited in or towards the cost of so the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands which shall have been rendered unfit for cultivation. If however, the amount of deposit is not sufficient to cover the cost of such restoration or fencing or filling in or to meet thirty times the assessment on the area rendered and uncultivable, it shall be lawful for the Government to recover the balance by resort to civil court.

REGISTERED HOLDER/LESSEE

COLLECTOR
KANCHIPURAM

DOCT. NO. 3402/17
Total: 14
Page: 7 Page:
No:

08. The registered holder shall not be entitled to any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by carrying on of any mining operation or by the deposit of mining waste, unless thirty times the assessment thereon has already been deducted under the preceding clause.

09. The registered holder shall not assign, lease or part with the possession of the said lands or any part thereof for the whole or any part of the said term without previous intimation in writing to the collector.

10. If the registered holder do not intend to carry on mining operations himself, but intends to lease out the right to do so to another person the registered holder and his lessee shall enter into an agreement with Government binding themselves jointly and severally to accept the conditions and stipulations herein contained with agreement shall be in the form set out in Appendix V to the Tamil Nadu Minor Mineral Concession Rules, 1959.

11. All lands assessment, cess and seigniorage payable under these present shall be recoverable under the provisions of the Madras Recovery Act 1864, as if they were arrears of land revenue.

12 In the event of any breach by the registered by any of the conditions of this agreement, it shall be lawful for the Government to levy enhanced seigniorage or for the Collector give notice in writing to the registered holder of his intension to cancel these presents where upon the same shall stand cancelled but without prejudice to any rights which the Government may have against pattadar in respect of any antecedent claim or breach of covenant or condition.

13. Any notice to be given to the registered holder may be addressed to their last known place of abode and where a notice has been so addressed it shall be deemed to have been duly served for the purpose of these presents.

14. Should any question or dispute arise regarding the agreement executed in pursuance of these rules or any matter or thing connected therewith or the powers of the registered holder there under, the amount or payment of the

REGISTERED HOLDER/LESSEE

COLLECTOR
KANCHIPURAM

Page: 3402/02
No: 8 Page: 14

seigniorage fee or area assessment made payable thereby, the matter in issue shall be decided by the Director of Geology and Mining. In case the registered holder / registered holders, lessee / lessees is / are not satisfied with the decision of the Director of Geology and mining, the matter shall be referred to the State Government for decision.

15. The registered holder shall abide by the conditions laid down in the payment of wages Act 1936, (Central ct IV of 1936), the Mines Act, 1952 (Central Act XXXV of 1952) and the Indian Explosives Act 1884 (Central Act IV of 1884).

For the purpose of calculating stamp duty the anticipated seigniorage fee for the entire lease period of 5 years is **Rs. 10,80,000/-(Rupees Ten lakhs eighty thousand only)**

Other Conditions:-

நக.எண்.430/2007-க்யூ1

1. குத்தகைதாரர் தனக்கு அளிக்கப்பட்ட குத்தகை உரிம பகுதியின் எல்லைகளை தெளிவாக காட்டும் வகையில் கல் நட்டு வண்ணம் இட்டு குத்தகை காலம் முழுமைக்கும் பராமரிக்க வேண்டும்.
2. குத்தகையின் முழு விவரங்கள் அடங்கிய தகவல் பலகை வைத்தல் வேண்டும்.
3. குத்தகை உரிமம் வழங்கப்பட்ட பகுதியில் சாதாரண கட்டுமான கல், ஜல்லி, சக்கை, போன்றவைகளை மட்டுமே உடைக்க வேண்டும். ஏற்றுமதிக்குரிய பெரிய கனமீட்டர் அளவிலான மெருகூட்ட தகுதிவாய்ந்த கிரானைட் கற்களை உடைக்கக்கூடாது.
4. குவாரியிலிருந்து கொண்டு செல்லப்படும் மேற்கண்ட வகை கற்கள் / கிராவல் மண்ணுக்கு 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் பின் இணைப்பு 2ல் கண்டுள்ளவாறு உரிம வரியை, அரசு அவ்வப்போது அறிவிக்கும் உரிமவரி மாற்றங்களுக்கு ஏற்ப எவ்வித ஆட்சேபனை இன்றி செலுத்துதல் வேண்டும்.
5. குத்தகை அனுமதி வழங்கப்பட்ட நிலத்திலிருந்து வெட்டி எடுக்கப்பட்ட, வெளியே கொண்டு சென்ற, இருப்புள்ள, கற்களுக்கு முறையான கணக்குகளை குறிவாயில் பதிவேடு வாயிலாக பராமரித்தல் வேண்டும். அவற்றை சம்பந்தப்பட்ட அலுவலர்கள் தணிக்கைக்கு ஆஜர்படுத்த கோரினால் தவறாது சமர்ப்பிக்க வேண்டும்.
6. துணை இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை)-ன் அலுவலக முத்திரை, கையொப்ப முத்திரையுடன் கூடிய உரிய அனுப்புகைச் சீட்டை வாகனங்களுக்கு கொடுக்கப்படும் போது அனுப்புகைச் சீட்டில் வாகன எண், தேதி, புறப்படும் நேரம், செல்லுமிடம் ஆகியவற்றை முறையாகக் குறிப்பிட்டு கையொப்பம் இட்ட பின்னரே, குத்தகைதாரரோ அல்லது அவரது அனுமதி பெற்ற நபரோ அளிக்க வேண்டும் மேற்கண்டவாறு குறிப்பிடுவதில் ஏதேனும் தவறுகள் இருந்தாலோ, கலங்கள் பூர்த்தி செய்யப்படாமல் இருந்தாலோ முறையற்ற வகையில் கனிமம் எடுத்துச் செல்வதாகக் கருதப்பட்டு வாகனத்தை கைப்பற்றி அபராதம் விதிப்பதோடு, அதற்கு குத்தகைதாரரை பொறுப்பாக்கி கனிம விதிகளின் படி மேல்-நடவடிக்கை எடுக்கப்படும்.

குத்தகைதாரர்

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DISTRICT COLLECTOR
மாவட்ட ஆட்சித் தலைவர்
KANCHEEPURAM
காஞ்சிபுரம்.

7. இந்த ஆணையில் குத்தகை அனுமதி வழங்கப்பட்ட புலத்தை முழுமையாகவோ, பகுதியாகவோ எவருக்கும் உள் குத்தகை விடக்கூடாது.

8. மேற்கூறிப்பிட்ட நிபந்தனை, மற்றும் கனிம விதிகளை மீறியுள்ளது உறுதிபடும் தருணத்தில் விதிமுறைகளுக்கு உட்பட்டு குத்தகை இரத்து செய்ய நடவடிக்கை எடுக்கப்படும். மேற்கண்ட நிபந்தனைகள் ஒப்பந்தப் பத்திரத்தில் கண்டுள்ள நிபந்தனைகள் மற்றும் 1959-ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் ஆகியவற்றின் அடிப்படையில் குத்தகைதாரர் குவாரிப் பணி புரிய வேண்டும்.

9. காலை 6.00 முதல் மாலை 6.00 மணி வரை மட்டுமே குவாரிப் பணி செய்ய வேண்டும்.

THE SCHEDULE

District : Kanchipuram

Taluk : Madurantakam

Village : Periya Venmani

Survey Number	Extent Hects.	Area Assessment per annum.	BOUNDARIES			
			North By SF No.	East by SF No.	South by SF No.	West by SF No.
172/3	0.33.0					
172/4	0.33.0		172/2C	172/7	173	172/2D
172/5	0.33.0					
172/6	0.33.0					
173/1	0.41.5					
173/2	0.41.5					
173/3	0.44.0					
173/4	0.48.0					
173/5	0.48.0		172/3,4,5,6	180	174	Chinna Venmani
173/6	0.52.5	1000				
180/1	0.12.0					
180/2	0.41.5					
180/3	0.41.5		181	185	179	173,174
180/4	0.41.5					
180/5	0.41.5					
180/8	0.41.5					
180/9	0.41.5					
180/10	0.42.0					
180/11	0.42.0					
Total	7.52.5					

DOCT. NO. 3402/02 Total: Page: 10 Page: 14 No: 2

REGISTERED HOLDER/LESSEE

COLLECTOR
KANCHIPURAM

IN WITNESS WHEREOF **Thiru.A.Jeevanandam S/o. Thiru. S.P.Ayyasamy, residing at No.25, 6th Street, Vinobaji Nagar, Hasthinapuram, Chennai-64** the registered holder / lessee and **Thiru.Pradeep Yadav,I.A.S., District Collector, Kanchipuram** acting for and on behalf of and by the order and direction of the Governor of TamilNadu have hereunto set their hands.

REGISTERED HOLDER/LESSEE

COLLECTOR
KANCHIPURAM.

Signed by the above named
In the presence of

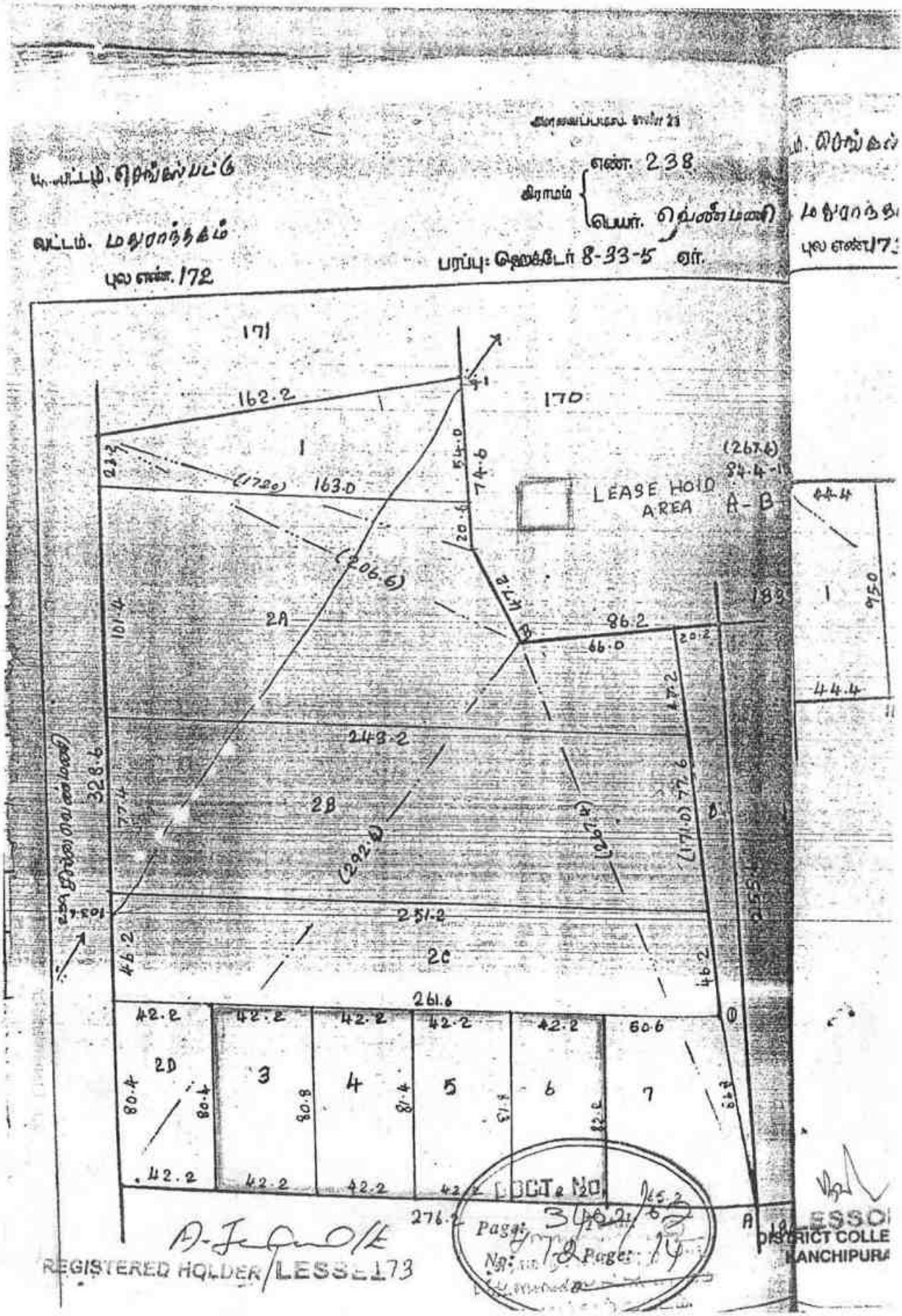
1. C.S.SELVAKUMAR
No 22, GANDHI ROAD
WEST TAMBARAM CH-45.

2. Vadathandam
Bhuvanagar post
Chengal Tal.

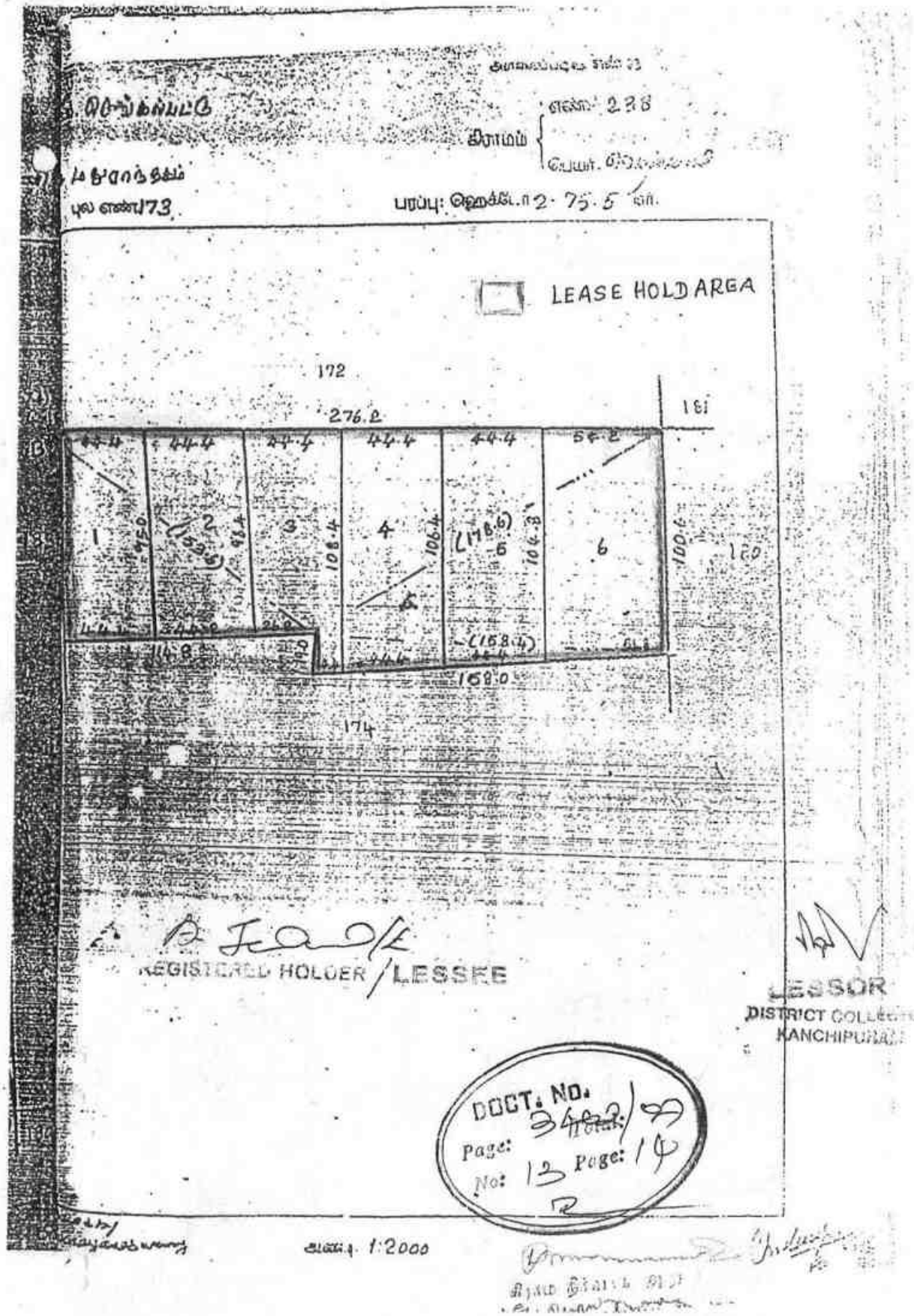
Signed by the above named
In the presence of

1. N.PALANIKUMAR
DEPUTY DIRECTOR,
(GEOLOGY AND MINING)
KANCHEEPURAM DISTRICT.

2. (K.Mani)
Dy. Tahsildar



வட்டம். மதுராந்தகம்
புல எண். 172
பரப்பு: ஹெக்டேர் 8-33-5 ஏர்.
கிராமம் எண். 238
பெயர். வெண்மணி
171
170
162.2
163.0
(172.0)
(206.6)
2A
2B
2C
2D
243.2
251.2
261.6
86.2
66.0
LEASE HOLD AREA A-B
(267.6)
(292.6)
(171.0)
328.6
42.2
80.4
80.8
81.4
276.2
3
4
5
6
7
REGISTERED HOLDER/LESSEE 173
DOCT. NO.
Page: 3462/62
No: 72 Page: 14
DISTRICT COLLE
KANCHIPURA


LEASE HOLD AREA
172
276.2
181
174
168.0
REGISTERED HOLDER / LESSEE
LESSOR
DISTRICT COLLECTOR
KANCHIPURAM
DOCT. NO.
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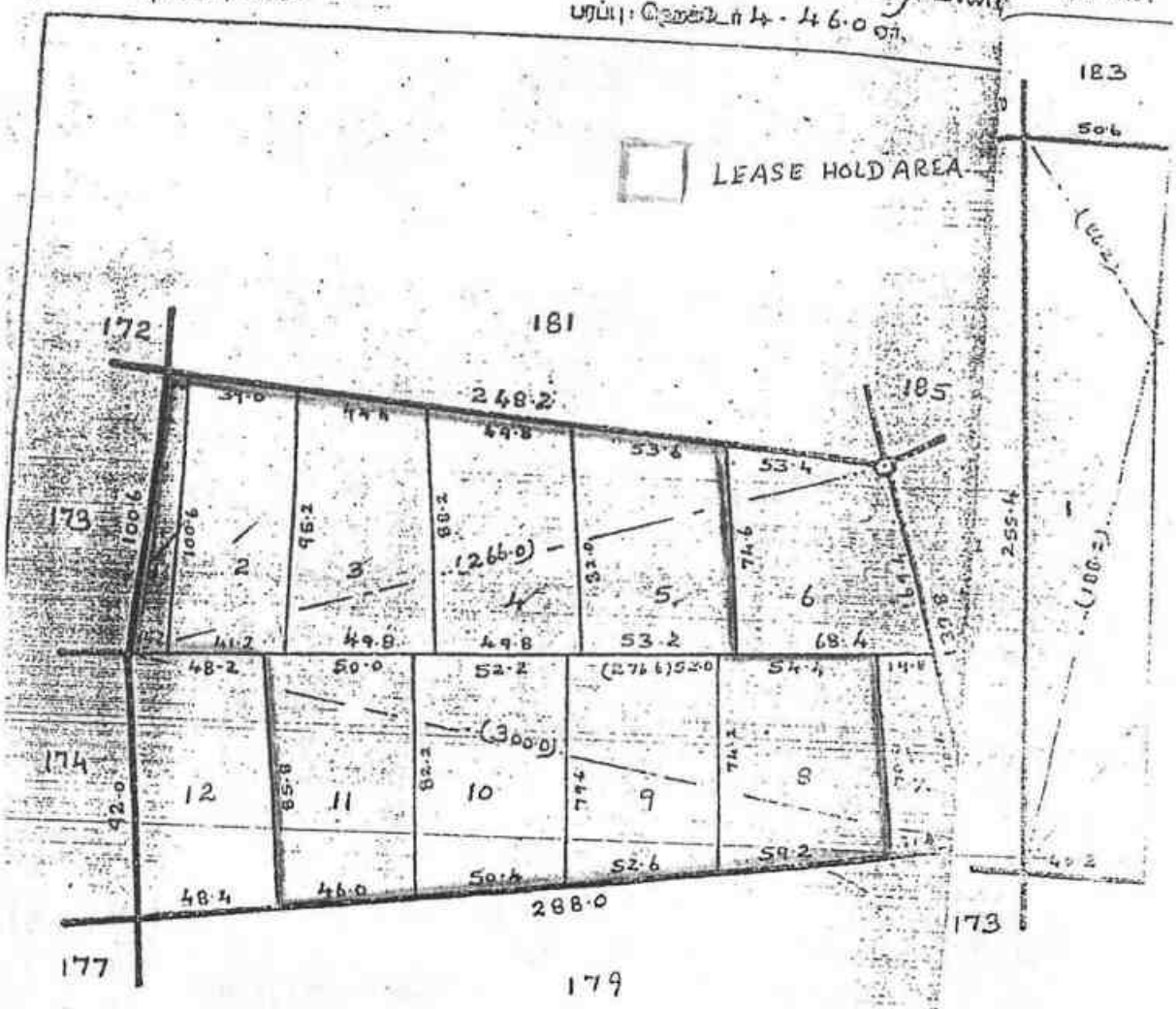
மாவட்டம். செங்கல்பட்டு

வட்டம். மதுராந்தகம்

புல எண். 180

சிராமம் { எண். 238 / பெயர் வெண்மணி

பரப்பு: ஹெக்டேர் 4 - 46.0 ஏர்.



REGISTERED HOLDER / LESSEE

LESSOR
DISTRICT COLLECTOR
KANCHIPURAM

DOCT. NO. 3402/07
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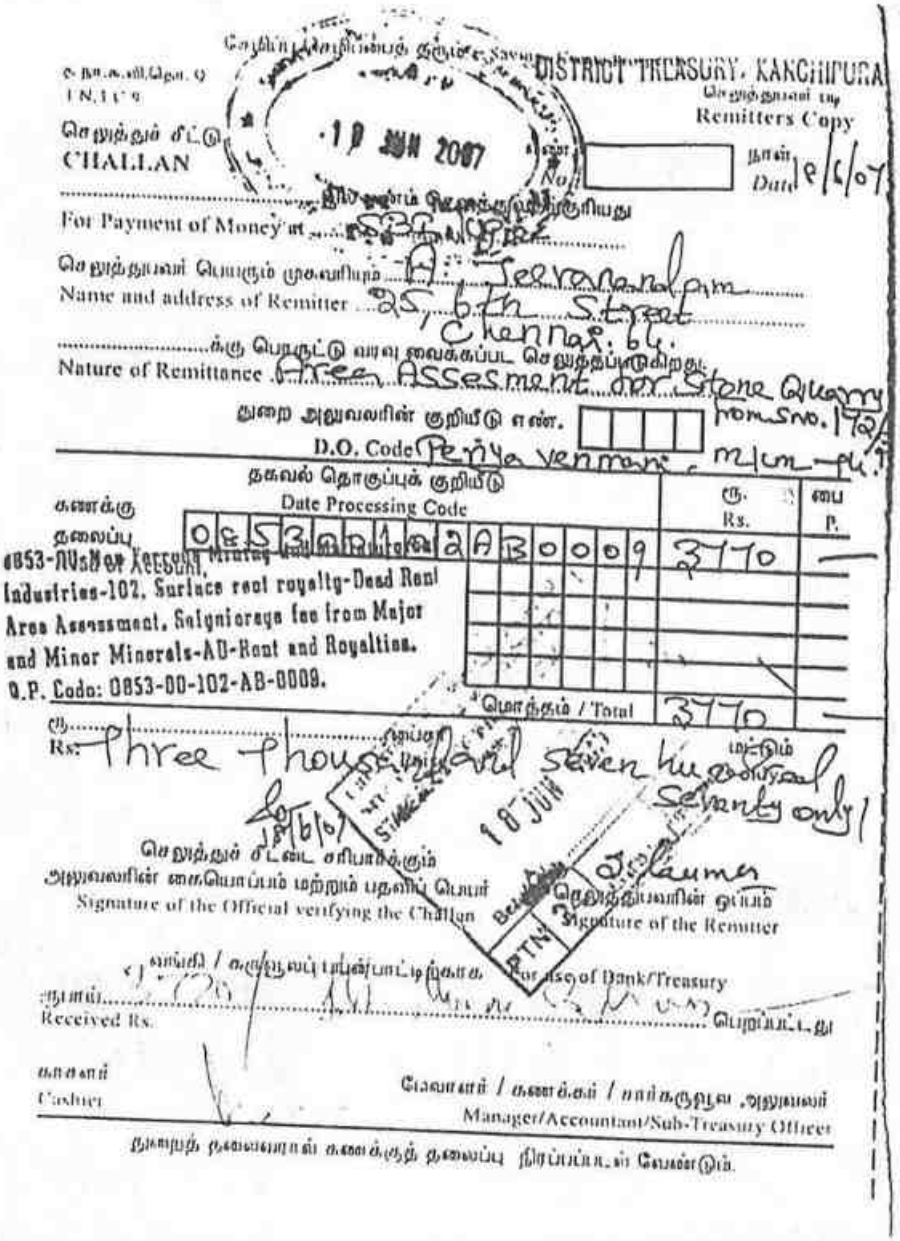
No:

செலுத்துச் சீட்டு
CHALLAN



DISTRICT TREASURY, KANCHIPURA

செலுத்துவர் படி
Remitters Copy

எண் No. | நாள் Date 18/6/07

18 JUN 2007

For Payment of Money at SBI, [illegible]

செலுத்துவர் பெயரும் முகவரியும் A. Jeevanandam
Name and address of Remitter 25, 6th Street
Chennai. 64.

.....க்கு பெயருட்டு வரவு வைக்கப்பட செலுத்தப்படுகிறது.
Nature of Remittance Area Assesment for Stone Quarry from S.No. 172/[illegible]

துறை அலுவலரின் குறியீடு எண்.
D.O. Code Periya venmani, M/cm-[illegible]

கணக்கு தலைப்பு	தகவல் தொகுப்புக் குறியீடு Date Processing Code	ரூ. Rs.	பை P.
0853-00-102-AB-0009	0853001 02AB0009	3770	—
	மொத்தம் / Total	3770	—

0853-00-102-AB-0009.
Industries-102, Surface rent royalty-Dead Rent
Area Assessment, Saigniorage fee from Major
and Minor Minerals-AB-Rent and Royalties.
O.P. Code: 0853-00-102-AB-0009.

ரூ. Rs. Three thousand and seven hundred seventy only/

18/6/07

18 JUN

செலுத்துச் சீட்டை சரிபார்க்கும் அலுவலரின் கையொப்பம் மற்றும் பதவிப் பெயர்
Signature of the Official verifying the Challan

செலுத்துவரின் ஒப்பம்
Signature of the Remitter

வங்கி / கருவூலப் பயன்பாட்டிற்காக For use of Bank/Treasury

ரூபாய் ..... பெறப்பட்டது
Received Rs.

காசாளர்
Cashier

மேலாளர் / கணக்கர் / சார்கருவூல அலுவலர்
Manager/Accountant/Sub-Treasury Officer

துறைத் தலைவரால் கணக்குத் தலைப்பு நிரப்பப்படல் வேண்டும்.

ANNEXURE IV: PRECISE AREA COMMUNICATION LETTER LOI

நக.எண். 269 /க்யூ2 /2017
நாள்.18.11.2019

மாவட்ட ஆட்சியர் அலுவலகம்,
கனிமபிரிவு, காஞ்சிபுரம்,

அறிவிக்கை

பொருள் : கனிமங்களும் குவாரிகளும் – சாதாரண கற்கள் மற்றும் கிராவல் மண் – காஞ்சிபுரம் மாவட்டம் – மதுராந்தகம் வட்டம் – பெரியவெண்மணி கிராமம் – புல எண்கள். 180/4, 180/5, 180/8, 180/9, 180/10, 180/11- மொத்தப்பரப்பு 2.50.00 ஹெக்டேர் – குவாரி குத்தகை உரிமம் கோரி திரு. S. ராஜீ த/பெ. சிவாஜி என்பவர் அனுமதி கோரியது – பட்டா நிலத்தில் சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுக்க ஐந்து ஆண்டுகளுக்கு குத்தகை வழங்க அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் - மாநில அளவிலான சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் ஒப்புதல் பெற்று அளிக்க தெரிவித்தல் – தொடர்பாக.

பார்வை :
1. திரு. S. ராஜீ, த/பெ. சிவாஜி, எண்.17/7, தொல்காப்பியம் தெரு, சிட்லப்பாக்கம், காஞ்சிபுரம் மாவட்டம் என்பவரின் மனு நாள். 06.03.2017.
2. மதுராந்தகம் வருவாய் கோட்டாட்சியர் அவர்களின் அறிக்கை எண். ந.க.960 / 2017 /ஆ, நாள்.29.08.2018.
3. உதவி இயக்குனர் அவர்களின் புலத்தணிக்கை அறிக்கை நாள்: .11.2019.
4. அரசாணை எண்.Ms.79, தொழில் (எம்.எம்.சி.1) துறை, நாள். 06.04.2015.

காஞ்சிபுரம் மாவட்டம், மதுராந்தகம் வட்டம், பெரியவெண்மணி கிராமம், புல எண்கள். 180/4 (0.41.50), 180/5 (0.41.50), 180/8 (0.41.50), 180/9 (0.41.50),180/10(0.42.00), 180/11 (0.42.00)மொத்தம் 2.50.00 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டியெடுக்க ஐந்து ஆண்டுகளுக்கு திரு. S. ராஜீ, த/பெ. சிவாஜி, எண்.17/7, தொல்காப்பியம் தெரு, சிட்லப்பாக்கம், காஞ்சிபுரம் மாவட்டம் என்பவர் குவாரி குத்தகை உரிமம் கோரி விண்ணப்பித்துள்ள மனுவின் பேரில் மதுராந்தகம், வருவாய் கோட்டாட்சியர் மற்றும் காஞ்சிபுரம், புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் (கனிமம்) ஆகியோர் மேற்காணும் விண்ணப்ப புலங்களில் ஐந்து ஆண்டுகளுக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்.19 (1), 20 & 33 ஆகியவற்றின் கீழ் சாதாரண கற்கள் மற்றும் கிராவல் மண் குவாரி குத்தகை உரிமம் கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு வழங்கலாம் என பார்வை 2 மற்றும் 3–ல் கண்டவாறு பரிந்துரை செய்துள்ளனர்.

1 விண்ணப்ப புலங்களுக்கு ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் மாநில சுற்றுச்சூழல் ஒப்புதல் பெற்றளிக்கப்பட வேண்டும்.

2. மேற்படி விண்ணப்பப் புலங்களுக்கு அருகிலுள்ள அரசு புறம்போக்கு மற்றும் பட்டா நிலங்களுக்கு முறையே 10 மீட்டர் மற்றும் 7.5 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு குவாரிப்பணி செய்யப்பட வேண்டும்.

இது தொடர்பாக மேற்காணும் விண்ணப்பப் புலங்களில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டியெடுக்க குத்தகை உரிமம் வழங்க அங்கீகரிக்கப்பட்ட சுரங்கத் திட்டத்தை (Approved Mining Plan) மூன்று மாதத்திற்குள் மாவட்ட ஆட்சியர் முன்பு சமர்ப்பிக்க வேண்டியது. மேலும் மேற்காணும் விண்ணப்பப் புலங்களில் சாதாரண கற்கள் & கிராவல் மண் வெட்டியெடுக்க அனுமதி வழங்குவது தொடர்பாக மாநில சுற்றுச் சூழல் தாக்க மதிப்பீட்டு ஆணையம் (SEIAA) ஒப்புதலை பெற்று சமர்ப்பிக்க வேண்டியது.

ஓம். x x x x
நாள். 18.11.2019
மாவட்ட ஆட்சித்தலைவர்,
காஞ்சிபுரம்.

//உத்தரவின்படி//

மாவட்ட ஆட்சித்தலைவருக்காக,
காஞ்சிபுரம்.

பெறுநர்,
திரு. S. ராஜீ,
த/பெ. சிவாஜி,
எண்.17/7, தொல்காப்பியம் தெரு,
சிட்லப்பாக்கம்,
காஞ்சிபுரம் மாவட்டம்.

நகல்:-
1) தலைவர், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை.
2) ஆணையர், புவியியல் மற்றும் சுரங்கத்துறை, கிண்டி, சென்னை 600 032.

ANNEXURE V: 500M RADIUS LETTER

From
K. Vijayaragavan, M.Sc.,
Assistant Director,
Geology and Mining,
Chengalpattu.

To
S. Raju,
S/o. Sivaji,
No.17/7, Tholkappiyam Street,
Chitlapakkam,
Kancheepuram – 600 064.

Rc. No.269/Q2/2017, dated: 09.07.2021

Sir,

Sub: Mines and Minerals – Proposal seeking Environment Clearance for the grant of Rough Stone & Gravel Quarry in Patta lands - S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10, 180/11 - Over an Extent of 2.50.00 Hectares in Periyavenmani Village - Maduranthagam Taluk – Thiru. S. Raju S/o. Sivaji – details of the adjacent quarries requested - furnished - regarding.

Ref:
1. Application for Rough Stone/Grave Quarry permission preferred by Thiru. S. Raju S/o. Sivaji, No.17/7, Tholkappiyam Street, Chitlapakkam Kancheepuram District – 600 064 dated. 06.03.2017.
2. The District Collector, Kanchipuram, precise area communication letter No.269/Q3/2019, dated 18.11.2019.
3. Mining Plan Approved by Assistant Director, Geology and Minings, Kancheepuram in letter Rc.No.269/Q2/2017, dated.29.06.2021.
4. Representation of Thiru. S. Raju S/o. Sivaji, dated.03.06.2021.

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In the reference 4th cited above, Thiru. S. Raju S/o. Sivaji, No.17/7, Tholkappiyam Street, Chitlapakkam Kancheepuram District – 600 064 has requested to furnish the details of Proposed / Existing / Lease expired quarries located within 500 mts radius from the quarry proposed to him so as to submit the same to the State Level Environment Impact Assessment Authority for obtaining quarry lease for Roughstone and Gravel.

In this regard, apart from the proposed quarry in Chengalpattu District, Maduranthagam Taluk, Periyavenmani Village, S.F.Nos. 180/4 (0.41.50), 180/5 (0.41.50), 180/8 (0.41.50), 180/9 (0.41.50), 180/10 (0.42.00), 180/11 (0.42.00) Over an Extent of 2.50.00 Hectares the details for quarries (Proposed / Existing / Lease expired) located within 500 mts radius are furnished as follows:

i) Existing Other Quarries :

Sl. No.	Name of the Owner	Village	S.F. Nos	Extent	Lease Period	Remarks
-	-	-	-	-	-	-
Total				-		

ii) Proposed Area :

Sl. No.	Name of the Owner	Village	S.F. Nos	Extent	Lease Period	Remarks
1.	S.Dharmaraj, S/o. Shitrambala Reddiyar, No.2A, North street, Mundalaapuram, Ondipulinaickanur, Muthulapuram, Virudhunagar – 626 119.	Periyavenmani	180/1, 180/2, 180/3, 181/1	2.08.50	---	Under Processing
2.	S.Ravisundar S/o. Santhiyagu, No.1/1178-A, 1st street, South Bethel Nagar, Injambakkam, Chennai –115.	Periyavenmani	174/5, 174/6, 180/12	1.37.50	---	Under Processing
3.	Thiru. S. Raju S/o. Sivaji, No.17/7, Tholkappiyam Street, Chitlapakkam Kancheepuram District - 600 064	Periyavenmani	180/4, 180/5, 180/8, 180/9, 180/10, 180/11	2.50.00	--	Under Processing (Present Application)

iii) Lease Expired and Abandoned Area :

Sl. No.	Name of the Owner	Village	S.F. Nos	Extent	Lease Period	Remarks
1.	A. Jeevanantham No.25, 6th Street, Asthinapuram, Chennai - 64.	Periyavenmani	172/3, 172/4	7.52.50	25.05.2007 To 24.05.2012	Lease Expired

2.	S. Gnanasekaran, No.20, Alagesan St., Tambaram West, Chennai - 45.	Periyavenmani	181/2	2.03.00	02.01.2012 To 01.01.2017	Lease Expired
3.	O. Ganesan, No.2, Lakshmipuram Extn II, Mudichur Road, Tambaram West, Chennai - 45.	Periyavenmani	174/1, 174/2, 174/3	2.07.50	02.01.2012 To 01.01.2017	Lease Expired

It is informed that other than this no other quarry lease / Mining Lease are Existing / Proposed / Abandoned within 500 mts radius from the periphery of the site exceeding 25 Hectare.

Assistant Director,
Geology and Mining,
Chengalpattu.

ANNEXURE VI: MINE PLAN APPROVAL LETTER

From
K. Vijayaragavan, M.Sc.,
Assistant Director (i/c),
Dept. of Geology and Mining,
Chengalpattu.

To
S. Raju,
S/o. Sivaji,
No.17/7, Tholkappiyam Street,
Chitlapakkam,
Kancheepuram – 600 064.

Rc.No. 269/Q2/2017, Dated.29.06.2021

Sir,

Sub: Mines and Quarries – Chengalpattu District – Madhuranthagam Taluk – Periyavenmani Village - S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10, 180/11 - over an extent of 2.50.00 Hectares of patta lands - permission requested for Quarrying Rough stone and Gravel under rule 19(1) of Tamil Nadu Minor Mineral Concession Rules 1959 – applied by Thiru. S. Raju S/o. Sivaji - Mining Plan submitted approval –Reg.

Ref:

1) Application of Thiru. S. Raju S/o. Sivaji, No.17/7, Tholkappiyam Street, Chitlapakkam Kancheepuram District – 600 064 dated 06.03.2017.

2) Precise are notice issued by the District Collector, Kancheepuram in Rc.No.269/Q2/2017, dated.18.11.2019.

3) Mining Plan Approved by Assistant Director, Geology and Mining, Kancheepuram in letter Rc.No.269/Q2/2017, dated.20.02.2020.

4) Representation of Thiru. S. Raju S/o. Sivaji, dated.03.06.2021.

In the reference 1st cited, one Thiru. S. Raju S/o. Sivaji, No.17/7, Tholkappiyam Street, Chitlapakkam Kancheepuram District – 600 064 has applied for quarrying Rough stone and gravel from S.F.Nos.180/4 (0.41.50), 180/5 (0.41.50), 180/8 (0.41.50), 180/9 (0.41.50), 180/10 (0.42.00), 180/11 (0.42.00) Over an Extent of 2.50.00 Hectares in Periyavenmani Village, Maduranthagam Taluk, Chengalpattu District under Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

In this regard, based on the recommendations of the Revenue Divisional Officer, Maduranthagam, Tahsildar, Maduranthagam and

Inspection report submitted by the Assistant Director, Geology and Mining, Kancheepuram the above application was considered for quarrying Rough stone and Gravel from the above area under rule 19(1) of Tamil Nadu Minor Mineral Concession Rules,1959 for a period of **Five years** subject to certain conditions and precise area has been communicated to the applicant vide reference 2nd cited.

In the reference 3rd cited the Assistant Director(i/c), Geology and Mining, Chengalpattu has approved Mining Plan the same for Rough Stone and Gravel Quarry in subject area.

In the reference 4th cited, Thiru. S. Raju S/o. Sivaji, No.17/7, Tholkappiyam Street, Chitlapakkam Kancheepuram District – 600 064 has stated the proposal submit before SEIAA has been Withdraw by him and also submitted three draft copies of Revised Mining Plan prepared by the RQP, for the Rough Stone & Gravel quarry in S.F.Nos.180/4, 180/5, 180/8, 180/9, 180/10, 180/11 Over an Extent of 2.50.00 Hectares in Periyavenmani Village, Maduranthagam Taluk, Chengalpattu District for approval. Hence the earlier approval of Mining plan letter vide in Rc.No.269/Q2/2017, dated.20.02.2020 hereby cancelled.

Further, In exercise of the power delegated under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959, I hereby approve the Revised mining plan submitted by Thiru. S. Raju S/o. Sivaji for the grant of lease to quarry Rough Stone and Gravel over an extent of 2.50.00 Hectares in S.F.Nos.180/4 (0.41.50), 180/5 (0.41.50), 180/8 (0.41.50), 180/9 (0.41.50), 180/10 (0.42.00), 180/11 (0.42.00) Over an Extent of 2.50.00 Hectares in Periyavenmani Village, Maduranthagam Taluk, Chengalpattu District and the mineable reserves of Rough stone & Gravel after leaving safety distance is arrived as 3,19,240 M^3 **of Rough stone and** 6,738 M^3 **of Gravel** for **Five years** upto a depth of 37 meter (2m Gravel + 35m Roughstone BGL). This approval is subject to the following conditions:-

i) That the Mining Plan is approved without prejudice to any other Law applicable to quarrying Rough stone and Gravel from time to time whether such laws are made by the Central Government/State Government or any other authority.

ii) The approval of the Mining Plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957 or any other connected laws inducling Forest (Conservation) Act, 1980 Forest Conservation Rules 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under the Tamil Nadu Minor Mineral Concession Rules,1959.

iii) The Mining Plan is approved without prejudice to any other order or direction from any Court of competent jurisdiction.

iv) The applicant is directed to submit the application in Form –I as prescribed by the MoEF along with the approved Mining Plan.

29/6/14

Encl: Approved Mining Plan

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

29/6/14

ANNEXURE VII: EXISTING PIT AD LETTER

From
K. Vijayaragavan, M.Sc.,
Assistant Director,
Geology and Mining,
Chengalpattu.

To
Thiru. S. Raju,
S/o. Sivaji,
No.17/7, Tholkappiyam Street,
Chitlapakkam,
Kancheepuram – 600 064.

Rc. No.269/Q2/2017, dated:08.07.2021

Sir,

Sub: Mines and Minerals – Proposal seeking Environment Clearance for the grant of Rough Stone & Gravel Quarry in Patta lands comprised in S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10, 180/11 - Over an Extent of 2.50.00 Hectares in Periyavenmani Village - Maduranthagam Taluk – Thiru. S. Raju S/o. Sivaji – Precise area communicated – Mining Plan Approved - Further Particulars requested by the applicant - furnished - regarding.

Ref:
1. Application for Rough Stone/Grave Quarry permission preferred by Thiru. S. Raju S/o. Sivaji, No.17/7, Tholkappiyam Street, Chitlapakkam Kancheepuram District – 600 064 dated. 06.03.2017.
2. The District Collector, Kancheepuram, Precise area communication letter No.269/Q3/2019, dated 18.11.2019.
3. Mining Plan Approved by Assistant Director, Geology and Mining, Chengalpattu in letter Rc.No.269/Q3/2019, dated.29.06.2021.
4. Requisition of Thiru. S. Raju S/o. Sivaji, No.17/7, Tholkappiyam Street, Chitlapakkam Kancheepuram District – 600 064 in letter dated.03.06.2021.

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Reference cited above shall be seen.

The applicant Thiru. S. Raju S/o. Sivaji, No.17/7, Tholkappiyam Street, Chitlapakkam Kancheepuram District – 600 064 vide the reference 4th cited, has requested to furnish the particulars related to the existing quarry pit in the proposed area, so as to submit the same before the SEAC for obtaining Environmental Clearance.

In this regard, it is ascertained that as per field condition, an existing quarry pit of the below tabulated dimensions is present.

Pit No.	Average Length in m	Average Width in m	Average Depth in m	Mineral
I	89	56	4	1m Gravel 3m Rough Stone
II	40	20	4	1m Gravel 3m Rough Stone

In this connection, the records available this office has been examined and found that the quarry pit existing in the applied area is due to the quarry permission granted for a period of 5 years from 25.05.2007 to 24.05.2012 to Thiru. A. Jeevanantham S/o. S.P. Ayyasamy S.F.No. 172/3, 172/4, 172/5, 172/6, 173/1, 173/2, 173/3, 173/4, 173/5, 173/6, 180/1, 180/2, 180/3, 180/4, 180/5, 180/8, 180/9, 180/10, 180/11 Over an Extent 7.52.50 Hect. vide Kancheepuram District Collector's Proceedings in Rc.No.430/2007/Q1, dated.21.05.2007.

8/7/24

Assistant Director,
Geology and Mining,
Chengalpattu.

8/7/24

ANNEUXRE VIII: FMB & A REGISTER

1		2	3	4	5	6	7	8	9	10	11
								ரூ. பை.	ரூ. ஏர்ஸ்.	ரூ. பை.	
180	11	180–11	ர	பு	...	8–5	8	0 92	0 42.0	0 38	427 கு. வேதா சலம்.
	12	–12	ர	பு	...	8–5	8	0 92	0 42.0	0 38	223 த. தம்பி ரான்.
									4 46.0	4 07	
181	1	181–1	ர	பு	...	8–5	8	0 92	1 13.5	1 04	289 க. பெருமாள்
	2	–2	ர	பு	...	8–5	8	0 92	2 03.0	1 85	159 வே. சித்திரை
	3 A	–3 A	ர	பு	...	8–5	8	0 92	0 08.0	0 07	128 பெ. குப்பன்
	3B	–3B	ர	பு	...	8–5	8	0 92	0 07.5	0 07	.....
	3C	–3C	ர	பு	...	8–5	8	0 92	0 66.5	0 61	128 பெ. குப்பன்
	3D	–3D	ர	பு	...	8–5	8	0 92	0 89.5	0 81	128 பெ. குப்பன்
	3E	–3E	அ	பு	...	8–5	8	0 92	0 39.5	0 43	.....
									5 27.5	4 88	
182	...	182	அ	புற	...	...	...	...	0 65.5	...	.....
183	1	183–1	ர	பு	...	8–5	8	0 92	0 48.0	0 44	220 மு. தம்பி ரான்.
	2	–2	ர	பு	...	8–5	8	0 92	0 45.5	0 42	326 சீ. மாரி.
	3	–3	ர	பு	...	8–5	8	0 92	0 45.5	0 41	142 செ. கோபால்
	4	–4	ர	பு	...	8–5	8	0 92	0 46.5	0 43	142 ந. சின்ன பையன்.
	5	–5	ர	பு	...	8–5	8	0 92	0 40.5	0 37	51 த. எட்டி.
	6	–6	ர	பு	...	8–5	8	0 92	0 40.5	0 37	338 செ. முரு கேசன்.
	7	–7	ர	பு	...	8–5	8	0 92	0 26.5	0 24	63 மு. ஏழுமலை
	8	–8	ர	பு	...	8–5	8	0 92	0 26.5	0 24	96 கோ. கண்ணப் பிள்ளை.
									3 19.5	2 92	
184	1	184–பா	ர	பு	...	8–3	6	1 85	4 07.0	7 54	93 ந. கந்தசாமி ரெட்டியார்
	2	–பா	ர	பு	...	8–3	6	1 85	0 74.0	1 37	444 வே. ஸ்ரீராமுலு ரெட்டியார்

[illegible]ர்வாக அலுவலர்
[illegible] கிராமம்
[illegible]கம் வட்டம்

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கி. எண். [illegible] வெண்மணி.

1	2	3	4	5	6	7	8	9	10	11	12
							ரூ. ஸ்ரீ.	ரூ. ஏர்ஸ்.	ரூ. ஸ்ரீ.		
1	177-1	ர	பு	...	8-5	8	0 92	0 59.0	0 54	4 ஆ. அர்ச்சுனன்.	
2	-2	ர	பு	...	8-5	8	0 92	0 48.0	0 44	160 ஆ. சின்னையன்.	
3	-3	ர	பு	...	8-5	8	0 92	0 40.5	0 37	169 ஆ. சுப்பராயன்.	
								1 47.5	1 35		
1	178-1	ர	பு	...	8-5	8	0 92	0 40.5	0 37	107 த. காத்தவராயன்.	
2	-2	ர	பு	...	8-5	8	0 92	0 40.5	0 37	237 த. நடராஜன்.	
3	-3	ர	பு	...	8-5	8	0 92	0 40.5	0 37	265 அ. பாளையம்.	
4	-4	ர	பு	...	8-5	8	0 92	0 42.0	0 38	278 கு. பெருமாள்.	
								1 63.5	1 49		
1	179-பா	ர	பு	...	8-4	7	1 24	0 62.5	0 78	29 பெ. ஆதிசேஷா ரெட்டியார்.	
2	-பா	ர	பு	...	8-4	7	1 24	0 10.0	0 12	179 பெ. சுலோசனா அம்மாள்.	
3	-பா	ர	பு	...	8-4	7	1 24	1 77.5	2 19	574 வே. ராமசாமி ரெட்டியார் மற்றும் மூன்று பேர்களும். *	
								2 50.0	3 09		
1	180-1	ர	பு	...	8-5	8	0 92	0 12.0	0 11	405 ஏ. வரதன்.	
2	-2	ர	பு	...	8-5	8	0 92	0 41.5	0 38	72 வெ. கணேசன்.	
3	-3	ர	பு	...	8-5	8	0 92	0 41.5	0 38	346 பெ. முருகேசன்.	
4	-4	ர	பு	...	8-5	8	0 92	0 41.5	0 38	112 பெ. காளி.	
5	-5	ர	பு	...	8-5	8	0 92	0 41.5	0 38	372 க. ரத்தினம்.	
6	-6	அ	பு	...	8-5	8	0 92	0 43.0	0 39	.....	தரிசு.
7	-7	அ	பு	...	8-5	8	0 92	0 16.0	0 15	.....	தரிசு.
8	-8	ர	பு	...	8-5	8	0 92	0 41.5	0 38	353 வே. முருகேசன்.	
9	-9	ர	பு	...	8-5	8	0 92	0 41.5	0 38	148 வே. கோவிந்தசாமி.	
10	-10	ர	பு	...	8-5	8	0 92	0 42.0	0 38	95 ஏ. கண்ணம்மாள்.	

* விவரப்பட்டியலைப் பார்க்கவும்.

கிராம நிரவாக அலுவலர்
கிராமம்
மதுராந்தகம் வட்டம்

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மாவட்டம். செங்கல்பட்டு

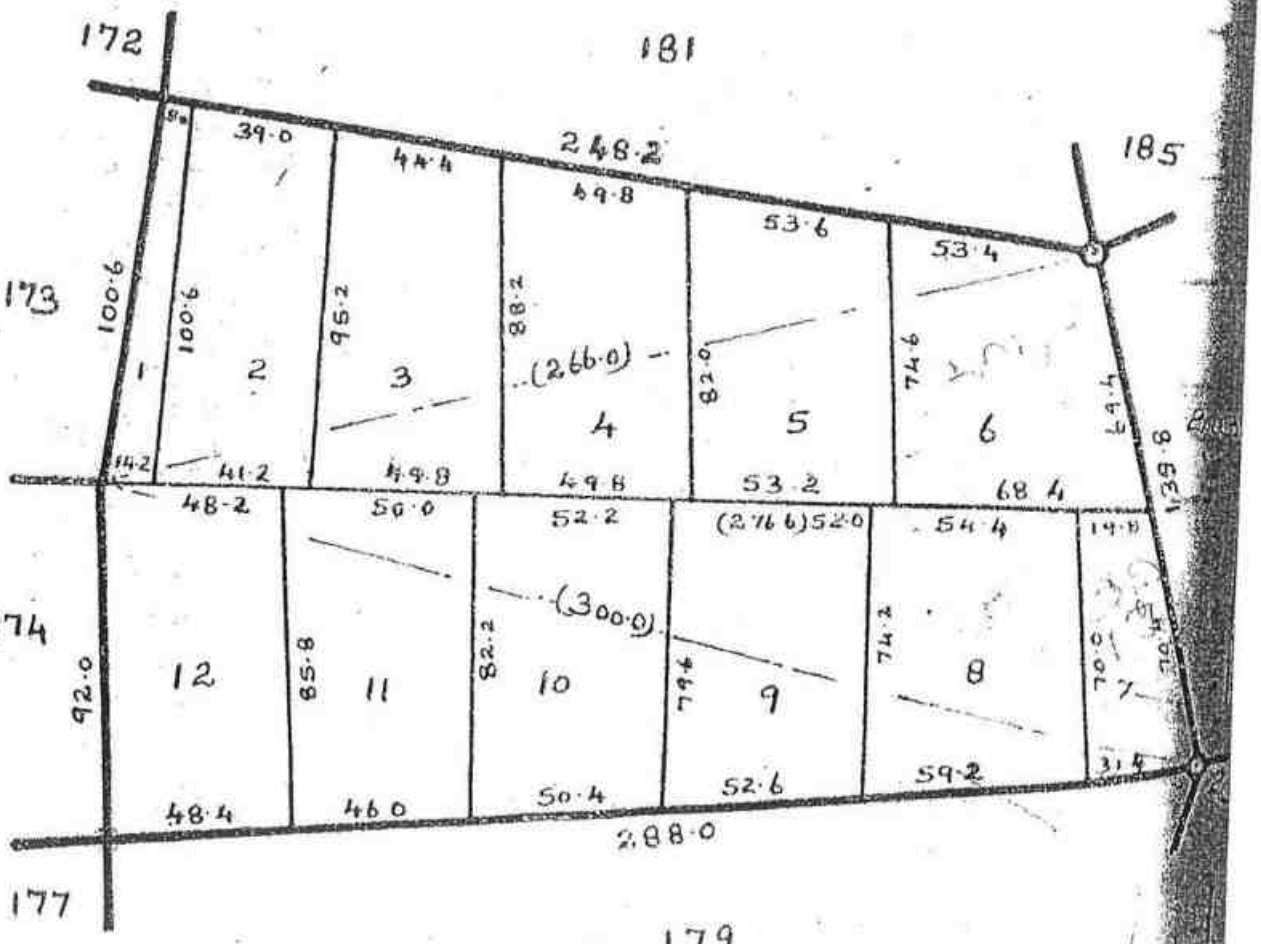
சிறப்பிடவு எண் 23

வட்டம். மதுராந்தகம்

புல எண். 180

கிராமம் { எண். 238
பெயர் வெண்மணி

பரப்பு: ஹெக்டேர் 4.46.0 ஏர்.



கிராம நிர்வாக அலுவலர்
கிராமம்
மதுராந்தகம் வட்டம்

கிராமக் கணக்கு

– ஆம் பசலியில் இலஞ்சிபுரம் மாவட்டம் மதுராந்தகம் வட்டம் 184. பெரியவெண்மணி

எண் 2

கிராமத்தில் வருடவாரி புலவாரி கைப்பற்று சாகுபடி அடங்கல் கணக்கு

நிலவரித் திட்டத்தின்படி புலன்களின் விபரம்.					கைப்பற்று தாரருடைய பெயரும் எண்ணும் அல்லது அனுபோக தாரருடைய பெயர்.	சாகுபடி யாளரின் பெயர்.	முதல் போகம்.				
நில அளவை எண்.	உட்பிரிவு எண்.	பரப்பு.	தீர்வை.	ஒரு போகம் அல்லது இரு போகம்.		நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளதா.	எந்த மாதத்தில் பயிர் செய்ய அறுவடை மாதத்தில் அறுவடை செய்யப்பட்டது.	பயிரின் பெயர்.	பயிராண / அறுவடையான பரப்பு.	உண்மையான பாய்ச்சல் ஆதாரம்.	விளைச்சல் அளவு விழுக்காடு.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
180	5	0415	038		941. த. இதர						
180	8	0415	038		941 ,,						
180	9	0415	038		941 ,,						

– 2 ஆண்டு தரவு –

கிராம நிர்வாக அலுவலர்
184. பெரியவெண்மணி கிராமம்
மதுராந்தகம் வட்டம்

இரண்டாம் போகம்.					கிராம அறுவடையின் குறிப்புரை :– (1) புலன்களின் பகுதிகளில் மட்டும் பயிரிடப்பட்ட இனங்களில் விங்குகள் அளவில். (2) கைப்பற்றில் இல்லாத நிலங்களின் சாகுபடியின் பரப்பு தன்மையும் (3) முந்தைய மாதத்தில் பாய்ச்சல் உதவியின்றி பயிரிடப்பட்டவை என்று பதிவாகியுள்ள நிலங்களுக்கு பிந்தைய மாதங்களில் நீர் பாய்ச்சப்பட்ட விவரங்கள்.	சீழ்க்கண்டவகையில் பயிரிடப்படாது உள்ள நிலத்தின் தன்மை மற்றும் பரப்பின் விவரங்கள் ஒவ்வொரு நில அளவை எண் அல்லது அதன் பகுதியில். (அ) வனம், (ஆ) பயனற்ற பயிர் செய்ய இயலாத நிலம், (இ) விவசாயம் மற்றும் இதர காரியங்களுக்கு பயன் படுத்தப் படும் நிலம், (ஈ) பயிரிடத்தக்க தரிசு (உ) நிலையான புல் தரைகளும் மற்றும் இதர மேய்ச்சல் நிலங்களும், (ஊ) விதைக்கப்பட்ட இதர பரப்பில் சேர்க்கப்படாத மீர்வகைப் பயிர்களும் தோப்புகளும், (எ) நடப்புத் தரிசுகள் (ஏ) இதர தரிசு நிலங்கள்.	பயிர் பார்வையிடும் அலுவலர் குறிப்புரைகள்.
(13)	(14)	(15)	(16)	(17)	(18)	(18அ)	(19)

கிராமக் கணக்கு

17 – ஆம் பசலியில் திண்டிவனம் மாவட்டம் மதுராந்தகம் வட்டம் 184 பெரிய வெண்மணி

எண் 2

கிராமத்தில் வருடவாரி புலவாரி கைப்பற்று சாகுபடி அடங்கல் கணக்கு

நில அளவை எண். (1)	உட்பிரிவு எண். (2)	பரப்பு. (3)			தீர்வை. (4)	ஒரு போகம் அல்லது இரு போகம். (5)	கைப்பற்று தாருடைய பெயரும் எண்ணும் அல்லது அனுபோக தாருடைய பெயர். (6)	சாகுபடி பருவத்தின் பெயர். (7)	முதல் போகம்.				
									எந்த மாதத்தில் பயிர் செய்யப்பட்டது அல்லது எந்த மாதத்தில் செய்யப்பட்டது. (8)	பயிரின் பெயர். (9)	பயிரான / அனுவடையான பரப்பு. (10)	உண்மையான பாய்ச்சல் ஆதாரம். (11)	விளைச்சல் அளவு விபரம். (12)
180	4	0	41	50	38		942 தி அரசன் (மேல்)						
180	10	0	42	00	38		942 "						
180	11	0	42	00	38		942 "						
								– பொன்னம் நீர்					

கிராம நிர்வாக அலுவலர்
124. பெரிய வெண்மணி கிராமம்
மதுராந்தகம் வட்டம்

இரண்டாம் போகம்.					சிராய அனுவலரின் குறிப்புரை :- (1) புலன்களின் பருதிகளில் பயிரிடப்பட்ட விபரங்கள் அளவில், (2) கைப்பற்றில் நிலவரத்தின் சாகுபடியின் தன்மையும் மாதத்தில் பயிரிடப்பட்டவை (3) முந்தைய பயிரிற்றி பயிரிடப்பட்டவை என்று பதிவேடுகளில் நிலவரத்தின் பதிவேடுகளில் நீர் பாய்ச்சப்பட்ட விவரங்கள். (18)	கீழ்க்கண்டவகையில் பயிரிடப்படாது உள்ள நிலத்தின் தன்மை மற்றும் பரப்பின் விவரங்கள் ஒவ்வொரு நில அளவை எண் அல்லது அதன் பகுதியில். (அ) வளப், (ஆ) பயனற்று பயிர் செய்ய இயலாத நிலம், (இ) விவசாயம் மற்றும் இதர காரியங்களுக்கு பயன் படுத்தப் படும் நிலம், (ஈ) பயிரிடத்தக்க தரிசு (உ) நிலையான புல் தரைகளும் மற்றும் இதர மேய்ச்சல் நிலங்களும், (ஊ) விதைக்கப்பட்ட நிகர பரப்பில் சேர்க்கப்படாத சீரவகைப் பயிர்களும் தோப்புகளும், (எ) நடப்புத் தரிசுகள் (ஏ) இதர தரிசு நிலங்கள். (18அ)	பயிர் பார்வையிடும் அலுவலர் குறிப்புகளை. (19)
எந்த மாதத்தில் பயிர் செய்யப்பட்டது அல்லது எந்த மாதத்தில் செய்யப்பட்டது. (13)	பயிரின் பெயர். (14)	பயிரான / அனுவடையான பரப்பு. (15)	உண்மையான பாய்ச்சல் ஆதாரம். (16)	விளைச்சல் அளவு விபரம். (17)			

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ANNEXURE IX: CSR AFFIDAVIT

தமிழ்நாடு तमिलनाडु TAMILNADU
08 JUL 2021
S. Raju.

CE 721935

B. MOHAMED MYDEEN (S.V)
L.No. B1/12144/96
Chromepet, Chennai-44.

Affidavit to SEIAA – Tamil Nadu

I, **Thiru.S.Raju, S/o.Sivaji, No. 17/7, Tholkappiyam Street, Chitlapakkam, Kanchipuram, Tamilnadu State – 600 064**, solemnly declare and sincerely affirm that:

I have apply for getting Environment Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of **Rough stone and Gravel** over an extent **2.50.0 Hectares** of patta lands in **S.F.Nos. 180/4, 180/5, 180/5, 180/9, 180/10 and 180/11 of Periya Venmani Village, Maduranthagam Taluk, Kanchipuram District.**

1. I swear to state and confirm that within 10km area of the quarry site, I have applied for environment clearance, none of the following is situated.
   a. Protected areas notified under the wild life (Protection) Act, 1972,
   b. Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and Control of Pollution) Act, 1974,
   c. Eco-Sensitive areas as notified,
   d. Interstate Boundary
2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

S. Raju

NOTARY PUBLIC
GOVT. OF TAMILNADU
C. SURESH KUMAR, B.A.B.L.,
ADVOCATE & NOTARY
No.5, Bharathi Madha Street
(Indian Bank Building)
East Tambaram, Chennai-59.
Cell:94443 64743

CER Activity	Project Cost (Rs. In Lakh)	CER Cost 2.0% of project cost (Rs in Lakh)
The applicant Indents to involve corporate environment responsibilities (CER) activity like Water Purifier and Medicine Storage rack to the Dispensary at 2.0% from the total project cost	67.43	1.35
Total Cost Allocation	**67.43**	**1.35**

3. The following quarries are located within the radius of 500m from the periphery of my quarry.

S. No.	Name of the Applicant/Lessee	Survey Numbers	Extent in Hectare	Lease Status
a. Existing Quarries				
1.				
b. Abandoned Quarries				
1.				
c. Present Proposed Quarries				
1.	**Thiru.S.Raju.**	180/4, 180/5, 180/8, 180/9, 180/10 and 180/11	2.50.0	Proposed
d. Future Proposed Quarries				
1.				
Total				

4. There will not be hindrance or disturbance to the people living during quarrying and transportation.
5. There is no habitation within 300m radius from the periphery of my quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the laborers working in my quarry site.

NOTARY PUBLIC * GOVT. OF TAMILNADU * NOTARY PUBLIC
C. SURESH KUMAR, B.A.B.L.,
ADVOCATE & NOTARY
No.5, Bharatha Madha Street
(Indian Bank Building)
Ekkattuthangal, Chennai-59.
Cell: 94443 64743

S. Rery

8. The approach road from the main road to quarry is already exists and same will be maintained in a good condition for the haulage of quarry materials and machineries.
9. I will not engage any child labor in our quarry site and I aware that engaging child labor is punishable under the law.
10. All types of safety/ protective equipment will be provided to all the laborers working in my quarry.
11. No permanent structures, temples etc., are located within 300m radius from the periphery of my quarry.

I ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of my knowledge.

(S. Raju)

S. Raju

(Deponent)

NOTARY PUBLIC
NOTARY PUBLIC
GOVT. OF TAMILNADU

C. SURESH KUMAR, B.A.B.L.,
ADVOCATE & NOTARY
No.5 Bharathi Madha Street
(Indian Bank Building)
East Tambaram Chennai-59.
Cell:94443 64743

ANNEXURE X: APPROVED MINING PLAN REPORT

MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERAL CONCESSION RULES, 1959)

Lease period = Five years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT	:	2.50.0Ha
S.F.NO's	:	180/4, 180/5, 180/8, 180/9, 180/10 and 180/11
VILLAGE	:	PERIYA VENMANI
TALUK	:	MADURANTHAGAM
DISTRICT	:	KANCHIPURAM
STATE	:	TAMIL NADU

FOR

APPLICANT

Thiru.S.Raju,
S/o.Sivaji,
No. 17/7, Tholkappiyam Street,
Chitlapakkam, Kanchipuram,
Tamilnadu State – 600 064.

PREPARED BY

A. JAGANNATHAN, B.E., F.C.C., M.M.E.A., M.I.E.
Recognised Qualified Person
RQP/MAS/019/87/A

New No.17, Advaitha Ashram Road,
Alagapuram, Salem - 636 004.
Cell: +91 94422 78601 & 94433 56539.
E-Mail: infogeoexploration@gmail.com

S.Raju,
S/o.Sivaji,
No. 17/7, Tholkappiyam Street,
Chitlapakkam, Kanchipuram,
Tamilnadu State – 600 064.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure plan in respect of Periya Venmani Rough stone and Gravel Quarry lease applied area over an extent 2.50.0 Hectares of patta lands in S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 of Periya Venmani Village, Maduranthagam Taluk, Kanchipuram District, Tamil Nadu State has been prepared by

A.Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E
Recognized Qualified Person
RQP/MAS/019/87/A

I request the District Collector, Kanchipuram to make further correspondence regarding the modification of the Mining Plan with the said Recognised Qualified Person at his following address.

A.Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E
New No.17, Advaitha Ashram Road,
Alagapuram, Salem-636 004.
Cell: +91 94422 78601 & 94433 56539.

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

Signature of the Applicant

S.Raju

Place: Kanchipuram
Date: 20.11.2019

S.Raju,
S/o.Sivaji,
No. 17/7, Tholkappiyam Street,
Chitlapakkam, Kanchipuram,
Tamilnadu State – 600 064.

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure plan in respect of Periya Venmani Rough stone and Gravel Quarry lease applied area over an extent 2.50.0 Hectares of patta lands in S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 of Periya Venmani Village, Maduranthagam Taluk, Kanchipuram District, Tamil Nadu State has been prepared in full consultation with me.

I have understood its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to Quarry.

Signature of the Applicant

S.Raju

Place: Kanchipuram
Date: 20.11.2019

A.Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E
New No.17,
Advaitha Ashram Road,
Alagapuram, Salem-636 004.
Cell: +91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE RECOGNISED QUALIFIED PERSON

This is to certify that the Provisions of under Rules 41 & 42 Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure plan for Periya Venmani Rough stone and Gravel Quarry lease applied area over an extent 2.50.0 Hectares of patta lands in S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 of Periya Venmani Village, Maduranthagam Taluk, Kanchipuram District, Tamil Nadu State has been prepared for

Thiru.S.Raju,
S/o.Sivaji,
No. 17/7, Tholkappiyam Street,
Chitlapakkam, Kanchipuram,
Tamilnadu State – 600 064.

Whenever specific permissions / exemptions / relaxations and approvals are required, the Applicant will approach the concerned authorities of the District Collectorate, Kanchipuram, Tamil Nadu for such permissions/ exemptions / relaxations and approvals.

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

Signature of the RQP

A.Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E
RQP/MAS/019/87/A

Place: Salem
Date : 03.12.2019

A.Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E
New No.17,
Advaitha Ashram Road,
Alagapuram, Salem-636 004.
Cell: +91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE RECOGNISED QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations and Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure plan for Periya Venmani Rough stone and Gravel Quarry lease applied area over an extent 2.50.0 Hectares of patta lands in S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 of Periya Venmani Village, Maduranthagam Taluk, Kanchipuram District, Tamil Nadu State has been prepared for

Thiru.S.Raju,
S/o.Sivaji,
No. 17/7, Tholkappiyam Street,
Chitlapakkam, Kanchipuram,
Tamilnadu State – 600 064.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of Director General of Mines Safety (DGMS), No. 5, IInd Street, Block – AA, Anna Nagar, Chennai-40, Tamil Nadu for such permissions/exemptions/relaxations and approvals.

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

Signature of the RQP

A.Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E
RQP/MAS/019/87/A

Place: Salem
Date: 03.12.2019

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MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY OVER AN EXTENT OF 2.50.0Ha IN PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMILNADU

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERAL CONCESSION RULES, 1959)

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The Mining Plan and Environmental Management Plan is prepared for **Thiru.S.Raju,** S/o.Sivaji, residing at No. 17/7, Tholkappiyam Street, Chitlapakkam, Kanchipuram, Tamilnadu State – 600 064.

The applicant applied to quarry Rough stone and Gravel over an extent 2.50.0 Hectares of Patta lands in S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 of Periya Venmani Village, Maduranthagam Taluk, Kanchipuram District under Rule 19(1), 20 & 33 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the District Collector, Kanchipuram and passed a Precise area Communication letter vide Rc.No.**269/Q2/2017, Dated: 18.11.2019** to submit Mining Plan for obtain approval from the Department of Geology and Mining, Kanchipuram and obtain Environmental Clearance from the SEIAA, Tamil Nadu.

In order to ensure compliance of the order of the Honorable Supreme Court Dated: 27.02.2012 in I.A.No.12.13.2011 in Special Leave Petition SLP (C) No 19628-19629/2009, it has been now decided that all mining projects of minor minerals including their renewal irrespective of sizes of the lease would hence forth require prior environmental clearance mining project within the lease applied area up to less than 100Ha including projects or minor mineral with lease applied area less then 5Ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state Competent Authority notified by MoEF as prescribed procedure prescribed under EIA notification 2006.

In the above circumstances the applicant through his consultant is hereby preparing the mining plan along with Progressive Quarry Closure Plan for approval and subsequent submission of Form-I, Form-IM and Pre feasibility report to obtain environmental clearance from the SEIAA, Tamilnadu, Rough stone and Gravel quarry. This mining plan is prepared by considering the Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent Amendment and judgments till 24.01.2019.

Short Notes of Mining plan:

a. Village Panchayat - Periya Venmani

b. Panchayat Union - Maduranthagam

c. The Geological Resources are **8,75,000m^3** of Rough stone and **50,000m^3** of Gravel in the entire area.

d. The Total Mineable Reserves are **3,19,840m^3** of Rough stone and **7,338m^3** of Gravel in the entire area.

e. The proposed quantity of reserves/ (level of production) to be mined are **3,19,840m^3** of Rough stone and **7,338m^3** of Gravel for five years in the entire area.

f. Total extent of the lease applied area is about 2.50.0Ha.

g. Topography of the area = The area is exhibits plain terrain

h. Proposed Depth of mining = 37m (2m Gravel + 35m Rough Stone) below ground level.

i. This Mining Plan period = Five years

j. It is a fresh lease application but, the applied area has been considered quarrying operation earlier. The quarry lease was granted in favour of Thiru.A.Jeevanandam, Chennai, over an extent of 7.52.5 hectares of Patta lands in S.F.No's.172/3,4,5,6, etc., of Periya venmani Village, Maduranthagam Taluk, Kanchipuram District. The period of Five years from 25.05.2007 to 24.05.2012 for quarrying of Roughstone & Earth. In this situation the applicant (Thiru.S.Raju) has applied a quarry lease on 06.03.2017 with deletion of area in S.F.No's. 172/3, 4, 5, 6, 173/1, 2, 3, 4, 5, 6, 180/1, 2, & 3. At present the applicant has applied totally over an extent of 2.50.0ha of Patta lands in S.F.No's. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 of Periya Venmani Village, Maduranthagam Taluk, Kanchipuram District for the period of five years. The application was meritoriously processed by the District Collector, Kancheepuram and recommended the quarry lease for the period of five years. The maximum dimension of the **existing quarry pit** is given table below (Refer Plate No. III).

Table – 1

Length(m)	Width(m)	Depth(m)
89	56	4

k. Method of mining / level of mechanization.

Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.

l. Type of machineries proposed in the quarrying operation is given below.

Excavators attached with rock breaker (Rental Basis).

Jack hammer, Compressor (Diesel drive) (4 Jack Hammer capacity) (Rental Basis).

m. No trees will be uprooted due to this quarry operation.

n. The approach road from the main road to quarry already constructed and same will be maintained in a good condition for the haulage of quarry materials and machineries.

o. There is No Export of this Rough stone and Gravel.

p. Topo sketch covering 10Km and 1Km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archeological importance, places of worships is marked and enclosed as Plate No. IA and IB.

q. The lease applied area is about 2.50.0Ha bounded by eight corners; the corners are designated as 1-8 clock-wise from the Southwestern side and the Co – ordinates for all the corners are clearly marked in the Quarry Lease Plan enclosed as Plate No-II.

r. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are enclosed as Plate No. III.

s. General conditions will not applicable for the proposed area. The area applied for lease is 10Km away from the,

i) Interstate Boundary,

ii) Protected area under wild life protection ACT 1972,

iii) Critically polluted areas as identified by CPCB,

iv) Notified Eco sensitive areas.

t. There is no wastage anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.

u. Around 26 employees are deploying in the quarrying operation.

v. Total Cost of the project is about **Rs.68,96,100/-.**

w. Infrastructures:

Table – 2

Particulars	Location	Approximate aerial distance from lease applied area.
Nearest Post Office	Periya Venmani	2km – NE
Nearest School	Periya Venmani	2km – NE
Nearest Dispensary	Cheyur	6.5km – SE
Nearest Town	Cheyur	6.5km – SE
Nearest Police Station	Cheyur	6.5km – SE
Nearest govt. Hospital	Maduranthagam	15km – NW
Nearest D.S.P. Office	Maduranthagam	15km – NW
Nearest Railway Station	Maduranthagam	15km – NW
Nearest Airport	Chennai	84km – NE
Nearest Seaport	Chennai	84km – NE
District Head quarters	Kanchipuram	56km – NW

2.0 GENERAL INFORMATION

2.1 a) Name of the Applicant : **Thiru.S.Raju,**

: S/o. Sivaji

b) Address of the Applicant (With Phone No and Aadhaar No.)

Address	:	No. 17/7, Tholkappiyam, Chitlapakkam, Kanchipuram.
Pin Code	:	600 064
Mobile No	:	9942984562
Aadhaar No	:	2724 8141 1823
Email ID	:	ds.udhayamgroups@gmail.com

c) Status of the Applicant (Individual / Company / Firm):

The applicant is an Individual.

2.2 a) Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough stone and Gravel.

b) Precise area communication letter details received from the Competent Authority of the Government:

The precise area communication letter was received from the District Collector, Kanchipuram vide **Rc.No. 269/Q2/2017, Dated: 18.11.2019** to obtain approved mining plan and Environmental Clearance from the SEIAA, Tamilnadu (Refer Annexure No. I).

c) Period of permission / lease to be granted:

Five years.

d) Name, Registration Number and address of the Recognised Qualified Person preparing the mining plan:

Name	:	A. Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E. Recognised Qualified Person
Registration Number	:	RQP/MAS/019/87/A
Address	:	New No.17, Advaitha Ashram Road, Alagapuram, Salem - 636 004.
Mobile	:	+91 94422 78601 & 94433 56539
Telephone No.	:	0427- 2431989
Email	:	infogeoexploration@gmail.com

3.0 LOCATION

a) Details of the area with location map:

The lease applied area is located at a distance of about 2.0km Southwest side of Periya venmani, 15km Southeast side of Madurantagam, 56km Southeastern side of Kancheepuram and 2km Northeast of Vandavasi- Odiyur State Highway Road (SH-115).

Kancheepuram —41km, Southeast→ Madurantagam —15.5km, Southeast→ Periya venmani —2.0km, Southwest→ Lease applied area

Location Map of the Lease Applied area

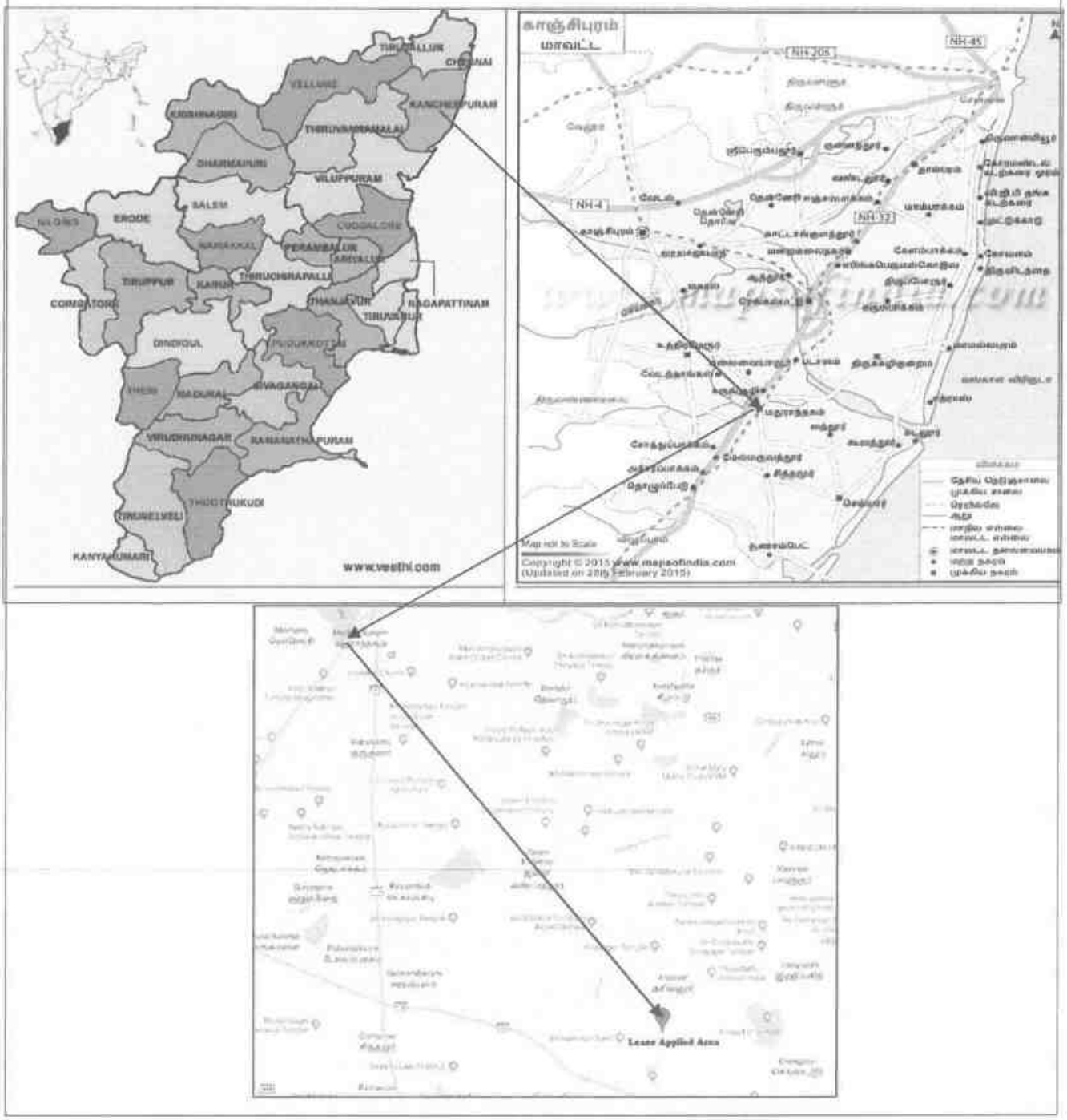


TABLE – 4

District	Taluk	Village	S.F. No.	Area in Ha.	Patta No.
Kanchipuram	Maduranthagam	Periya Venmani	180/4	0.41.50	942
			180/5	0.41.50	941
			180/8	0.41.50	
			180/9	0.41.50	
			180/10	0.42.00	942
			180/11	0.42.00	
Total Extent				**2.50.0**	

b) Classification of the area (Ryotwari/ Poramboke / others):

It is a Patta land (Barren land) which is not fit for vegetation/ Cultivation.

c) Ownership / Occupancy of the applied area (surface right):

It is a Patta land. The applicant has obtained consent from the Pattadhar. Refer the Patta and Consent Document copy as Annexure Nos. IV & VII.

S. No	S.F.No.	Patta No.	Registered Name
1.	180/5, 180/8 & 180/9	941	Tmt.Geetha
2.	180/10, 180/11 & 180/4	942	Thiru.Arunkumar

d) Toposheet No. with latitude and longitude:

The lease applied area falls in the Toposheet No: **57 - P/15** Latitude between: **12°24'03.58"N** to **12°24'09.72"N** and Longitude between: **79°58'15.82"E** to **79°58'23.00"E** on WGS datum-1984. Please refer the Plate Nos. I to II.

e) Existence of public road / Railway line, if any nearby and approximate distance:

The approach metal road is situated on the Southeastern side of the applied area which connects the village road at a distance 800m.

Multiple road access is available from the quarry to state highways and National Highway, no towns are enrooted hence the traffic density is not much more due to the transportation of Rough stone and Gravel.

The approach road from the quarry is already existence, the same road will be maintained and utilized for haulage, besides trees will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

The The Nearest Railway line is Vilupuram – Chennnai which is about 15km on the Northwestern side of the area.

ASSISTANT DIRECTOR GEOLOGY CHENGALPATTU

PART – A

4.0 GEOLOGY AND MINERAL RESERVES

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

The lease applied area is exhibits plain terrain. The area has gentle sloping towards Southern side. The altitude of the area is 67m (max) above Mean sea level. The area is covered by the Gravel which is about 2m thickness. Massive Charnockite is found after 2m (Gravel) which is clearly inferred from the nearby Quarry pits.

The Water level in the surrounding area is 50-47m below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 1227.26mm during monsoon.

Topographical View of Periya Venmani Rough Stone and Gravel Quarry lease applied area

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite body N30°E – S30°W with dipping towards SE60°.

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

AGE		FORMATION
Recent	-	Quaternary formation (Gravel)
---------Unconformity----------		
Archaean	-	Charnockite
		Peninsular Gneiss complex

4.2 Details of exploration already carried out if any:

State Geology and Mining Dept, Govt. of Tamil Nadu, has carried out the Regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping in Kanchipuram District. Besides, the Recognised Qualified Person and his team members made a detailed geological study of the proposed area. The Rough stone formation is clearly inferred from the existing quarry pit.

4.3 Estimation of Reserves:

a) Geological reserves with geological sections on a scale of 1:1000 / 1:2000

As far as Rough stone (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough stone within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,

Totally three sections have been drawn, one along the strike direction as (X-Y) Length wise and other two cross sections are drawn perpendicular to strike as (A-B and C-D) Width wise to cover the maximum area considered for quarry lease.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in the scale of 1:1000 (please refer the Geological plan and sections Plate No- III). As the sale of Rough stone are in terms of cubic metres (Volume) only and not in terms of tonnage.

Geological Resources (Plate No. III):

The Geological Resources of Rough Stone and Gravel Quarry are calculated upto a maximum depth of 37m (2m Gravel + 35m Rough Stone) below from the general ground level.

The total Geological resources are calculated by area method. The calculation of the geological resources is given below.

Total Extent of the area	:	2.50.0 Hectares
Area in square meter (2.50.0 x 10,000)	:	25,000m^2

GRAVEL:

Depth of Estimation of Resources	:	2m
Total Geological Resources (Area x Depth)	:	25,000m^2 x 2m
	:	50,000m^3

ROUGH STONE:

Depth of Estimation of Resources	:	35m
Total Geological Resources (Area x Depth)	:	25,000m^2 x 35m
	:	8,75,000m^3
Total Geological Resources of Gravel	:	**50,000m^3**
Total Geological Resources of Rough Stone	:	**8,75,000m^3**

Mineable Reserves:

The mineable reserves are calculated after leaving the safety distance, Bench loss and existing quarry pit.

TABLE – 5

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Mineable Reserves of Rough stone @ 100% (m^3)	Gravel (m^3)
XY-AB	i	41	47	2		3854
	ii	38	41	2	3116	
	ii	72	77	3	16632	
	iii	67	67	5	22445	
	iv	59	57	5	16815	
	v	54	47	5	12690	
	vi	49	37	5	9065	
	vii	44	27	5	5940	
	viii	39	17	5	3315	
				Total	**90018**	**3854**
XY-CD	i	13	134	2		3484
	ii	10	128	2	2560	
	ii	66	184	3	36432	
	iii	61	174	5	53070	
	iv	56	164	5	45920	
	v	51	154	5	39270	
	vi	46	143	5	32890	
	vii	41	96	5	19680	
				Total	**229822**	**3484**
Grand Total					**319840**	**7338**

Total Mineable Reserves of Gravel : **7,338m^3**

Total Mineable Reserves of Rough Stone : **3,19,840m^3**

The mineable reserves have been computed as **3,19,840m^3** of Rough stone at the rate of 100% recovery and **7,338m^3** of Gravel upto a depth of 37m (2m Gravel + 35m Rough Stone) below from the general ground level for a period of five years.

5.0 MINING

5.1. Method of mining (opencast / underground):

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is 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 Mine Act - 1952.

5.2. Mode of working (mechanized, semi mechanized, manual):

The Rough Stone is proposed to quarry at 5m bench height & width with conventional Opencast Mechanized Method.

The quarry operation involves shallow jack hammer drilling, slurry explosives in blasting, excavation, Loading and transportation of Rough stone to the needy crusher.

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.

Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pit by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast mechanized method of mining.

5.3. Proposed Bench Height and Width:

The bench height is proposed 5.0 meter vertical bench and the width of the bench is not less than the Height.

5.4. 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.):

The overburden in the form of Gravel formation, the Gravel will be directly loaded into tippers for the filling and levelling of low lying areas, this will be done only after obtaining permission and paying necessary seigniorage fees to the Government. The excavated rough stone will be directly loaded into tippers to the needy customers. The Composite year wise Development and production plan and sections indicating the Pit lay out, Green belt development are shown in Plate No-III.

Year wise Development and Production Table

TABLE – 6

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserves of Rough stone @ 100% (m^3)	Gravel (m^3)
i	XY-CD	i	13	134	2		3484
		ii	10	128	2	2560	
		ii	46	184	3	25392	
		iii	36	174	5	31320	
		iv	5	164	5	4100	
					Total	**63372**	**3484**
ii	XY-AB	i	20	47	2		1880
		ii	17	41	2	1394	
		ii	51	77	3	11781	
		iii	46	67	5	15410	
	XY-CD	ii	20	184	3	11040	
		iii	25	174	5	21750	
					Total	**61375**	**1880**
iii	XY-AB	i	21	47	2		1974
		ii	21	41	2	1722	
		ii	21	77	3	4851	
		iii	21	67	5	7035	
		iv	59	57	5	16815	
	XY-CD	iv	51	164	5	41820	
					Total	**72243**	**1974**
iv	XY-CD	v	51	154	5	39270	
	XY-AB	v	54	47	5	12690	
		vi	49	37	5	9065	
					Total	**61025**	
v	XY-CD	vi	46	143	5	32890	
		vii	41	96	5	19680	
	XY-AB	vii	44	27	5	5940	
		viii	39	17	5	3315	
					Total	**61825**	
Grand Total						**319840**	**7338**

The Recoverable reserves have been computed as **3,19,840m^3** of Rough stone at the rate of 100% recovery and **7,338m^3** of Gravel for the five years upto a depth of 37m (2m Gravel + 35m Rough Stone) below ground level for a period of five years.

The applicant ensures the total quantity proposed in the benches will not exceed during the quarrying operation. Besides the rough stone locked up in benches will be exploited after obtaining necessary permission from the office of Director General of Mine Safety, Chennai region by submitting relevant documents, appropriate safety plans and its Mitigation measures.

One lorry load	=	$6m^3$ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in this five years plan period	=	$3,19,840m^3$
Hence total Lorry loads per day	=	$3,19,840m^3/6m^3$
	=	53,307 Lorry loads
	=	53,307/5 years
	=	10,661/300
Roughstone (for five years/day)	=	**35 - 36** Lorry loads per day
Total quantity to be removed in this three years plan period	=	$7,338m^3$
Hence total Lorry loads per day	=	$7,338m^3/6m^3$
	=	1,223 Lorry loads
	=	1,223/3 years
	=	408/300
Gravel (for three years/day)	=	**1** Lorry loads per day

Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 P.M. lunch break)

5.5. Machineries to be used:

For Mining:

The following machineries are utilized on rental basis for the development and production work at this quarry.

I. DRILLING MACHINE:

TABLE – 7

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	6	30-35	1.2m to 2.0m	Compressed air
2	Compressor	2	-	400 psi	Diesel Drive

II. EXCAVATION & LOADING EQUIPMENT:

S.No.	Type	Nos	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	1	300	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S.No.	Type	Nos	Capacity	Motive Power
1	Tippers	3	20 tonnes	Diesel Drive

5.6. Disposal of Overburden/Waste:

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

5.7. 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.,

As the applicant has applied quarry lease for Five years, the ultimate pit limit (dimension) at the end of this mining plan period is given below:

TABLE – 8

Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
192	146	37m below ground level

Greenbelt has proposed on the safety zone and Panchayat roads by planting Neem, Pongamia pinnata, Casuarina, etc., 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 every year as per the MoEF&CC Norms. Please refer Plate No. III & IV.

It is propose to engage any local institution to monitor the EIA and EMP during the course of quarrying operation after the grant of quarry lease.

There is no waste anticipated during the entire life of quarry. Hence, backfilling is not possible in this quarry. After completion of quarry operation, the quarry pit will be allowed to collect the seepage and rainwater, the water storage will be kept as temporary reservoir for charging the nearby wells and the storage water will be used for afforestation purpose. The quarry pit will be fenced with barbed wire fencing to prevent inadvertent entry of public and cattle (Refer Plate No. IV).

6.0 BLASTING

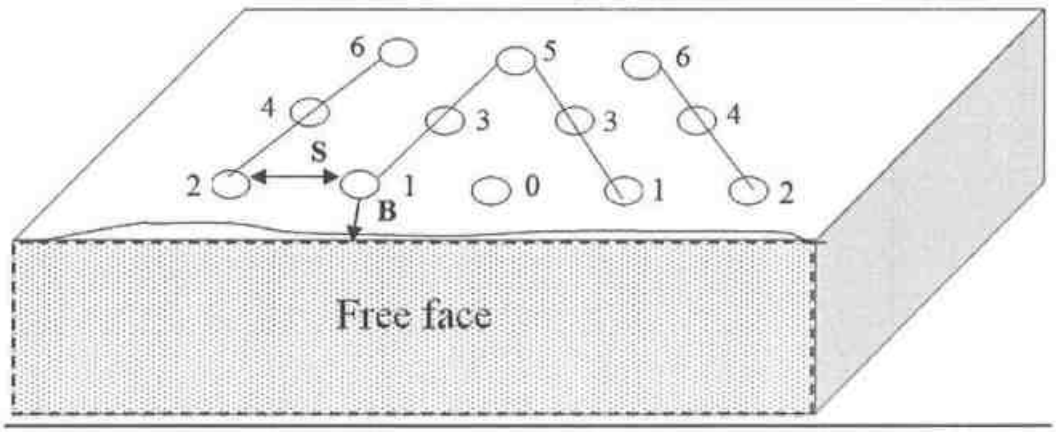
6.1 Blasting pattern:

The quarrying operation is proposed to carried out by Mechanized Opencast Method in conjunction with conventional method of mining using Jack hammer drilling and blasting of shattering effect for loosen the Rough stone.

Drilling and blasting parameters are as follows:

Depth of Each hole	:	1.5m
Diameter of hole	:	30-32mm
Spacing between holes	:	1.2m
Burden for hole	:	1.0m
Pattern of hole	:	Zigzag – Multi-rows
Inclination of holes	:	$80^0$from horizontal
Use of delay detonators	:	25millisecond relays
Detonating fuse	:	"Detonating" Cord

BLASTING PATTERN DRAWING



Staggered "V" Pattern of Blasting Design

Spacing	=	**1.2m**
Burden	=	**1.0m**
Depth of the hole	=	**1.5m**
No of holes proposed per day	=	**184 Holes**

6.2 Type of explosives to be used:

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.

6.3 Measures proposed to minimize ground vibration due to blasting:

The quarry is situated more than 300m away from the nearby villages, Controlled blasting measures is being adopt for minimizing ground vibration and fly rock.

Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give heaving effect in rough stone for easy excavation and to control fly rock.

Delay detonators:

Delay blasting (millisecond delays) permits to divide the shot in to smaller charges, which are detonated in a predetermined millisecond sequence at specific time intervals.

The major advantages of delay blasting are:

- Reduction of ground vibration.
- Reduction in air blast.
- Reduction in over break.
- Improved fragmentation.
- Better control of fly-rock.

Blasting program for the production per day:

No of Holes	= 184 Holes
Yield	= 552 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 92 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.30 noon – 1.00P.M.(whenever required)

6.4 Storage and safety measures to be taken while blasting:

The applicant will engage authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/Permit Mines Manager. The explosives agencies should be have the valid Blaster certificate. He will blast holes in the quarry site. After the completion of Blasting the explosives Agencies will take it out back the remaining quantity of Explosives. The magazine is available at the quarry site to temporarily store the explosives.

7.0 MINE DRAINAGE

7.1 Depth of water table (based on nearby wells and water bodies):

The water table in the area is about 50m BGL in summer season and 47m in Rainy season which is observed from the nearby bore wells the data obtained from existing private boreholes. The lease applied area is fully covered by Massive Charnockite formation and it is revealed from the adjacent quarries. Hence the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt.

TABLE – 9

Type	Distance & Direction	Location
Bore Well	800m Southwest side	12°23'54.31"N 79°57'55.98"E

7.2 Arrangements and places where the mine water is finally proposed to be discharged:

The quarry operations are confined to well above the water table during the entire lease period. If water is encountered at quarry due to rain water and seepage, the same will be pumped out by 5HP water pump and discharge to the Green belt development areas. Besides, the water will also be used for dust suppression on haul roads during Haulage of machineries.

8.0 OTHER PERMANENT STRUCTURES (also shown in the map)

8.1 Habitations/ Villages natham:

There is no approved habitation within 300m radius from the lease applied area.

8.2 Power Lines (HT/LT):

There is no HT/LT line within the radius of 50m from the lease applied area.

8.3 Water bodies (river, pond, lake, odai, canal, etc.,):

There is no River, Pond, Lake, Canal, Reservoir located within 50m radius of the area.

8.4 Archaeological / historical monuments:

There is no Archaeological / historical monuments within 300m radius of the area.

8.5 Road (NH, SH others):

The nearest National Highway (NH-45) Chennai – Viluppuram is situated about 15km on the Northwestern side of the area.

The State Highway (SH-115) Vandavasi – Odiyur is situated about 2km on the Southwestern side of the area.

8.6 Places of worships:

There is no place of worships within the radius of 300m from the lease applied area.

8.7 Reserved forest / forest / social forest / wild life sanctuary etc.:

There is no reserved forest / social forest / wild life sanctuary etc., situated within 500m radius of the lease applied area.

SALIENT FEATURES

Table – 10

<table>
<tr><th>S. No.</th><th>Salient Futures Present around site</th><th>Prescribed safety distance</th><th>If any present within Prescribed distance - Actual Distance from the site</th></tr>
<tr><td>1.</td><td>Railways, Highways, Reservoirs or Canal</td><td>50m</td><td>None of the above situated within 50m radius.</td></tr>
<tr><td>2.</td><td>Village Road</td><td>10m</td><td>There is no village road situated within 10m radius of the area.</td></tr>
<tr><td>3.</td><td>Habitation / Village</td><td>300m</td><td>There is no approved habitation located within 300m radius of the lease applied area (Refer Plate No I-B).</td></tr>
<tr><td>4.</td><td>Adjacent Patta/Govt. Land</td><td>7.5m/10m</td><td>
<table>
<tr><th>Direction</th><th>Classification</th><th>Safety Distance</th></tr>
<tr><td>North</td><td>Patta land / Govt Land</td><td>7.5m/10m</td></tr>
<tr><td>East</td><td>Patta land / Govt Land</td><td>7.5m /10m</td></tr>
<tr><td>South</td><td>Patta land</td><td>7.5m</td></tr>
<tr><td>West</td><td>Patta land</td><td>7.5m</td></tr>
</table>
(Refer Plate No. II).</td></tr>
<tr><td>5.</td><td>Power House, EB line (HT & LT Line)</td><td>50m</td><td>HT/LT Line – No HT/LT line within the 50m radius of the lease applied area.</td></tr>
<tr><td>6.</td><td>Boundaries of the permitted area</td><td>7.5m</td><td>The boundaries of the permitted areas as follows:
North – S.F.Nos. 181/2 and 181/3E.
East – S.F.Nos.180/6 and 180/7.
South – S.F.No. 179.
West – S.F.Nos. 180/12, 180/2 and 180/3.
(Refer Plate No. II).</td></tr>
<tr><td>7.</td><td>Reserve forest / protected area / ECO sensitive area</td><td>50m</td><td>There is no reserved forest located within the radius of 50m from the lease applied area.</td></tr>
<tr><td>8.</td><td>Protected area / ECO sensitive area/ Wild Life Sanctuary/ Interstate Border</td><td>10km</td><td>There is no ECO sensitive Zone/ Wild Life Sanctuary/ Interstate Border/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area.</td></tr>
</table>

9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES

9.1 Employment potential (skilled, semi-skilled, un skilled):

The following manpower's are proposed in the mining plan to carry out the day-to-day quarrying activities, the same employment is maintaining aimed at the proposed production target and also to comply with the statutory provisions of the Metalliferous mines regulations, 1961.

a.	Skilled labour:		
	Mine Foreman	:	1
	Blaster/mate	:	1
	Excavator – Operator & Driver	:	4
	Jack hammer operator	:	12
b.	Semi-skilled:		
	Security	:	1
c.	Unskilled:		
	Labour & Helper	:	3
	Co-operator and Cleaner	:	4
	Total	**:**	**26**

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 the labour will not be employed less than 18 years, **No child labour** will engaged or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period.

9.2 Welfare Measures:

a) Drinking Water:

Packaged drinking water is available from the nearby water vendors in Periya Venmani which is about 2km on the Northeastern side of the lease applied area.

b) Sanitary Facilities:

Hygienic modern Sanitary Facilities are already constructed in the southwest side as semi permanent structure and it will be maintained periodically.

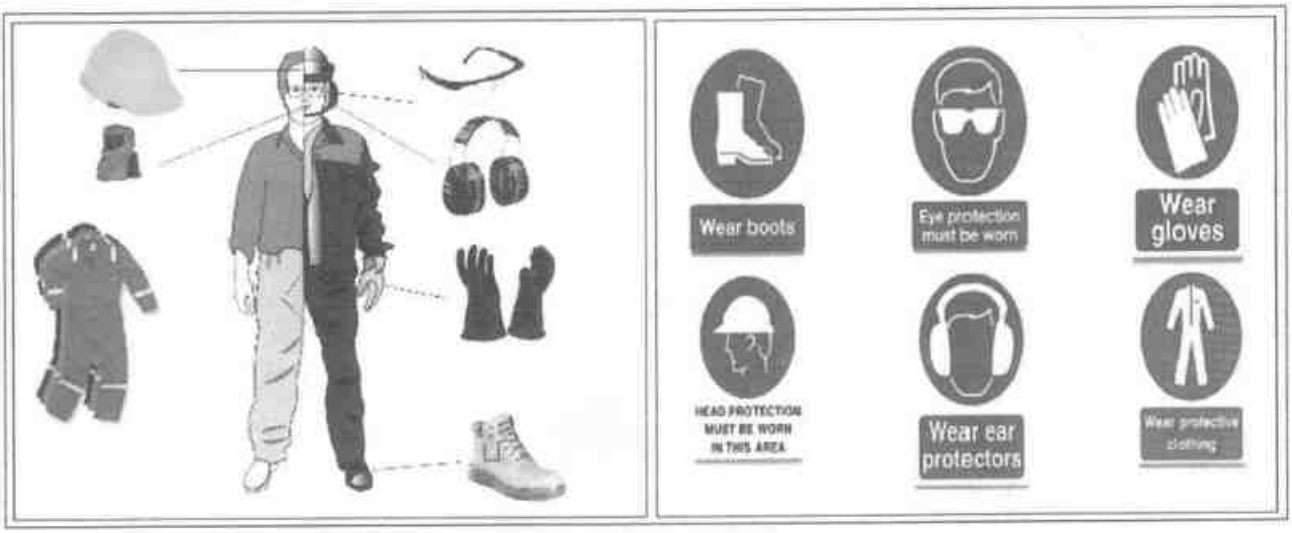
c) First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality is the victim [illegible] given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in charge of first aid and injured person will be taken to the hospital by the applicant's vehicle. Hospital is available in Cheyur located at a distance of 6.5km on the Northwest side.

d) Labour Health:

Periodically medical check-up related to occupational health safety will be conducted to all the workers in applicant own cost.

e) Precautionary safety measures to the labourers:



- Helmets,
- Mine Goggles,
- Ear plugs,
- Ear muffs,
- Dust mask,
- Reflector jackets
- Safety Shoes

All personal protective devices will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men and machinery and to create awareness about conventional opencast quarrying operations.

PART – B

10.0 ENVIRONMENT MANAGEMENT PLAN

10.1 Existing Land use pattern:

The quarry lease applied area is flat terrain. The area is a dry barren land devoid of Agriculture and Habitations. The lease applied area has utilized only for quarry operation in earlier.

LAND USE PATTERN

TABLE – 11

Description	Present area in (ha)	Area at the end of this quarrying period (ha)
Area under quarry	0.44.4	1.87.7
Infrastructure	Nil	0.01.0
Roads	0.01.0	0.02.0
Green Belt	Nil	0.45.0
Unutilized	2.04.6	0.14.3
Grand Total	**2.50.0**	**2.50.0**

10.2 Water Regime:

It is a simple opencast quarry operation. The quality of water will not be affected due to this quarrying operation. However, mitigation measures will be carried out like Garland drains constructed on all sides of quarry pit to avoid surface run-off rain water entering into the pit.

The waste water discharged to water bodies will be met the standard prescribed under the Environment (Protection) Act – 1986 by The Ministry of Environment, Forest and Climatic change.

10.3 Flora and Fauna:

TABLE – 12

S.No	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	Borassus flabellifer	Arecaceae	Panai	Tree	
2.	Azadirachta indica	Meliaceae	Neem, Vembu	Tree	
3.	Cocos nucifera	Arecaceae	Coconut tree, Thennai	Tree	
4.	Calotropis	Asclepeiadaceae	Erukku	Shrub	
5.	Eucalyptus obliqua	Myrtaceae	Eucalyptus, Thailamaram	Tree	

List of Fauna			
S.No.	Scientific Name	Common Name	Picture
1.	Capra aegagrus hircus	Goat	
2.	Funambulus palmarum	Squirrel	
3.	Bos taurus	Cow	
4.	Hieroglyphus sp	Grasshopper	
5.	Corvus levaillantii	Crow	
6.	Agrion sp & Petalura sp	Dragon fly	

10.4 Climatic Conditions:

The area receives rainfall of about 1227mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 18°C.

10.5 Human settlement:

There are few villages located within 5km radius of the area; the approximate distance, direction and populations are given below:

TABLE – 13

S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Periya venmani	2.0km – Northeast	1500
2.	Viralur	2.0km – Southeast	1000
3.	Chittamur	2.0km – Southwest	750
4.	Chinnavelikadu	1.75km – Northwest	800

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Cheyur located at a distance of 6.5km on the Southeastern side of the area.

10.6 Plan for air, dust suppression:

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

The following Mitigations measures will be carried out:

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

Air quality will be monitored periodically as per Norms and Mitigate measures carried out to prevent dust and Air propagation in to air. The estimated budget for dust suppression would be around **Rs.52,000**/year.

10.7 Plan for Noise level control:

The noise level increased due to the Excavation, Drilling, Blasting and Transportation.

Engineering Noise control:

Noise will be created due to the usage of Machineries and Vehicles. The Noise will be controlled in the following manner.

- Selection of new low – noise equipments for the Rough stone quarry operation.
- Modifications of older equipments.
- Implementation of effective preventive maintenance which reduces noise more than 50%.
- Developing Green belts which act as Acoustic barrier, pollution absorbent and noise controller.
- The drivers will be strictly instructed to move the vehicle during the transportation not exceed 40km per hour.
- Sentries with flags & whistle will posted in village road junction and populated area to control and regulate traffic.

Shallow holes of 32mm diameter and maximum depth of 1.5m will be drilled and conventional low power explosives such as Slurry Explosives, ordinary safety fuse will be used for rough stone. Hence, ground vibration and noise pollution i.e., minimal and restricted within the quarry working area.

Noise level monitoring and other Mitigation measures will be carried out to reduce Noise and Vibration. The estimated budget for Noise level monitoring would be around **Rs.2,000**/Year.

10.8 Environmental impact assessment statement describing impact of mining on the next five years:

In the mining plan proposed for a production of Rough stone does not involve deep hole drilling and blasting. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the environmental impact studies will be conducted as per EIA notification issued by MoEF& CC. It is B2 Category mine. The estimated budget would be around **Rs.3,80,000/-.**

10.9 Proposal for waste management:

There is no waste anticipated in this Rough stone and Gravel quarrying operation. The entire quarried out materials will be utilized (100%).

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

In the mining plan only to a maximum depth of 37m from the below ground level has been envisaged as workable depth for safe & economic mining during entire lease area. Hence, after quarry reaches the ultimate pit limit, fencing will be constructed around the quarried pits to prevent inadvertent entry of the public and cattle. The barbed wire fencing cost would be around **Rs. 2,18,400/-.**

10.11 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):

The safety zone along the boundary barrier and Nearest Panchayat Roads has been identified to be utilized for Greenbelt development. Appropriate native species of Neem, Pongamia pinnata, Casuarina, etc., trees will be planted in a phased manner as described below.

TABLE – 14

Year	No. of tress proposed to be planted	Survival %	Area to be covered sq.m.	Name of the species	No. of trees expected to be grown
I	100	80%	900	Neem, Pongamia pinnata, Casuarina, etc.,	80
II	100	80%	900		80
III	100	80%	900		80
IV	100	80%	900		80
V	100	80%	900		80

Nearly 4,500sq.m area is proposed to use under Greenbelt by planting 100 Numbers of trees during every year with an anticipated survival rate of 80% (Please refer Plate No.III). The estimated budget for plantation and maintenance of Green belt development would be around **Rs. 50,000/-** for the period of five years.

The Greenbelt Development will be formed in around the quarried out top two benches of the lease applied area. The cost would be around **Rs. 40,000/-**

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

Budget Provision for the entire quarrying period:

TABLE – 15

S. No	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year
1	Ambient air quality monitoring	6500	4	26000	52000
2	Noise level monitoring	250	4	1000	2000
3	Ground vibration monitoring	1000	2	2000	4000
4	Water sampling and analysis	9000	1	9000	18000
Total EMP Cost/ year					**76,000**

The EMP cost would be around **Rs. 3,80,000/-** for the period of five years.

A. Project cost / investment		
i) Land cost	The Land value as per the Government Guideline land cost cost is about Rs.8,28,000/ha, hence the total land cost is calculated about 2.50.0ha X Rs.8,28,000/- (source : https://tnreginet.gov.in/portal/)	Rs.20,70,000/-
ii) Machinery to be used	The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tipper, Tractor mounted compressor With jack Hammer and loose tools (Rental Basis)	Rs.32,00,000/-
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattles cost would be around	Rs.2,18,400/-
iv) Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost would be around	Rs. 1,00,000/-
v) Sanitary facility	Adequate latrine and urinal accommodation shall be provided at conveniently accessible places the cost would be around	Rs. 1,00,000/-
vi) Others items	First aid room & accessories	Rs. 70,000/-
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labors. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	Rs.1,00,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	Rs. 60,000/-
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	Rs.70,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	Rs.1,00,000/-
xi) Garland drain	Construction of Garland drain with check dam to prevent surface run-off rain water in to the quarry pit, the construction cost is around	Rs. 2,02,500/-
xii) Greenbelt etc.	Greenbelt development and maintenance will be carried out in the boundary barriers the cost would be around	Rs.50,000/-
	Greenbelt development and maintenance will be carried out in the quarried out top two benches	Rs. 40,000/-
	Total Project Cost	**Rs.63,80,900/-**

B. EMP Cost :- (Per year)

Air Quality monitoring	=	Rs. 52,000/-
Water Quality Sampling	=	Rs. 18,000/-
Noise Monitoring	=	Rs. 2,000/-
Ground vibration test	=	Rs. 4,000/-
Total Cost	=	**Rs. 76,000/-**

Total EMP Cost for the five years period is **Rs. 3,80,000/-**

A+B =

A. Project cost	=	Rs.63,80,900/-
B. EMP Cost	=	Rs. 3,80,000/-
Total Project Cost (A+B)	=	**Rs.67,60,900/-**

The applicant Indents to involve corporate Environment responsibilities (CER) activity like Plantation will be carry out in the Periya Venmani Tank bund and Village Road and Solar lights to the village, etc.,

If we are instructed by PWD/ Competent bodies to desilt the water bodies nearby. I assure to spend out CER Cost for desilting/ strengthening the bunds of the nearby water bodies at 2.0% from the total project cost the cost would be around **Rs.1,35,200/-**

Total Project cost	= Rs.	67,60,900/-
CER Cost (2%)	= Rs.	1,35,200/-
Total cost	**= Rs.**	**68,96,100/-**

(The Total cost of the project including EMP Cost is Rupees Sixty eight lakh ninety six thousand and one hundred only).

11.0 PROGRESSIVE QUARRY CLOSURE PLAN

11.1 Introduction:

The Progressive Quarry Closure Plan for Rough stone and Gravel quarry lease applied area over an extent 2.50.0 Hectares of patta lands in S.F.Nos. 180/4, 180/5, 180/8, 180/9, 180/10 and 180/11 of Periya Venmani Village, Maduranthagam Taluk, Kanchipuram District, Tamil Nadu State has been prepared for **Thiru.S.Raju,** S/o.Sivaji, residing at No. 17/7, Tholkappiyam Street, Chitlapakkam, Kanchipuram, Tamilnadu State – 600 064.

11.2 Present Land use pattern:

LAND USE TABLE – 16

Description	Present area in (ha)
Quarrying Pit	0.44.4
Infrastructure	Nil
Roads	0.01.0
Green Belt	Nil
Unutilized Area	2.04.6
Grand Total	**2.50.0**

11.3 Method of Mining:

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is not less than the bench height for Roughstone.

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 Mine Act – 1952.

11.4 Mineral Processing Operations:

The quarried out Rough stone will be transported by the 10/20tons capacity Tippers to the needy crushers. Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

11.5 Reasons for closure:

As the mineral is not going to be exhausted during the proposed plan period no immediate closure is planned due to sufficient reserves are available to carry on the activities. Hence, the reason for closure will be discussed in the ensuing mining plan.

11.6 Statutory obligations:

The applicant ensures to comply all the conditions were imposed while granting the precise area communication letter before the execution of lease deed and during the course of quarry operations.

11.7 Progressive quarry closure plan preparation:

Name and address of the Recognised Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

A. Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E.
Recognised Qualified Person
RQP/MAS/019/87/A
New No.17,
Advaitha Ashram Road,
Alagapuram, Salem-636 004.
Cell: 94433 56539, 94422 78601

The applicant will himself implement the closure plan; no outside agency will be involved.

11.8 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

Mining Plan and Progressive quarry closure plan are being submitted for the first time. It will be reviewed after five years and review of implementation will be given in the next mining plan.

11.9 Closure Plan:

(i) Mined Out Land:

At the end of mining plan period, about 1.87.7Ha of area will be mined out. Land use at various stages is given in the table below.

LAND USE TABLE – 17

Description	Present area in (ha)	Area at the end of Lease period (ha)
Quarrying Pit	0.44.4	1.87.7
Infrastructure	Nil	0.01.0
Roads	0.01.0	0.02.0
Green Belt	Nil	0.45.0
Unutilized Area	2.04.6	0.14.3
Grand Total	**2.50.0**	**2.50.0**

The Greenbelt Development will be formed in the safety barrier of the lease applied area.

(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:-

- Construction of Garland drain with check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- The quarried out pit will be allowed to collect rain and seepage water which will act as a reservoir for storage. This water storage will enhance the static level and ground water recharge of nearby wells and it will be used for agriculture purpose to the nearby agriculture lands.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

(iii) Air Quality Management:

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face-mask, earplug/ muffs.

For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

(iv) Top Soil and Waste Management:

There is no topsoil and waste generated during the proposed plan period. The entire quarried out Roughstone and Gravel will be utilized(100%). Hence waste management does not arise.

(v) Disposal of mining machinery:

Part of the Machineries will be purchased by fresh condition also part of machineries has been utilized on rental basis. After completion of quarry operation all purchased machineries will be utilized another quarry area or sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

(vi) Safety & Security:

Safety measures will be implemented to prevent access in the excavation area an un-authorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0 m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

(vii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.
- The quarried out benches, Greenbelt Development will be formed in all around the benches and safety barrier of the lease applied area.

(viii) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:

  Mine roads and approach roads,

  Fencing on approach roads,

  Checking and maintenance of machines and equipment,

  Drinking water arrangements,

  Mine office, first aid stations etc.
- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The quarry Lease is granted for a period of maximum five years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

(x) Time Scheduling For Abandonment:

The lease applied area has enormous potential for continuance of operations even after the expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final closure plan.

(xi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed. However based on the progressive quarry closure activities during the plan period, cost is assessed as given below:

LAND USE TABLE – 18

ACTIVITY	YEAR					RATE	AMOUNT (INR)
	I	II	III	IV	V		
Plantation (In Nos.)	100	100	100	100	100	@100 Rs Per sapling	Rs.50,000/-
Plantation and Maintenance Cost	10,000	10,000	10,000	10,000	10,000		
Cost for Plantation in worked out top two benches	40,000					Per sapling @100 Rs Including Maintenance	Rs.40,000/-
Wire Fencing (In Mtrs) 728 Mtrs	2,18,400					@300 Rs Per Meter	Rs.2,18,400/-
Garland drain (In Mtrs) 675 Mtrs	2,02,500	-	-	-	-	@300 Rs Per Meter	Rs.2,02,500/-
TOTAL							**Rs.5,10,900/-**

12 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

This Mining plan for Rough stone (Charnockite) and Gravel is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, 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 Concerned Department.

Prepared by

A. Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E.
Recognised Qualified person
RQP/MAS/019/87/A

Place: Salem

Date: 03.12.2019

DONATE RED
SPREAD GREEN
SAVE BLUE

This Mining Plan is approved subject to the conditions / stipulations indicated in the Mining Plan approval Letter No. RC No. 269/03/2019.
Dated, 20.02.2020.

This Mining Plan is approved as per the powers conferred Under Rule 41 (2) of Tamil Nadu Minor Mineral Concession Rules, 1959

20.02.20

Assistant Director of Geology and Mining, Chengalpattu District.

ANNEXURE - 1

நக.எண். 269 /க்யூ2 /2017
நாள்.18.11.2019

மாவட்ட ஆட்சியர் அலுவலகம்,
கனிமபிரிவு, காஞ்சிபுரம்,

ASSISTANT DIRECTOR (MINES) CHENGALPATTU

அறிவிக்கை

பொருள் : கனிமங்களும் குவாரிகளும் – சாதாரண கற்கள் மற்றும் கிராவல் மண் – காஞ்சிபுரம் மாவட்டம் – மதுராந்தகம் வட்டம் – பெரியவெண்மணி கிராமம் – புல எண்கள். 180/4, 180/5, 180/8, 180/9, 180/10, 180/11- மொத்தப்பரப்பு 2.50.00 ஹெக்டேர் – குவாரி குத்தகை உரிமம் கோரி திரு. S. ராஜீ த/பெ. சிவாஜி என்பவர் அனுமதி கோரியது – பட்டா நிலத்தில் சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுக்க ஐந்து ஆண்டுகளுக்கு குத்தகை வழங்க அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் - மாநில அளவிலான சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் ஒப்புதல் பெற்று அளிக்க தெரிவித்தல் – தொடர்பாக.

பார்வை : 1. திரு. S. ராஜீ, த/பெ. சிவாஜி, எண்.17/7, தொல்காப்பியம் தெரு, சிட்லப்பாக்கம், காஞ்சிபுரம் மாவட்டம் என்பவரின் மனு நாள். 06.03.2017.

2. மதுராந்தகம் வருவாய் கோட்டாட்சியர் அவர்களின் அறிக்கை எண். ந.க.960 / 2017 /ஆ, நாள்.29.08.2018.

3. உதவி இயக்குனர் அவர்களின் புலத்தணிக்கை அறிக்கை நாள்: .11.2019.

4. அரசாணை எண்.Ms.79, தொழில் (எம்.எம்.சி.1) துறை, நாள். 06.04.2015.

காஞ்சிபுரம் மாவட்டம், மதுராந்தகம் வட்டம், பெரியவெண்மணி கிராமம், புல எண்கள். 180/4 (0.41.50), 180/5 (0.41.50), 180/8 (0.41.50), 180/9 (0.41.50),180/10(0.42.00), 180/11 (0.42.00)மொத்தம் 2.50.00 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டியெடுக்க ஐந்து ஆண்டுகளுக்கு திரு. S. ராஜீ, த/பெ. சிவாஜி, எண்.17/7, தொல்காப்பியம் தெரு, சிட்லப்பாக்கம், காஞ்சிபுரம் மாவட்டம் என்பவர் குவாரி குத்தகை உரிமம் கோரி விண்ணப்பித்துள்ள மனுவின் பேரில் மதுராந்தகம், வருவாய் கோட்டாட்சியர் மற்றும் காஞ்சிபுரம், புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் (கனிமம்) ஆகியோர் மேற்காணும் விண்ணப்ப புலங்களில் ஐந்து ஆண்டுகளுக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்.19 (1), 20 & 33 ஆகியவற்றின் கீழ் சாதாரண கற்கள் மற்றும் கிராவல் மண் குவாரி குத்தகை உரிமம் கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு வழங்கலாம் என பார்வை 2 மற்றும் 3–ல் கண்டவாறு பரிந்துரை செய்துள்ளனர்.

1 விண்ணப்ப புலங்களுக்கு ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் மாநில சுற்றுச்சூழல் ஒப்புதல் பெற்றளிக்கப்பட வேண்டும்.

2. மேற்படி விண்ணப்பப் புலங்களுக்கு அருகிலுள்ள அரசு புறம்போக்கு மற்றும் பட்டா நிலங்களுக்கு முறையே 10 மீட்டர் மற்றும் 7.5 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு குவாரிப்பணி செய்யப்பட வேண்டும்.

இது தொடர்பாக மேற்காணும் விண்ணப்பப் புலங்களில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டியெடுக்க குத்தகை உரிமம் வழங்க அங்கீகரிக்கப்பட்ட சுரங்கத் திட்டத்தை (Approved Mining Plan) மூன்று மாதத்திற்குள் மாவட்ட ஆட்சியர் முன்பு சமர்ப்பிக்க வேண்டியது. மேலும் மேற்காணும் விண்ணப்பப் புலங்களில் சாதாரண கற்கள் & கிராவல் மண் வெட்டியெடுக்க அனுமதி வழங்குவது தொடர்பாக மாநில சுற்றுச் சூழல் தாக்க மதிப்பீட்டு ஆணையம் (SEIAA) ஒப்புதலை பெற்று சமர்ப்பிக்க வேண்டியது.

ஓம். x x x x
நாள். 18.11.2019
மாவட்ட ஆட்சித்தலைவர்,
காஞ்சிபுரம்.

//உத்தரவின்படி//

மாவட்ட ஆட்சித்தலைவருக்காக,
காஞ்சிபுரம்.

பெறுநர்,
திரு. S. ராஜீ,
த/பெ. சிவாஜி,
எண்.17/7, தொல்காப்பியம் தெரு,
சிட்லப்பாக்கம்,
காஞ்சிபுரம் மாவட்டம்.

நகல்:-
1) தலைவர், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை.
2) ஆணையர், புவியியல் மற்றும் சுரங்கத்துறை, கிண்டி, சென்னை 600 032.

ANNEXURE II

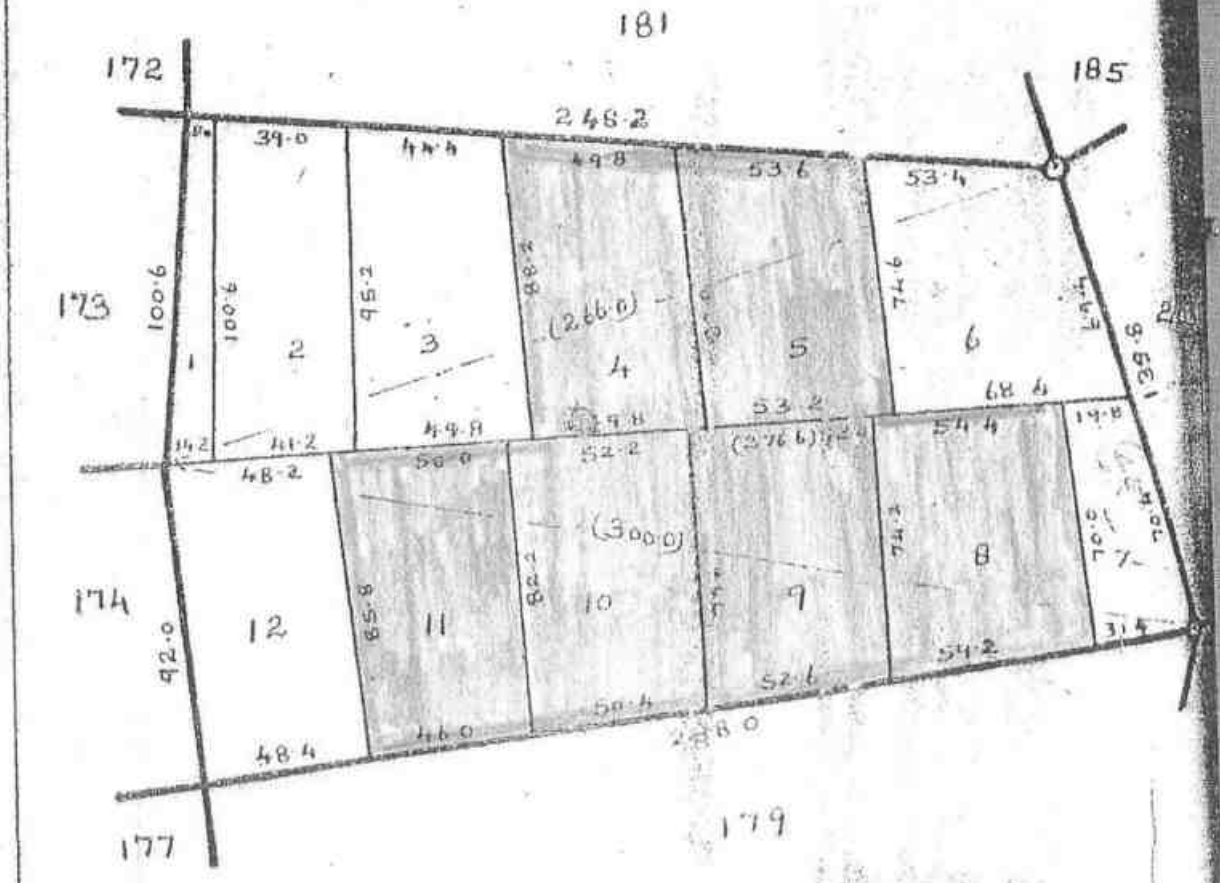
மாவட்டம். செங்கல்பட்டு

வட்டம். மதுராந்தகம்

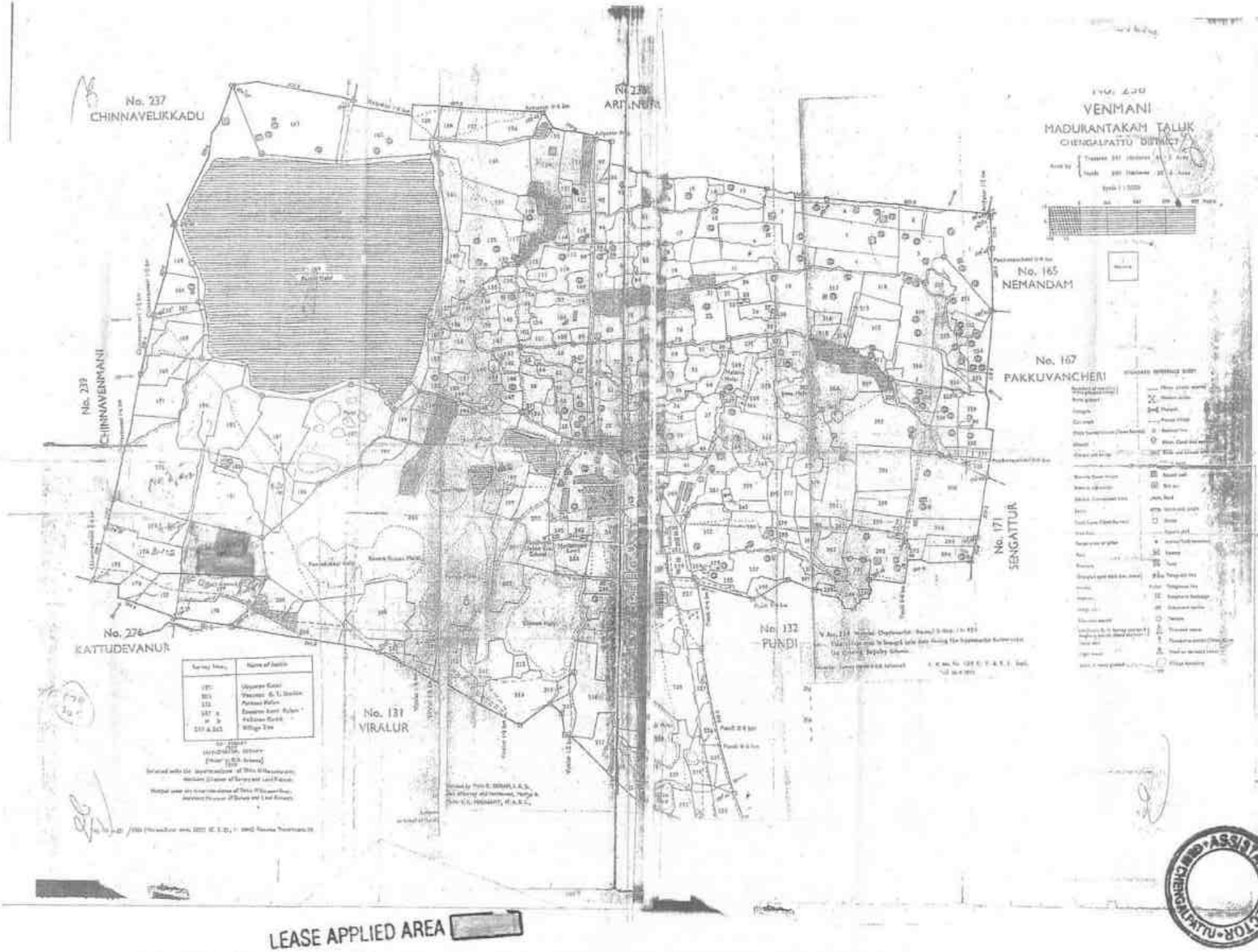
புல எண். 180

கிராமம் { எண். 238
பெயர் வெண்மணி

பரப்பு: ஹெக்டேர் 4.46.0 ஏர்.



LEASE APPLIED AREA



ANNEXURE - III

ANNEXURE - IV

ASSISTANT DIRECTOR GBM CHENGALPATTU

தமிழக அரசு

வருவாய்த துறை

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

மாவட்டம் : காஞ்சிபுரம் வட்டம் : மதுராந்தகம்

வருவாய் கிராமம் : பெரிய வெண்மணி பட்டா எண் : 941

உரிமையாளர்கள் பெயர்

1. தனசேகர் மனைவி கீதா

		நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை
180	5	--	--	0 - 41.50	0.38	--	--
180	8	--	--	0 - 41.50	0.38	--	--
180	9	--	--	0 - 41.50	0.38	--	--
				1 - 24.50	1.14		

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் http://eservices.tn.gov.in என்ற இணைய தளத்தில் 03/07/184/00941/120484 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 25-01-2017 அன்று 12:45:29 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

D. Geetha
D. Anurkumar

S. Ruy

139/2017
23 23

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : காஞ்சிபுரம் வட்டம் : மதுராந்தகம்

வருவாய் கிராமம் : பெரிய வெண்மணி பட்டா எண் : 942

உரிமையாளர்கள் பெயர்

1. தனசேகர் மகன் அருண்குமார்

		நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை
× 179	2	--	--	0 - 10.00	0.12	--	--
180	10	--	--	0 - 42.00	0.38	--	--
180	11	--	--	0 - 42.00	0.38	--	--
180	4	--	--	0 - 41.50	0.38	--	--
				1 - 35.50	1.26		

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் http://eservices.tn.gov.in என்ற இணைய தளத்தில் 03/07/184/00942/120495 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 25-01-2017 அன்று 12:46:18 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

D. Gopi

D. Arun kumar

S. Rey

139/2017

22 23

1429 - ஆம் பகுதியில் திண்டுக்கல் மாவட்டம் பழநி வட்டம் 184. சிவகிரி வருவாய் கிராமத்தில் மேல் 2 ஆம் பகுதியில் ஒருபோக நன்செய் நிலம் அடங்கல் கணக்கு

நில வரித் திட்டத்தின்படி நபர்களின் விபரம்.					கைமாற்று தாரருடைய பெயரும் எல்லாம் அல்லது அதுபோக தாரருடைய பெயர்.	கைமாற்று ஏனில் பெயர்.	முறைப் போகம்.				
நில அளவை எண். (1)	உட்பிரிவு எண். (2)	பரப்பு (3)	சீர்வரி (4)	ஒரு போகப் அல்லது இரு போகப் (5)		நிலத்தின் சரிபாதி பரப்பு வைத்திருப்பவரை மாற்றி பட்டா நிலத்தை. (7)	சரிபாதி பரப்பு வைத்திருப்பவரை மாற்றி பட்டா நிலத்தை. (8)	பயிரின் பெயர். (9)	பயிரை / அறுவடை பரப்பு (10)	உரிமையாளர் பயிர்கள் குறைவு. (11)	விவசாயி குறைவு விடுக்கவும். (12)
179	2	0.100	0.12	ஈ	942 - தி. அருள்தாஸ்						
180	4	0.415	0.38	ஈ	942 "						
	10	0.420	0.39	ஈ	942 "						
	11	0.420	0.38	ஈ	942 "						
					12 பேர் மட்டும்.						
					ஒப்பம்						
					கிராமநிர்வாக அலுவலர்						
					184. சிவகிரி வருவாய் கிராமம்						
					பழநி வட்டம்						

நிலவரம் போகம்.					சரிபாதி பரப்பு வைத்திருப்பவர் பெயரில் மாற்றம் செய்யப்பட்டது. விபரம். (13)	பயிரின் பெயர். (14)	பயிரின / அறுவடை பரப்பு (15)	உரிமையாளர் பயிர்கள் குறைவு. (16)	விவசாயி குறைவு விடுக்கவும். (17)	நிலை அனுபவம் குறிப்பு - (i) பாசனத்தின் மற்றும் பயிரிடப்பட்ட நிலங்களின் விபரம். (ii) எல்லைகள் (iii) நன்செய் / புன்செய் (iv) முன்னோடி பயிர்கள் (v) உரிமையாளர் பயிர்களின் விபரம். (vi) வரைபடம் பயிர்களும் தீர் பார்க்கப்பட்ட விபரம். (18)	கீழ்க்கண்ட வகையில் பயிரிடப்பட்டது உள்ள நிலத்தின் தன்மை மற்றும் பயிரின் விபரங்கள் ஒவ்வொரு நில அளவை என அல்லது அதன் பகுதியில். (அ) வகம், (ஆ) பயன்படா பயிர் செய்ய இயலாத நிலம், (இ) விவசாயம் மற்றும் இதர காரியங்களுக்கு பயன் படுத்தும் படும் நிலம், (ஈ) பயிரிடத்தக்க தரிசு (உ.) நிலையான புல் தரைகளும் மற்றும் இதர செய்கை நிலங்களும், (ஊ) விலக்கப்பட்ட நிர்ர பயிரில் சொல்லப்பட்ட வகையும் பயிர்களும் தொடர்புகளும், (எ) நடப்புத் தரிசுகள் (ஏ) இதர தரிசு நிலங்கள். (18_a)	பயிர் பாசனவரிப்பு அலுவலர் ஒப்பம். (19)

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ANNEXURE - V

ASSISTANT DIRECTOR (LEGAL AFFAIRS)

கிராமக் கணக்கு

1429-ஆம் பசலியில் திருவள்ளூர் மாவட்டம் மதுரவாயல் வட்டம் 184. பெரிய வெங்காலில் கிராமத்தில் வரு வரி புலவரி வகைப்பற்று சாகுபடி அடங்கல் கணக்கு

எண் 2

நில வரித் திட்டத்திலுள்ள புலன்களின் விவரம்					வகைப்பற்று தாருடைய பெயரும் என்னும் அல்லது அனுபோக தாருடையவர் பெயர்.	சாகுபடி வகைப்பெயர்	முதல் போகம்				
புல எண்	உட்பிரிவு எண்	ஏரிப்பு	நிலவரி	ஒரு போகம் அல்லது இரு போகம்		நிலத்தின் சந்த பற்றி பாகுபடி சாகுபடிகளால் பயிரிடப்பட்டுள்ளது.	சந்து மாதத்தில் பயிர் செய்யப்பட்டது அறுவடை செய்யப்பட்டது.	பயிரின் பெயர்.	பயிரை / அறுவடையான மாடம்.	உரங்களான பயிர்கள் ஆதாரம்.	விளைச்சல் ஏரை விழுக்காடு.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
180	5	0415	038	4ஞ்	941. தி. தீன						
	8	0415	038	4ஞ்	941						
	9	0415	038	4ஞ்	941						
					(கையொப்பம்)						

30.3.2016

கிராம நிர்வாக அலுவலர்

இரண்டாம் போகம்							
சந்து மாதத்தில் பயிர் செய்யப்பட்டது அறுவடை செய்யப்பட்டது.	பயிரின் பெயர்.	பயிரை / அறுவடையான மாடம்.	உரங்களான பயிர்கள் ஆதாரம்.	விளைச்சல் ஏரை விழுக்காடு.	சிறப்பு அறிவுரைகள் குறிப்புரை :- (1) பயிர்களின் பருவத்தில் பயிரிடப்பட்ட நிலங்களில் தோராய நிலை. (2) வகைப்படுத்தப்பட்ட நிலம் தரிசாக விடப்பட்டுள்ளது. (3) மற்றவை மாதத்தில் பயிர்கள் உள்ளிட்டுள்ளன. வாரு பிரிவை பாகுபடி செய்யப்பட்ட விவரம்.	கிழ்க்கண்டவைகளில் பயிரிடப்படாத உங்கள் நிலத்தின் தன்மை மற்றும் பயிரின் விவரங்கள் ஒவ்வொரு நில அளவை என் அல்லது அதன் வருவாய். (1) வனம், (2) மலைத்த பயிர் செய்ய நிலமாத நிலம், (3) விவசாயம் மற்றும் இதர காரியங்களுக்கு பயன் படுத்தும் நிலம், (4) பயிரிடத்தக்க தரிசு (5.) நிலையான புல் நலைகளும் மற்றும் இதர மேய்ச்சல் நிலங்களும், (6) விதைக்கப்பட்ட நிகர பயிரும் சேர்க்கப்படாத மலைகள் பயிர்களும் தோப்புகளும், (7) நடப்புத் தரிசுகள் (8) இதர தரிசு நிலங்கள்.	பயிர் பார்வையிடும் அலுவலர் குறிப்புகள்.
(13)	(14)	(15)	(16)	(17)	(18)	(18அ)	(19)

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ANNEXURE - VI

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சி. எண். 238 வெண்மணி

1	2	3	4	5	6	7	8	9	10	11	12
							ரூ. பை.	தெ. ஏர்ஸ்.	ரூ. பை.		
1	177-1	ர	பு	...	8-5	8	0 92	0 59.0	0 54	4 ஆ. அர்ச்சுனன்.	
2	-2	ர	பு	...	8-5	8	0 92	0 48.0	0 44	160 ஆ. சின்னையன்.	
3	-3	ர	பு	...	8-5	8	0 92	0 40.5	0 37	169 ஆ. சுப்பராயன்.	
								1 47.5	1 35		
1	178-1	ர	பு	...	8-5	8	0 92	0 40.5	0 37	107 த. காத்தவராயன்.	
2	-2	ர	பு	...	8-5	8	0 92	0 40.5	0 37	237 த. நடராஜன்.	
3	-3	ர	பு	...	8-5	8	0 92	0 40.5	0 37	265 அ. பாளையம்.	
4	-4	ர	பு	...	8-5	8	0 92	0 42.0	0 38	278 கு. பெருமாள்.	
								1 63.5	1 49		
1	179-பா	ர	பு	...	8-4	7	1 24	0 62.5	0 78	29 பெ. ஆதிசேஷா ரெட்டியார்.	
2	-பா	ர	பு	...	8-4	7	1 24	0 10.0	0 12	179 பெ. சுலோசனா அம்மாள்.	
3	-பா	ர	பு	...	8-4	7	1 24	1 77.5	2 19	574 வே. ராமசாமி ரெட்டியார் மற்றும் மூன்று பேர்களும். *	
								2 50.0	3 09		
1	180-1	ர	பு	...	8-5	8	0 92	0 12.0	0 11	405 ஏ. வரதன்.	
2	-2	ர	பு	...	8-5	8	0 92	0 41.5	0 38	72 வெ. கணேசன்.	
3	-3	ர	பு	...	8-5	8	0 92	0 41.5	0 38	346 பெ. முருகேசன்.	
4	-4	ர	பு	...	8-5	8	0 92	0 41.5	0 38	112 பெ. காளி.	
5	-5	ர	பு	...	8-5	8	0 92	0 41.5	0 38	372 க. ரத்தினம்.	
6	-6	அ	பு	...	8-5	8	0 92	0 43.0	0 39	.....	தரிசு.
7	-7	அ	பு	...	8-5	8	0 92	0 16.0	0 15	.....	தரிசு.
8	-8	ர	பு	...	8-5	8	0 92	0 41.5	0 38	353 வே. முருகேசன்.	
9	-9	ர	பு	...	8-5	8	0 92	0 41.5	0 38	148 வே. கோவிந்தசாமி.	
10	-10	ர	பு	...	8-5	8	0 92	0 42.0	0 38	95 ஏ. கண்ணம்	

* விவரப்பட்டியலைப் பார்க்கவும்.

கிராம நிர்வாக அலுவலர்
கிராமம்
மதுராந்தகம் வட்டம்

ASSISTANT DIRECTOR GAM CHENGALPATTU

1		2	3	4	5	6	7	8	9	10	11
								ரூ. பை.	ரெ. ஏர்ஸ்.	ரூ. பை.	
180	11	180-11	ர	பு	...	8-5	8	0 92	0 42.0	0 38	427 கு. வேதாசலம்.
	12	-12	ர	பு	...	8-5	8	0 92	0 42.0	0 38	223 த. தம்பிராஸ்.
									4 46.0	4 07	
181	1	181-1	ர	பு	...	8-5	8	0 92	1 13.5	1 04	289 க. பெருமாள்.
	2	-2	ர	பு	...	8-5	8	0 92	2 03.0	1 85	159 வே. சித்திரை.
	3 A	-3 A	ர	பு	...	8-5	8	0 92	0 08.0	0 07	128 பெ. குப்பன்.
	3B	-3B	ர	பு	...	8-5	8	0 92	0 07.5	0 07	.....
	3C	-3C	ர	பு	...	8-5	8	0 92	0 66.5	0 61	128 பெ. குப்பன்.
	3D	-3D	ர	பு	...	8-5	8	0 92	0 89.5	0 81	128 பெ. குப்பன்.
	3E	-3E	அ	பு	...	8-5	8	0 92	0 39.5	0 43	.....
									5 27.5	4 88	
182	...	182	அ	புற	...	...	...	...	0 65.5	...	.....
183	1	183-1	ர	பு	...	8-5	8	0 92	0 48.0	0 44	220 மு. தம்பிராஸ்.
	2	-2	ர	பு	...	8-5	8	0 92	0 45.5	0 42	326 சீ. மாரி.
	3	-3	ர	பு	...	8-5	8	0 92	0 45.5	0 41	142 செ. கோபால்.
	4	-4	ர	பு	...	8-5	8	0 92	0 46.5	0 43	142 ற. சின்னபையன்.
	5	-5	ர	பு	...	8-5	8	0 92	0 40.5	0 37	51 த. எட்டி.
	6	-6	ர	பு	...	8-5	8	0 92	0 40.5	0 37	338 செ. முருவேசன்.
	7	-7	ர	பு	...	8-5	8	0 92	0 26.5	0 24	63 மு. ஏழுமலை.
	8	-8	ர	பு	...	8-5	8	0 92	0 26.5	0 24	96 கோ. கண்ணப்பிள்ளை.
									3 19.5	2 92	
184	1	184-பா	ர	பு	...	8-3	6	1 85	4 07.0	7 54	93 த. கந்தசாமி ரெட்டியார்.
	2	-பா	ர	பு	...	8-3	6	1 85	0 74.0	1 37	444 வே. ஸ்ரீராமு ரெட்டியார்.

[illegible] அலுவலர் [illegible] கிராமம் [illegible]

ANNEXURE - VII

139/2017

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INDIA

தமிழ்நாடு तमिलनाडु TAMILNADU

AC 745899

பெயர்..... [illegible]

ஊர்..... [illegible] 64

01/2/017 2407

1000/-

S.V. [signature]

M. ரவி

முத்திரைத்தாள் விற்பனையாளர்

உரிமம் எண்.01/CC1/12dt 28.5.2012

5/3-22, தாலுக்கா ஆபீஸ் ரோடு

மதுராந்தகம்.

குத்தகை ஆவணம்

2017ம் ஆண்டு பிப்ரவரி மாதம் 1ம் தேதி சென்னை-64 அஸ்தினாபுரம் முதல் மெயின் ரோடு திருமலை நகர் 30/31நெ.விலாசத்தில் வசிக்கும் திரு.தனசேகர் அவர்களின் மனைவி திருமதி.த.கீதா(1) **(Aadaar No.6661 8819 8467) (Cell No.9942984528)**

சென்னை-64 அஸ்தினாபுரம் முதல் மெயின் ரோடு திருமலை நகர் 30/31நெ.விலாசத்தில் வசிக்கும் திரு.தனசேகர் அவர்களின் குமாரர் திரு.த.அருண்குமார்(2) **(Aadaar No.7406 1747 0012) (Cell No.9942984514)** ஆகிய நாங்கள் 1வது பார்ட்டிகள்,

சென்னை-64 சிட்லபாக்கம் அஸ்தினாபுரம் அன்னை நகர் தொல்காப்பியம் தெரு 17/7நெ.விலாசத்தில் வசிக்கும் திரு.சிவாஜி அவர்களின் குமாரர் திரு.ராஜீ (எ) ராசு **(Aadaar No.2724 8141 1823) (Cell No.9942984532)**

D. Geetha
D. Arun kumar

S. Ravi

1வது பார்ட்டிகள்

D. Geetha
D. Arun kumar

2வது பார்ட்டி

S. Ravi

139/2017

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AC 745900

பெயர் [illegible]

ஊர் [illegible] 64

தேதி 1/2017 எண் 2405

ரூபாய் 1000/-

S.V. [illegible]

M. ரவி

முத்திரைத்தாள் விற்பனையாளர்

[illegible] 2.5.2012

[illegible]

-2-

ஆகிய நான் 2வது பார்ட்டி அவர்களுக்கு, நாம் 1வது பார்ட்டிகள் இருவரும் சேர்ந்து இன்று முழுமனதுடன் சம்மதித்து எழுதிக் கொடுக்கும் குத்தகை ஆவணம் என்னவென்றால்,

நம்மில் 1வது பார்ட்டிகளில் 1வது நபர் திரு.த.கீதா அவர்கள் சுயமாய் 8.2.2016தேதியில் சென்னை-64 அஸ்தினாபுரம் வினேபாஜி நகர் 6வது தெரு எண்.30 என்ற முகவரியில் வசிக்கும் திரு.அய்யாசாமி அவர்களின் குமாரர் திரு.A.ஜீவானந்தம் என்பவரிடமிருந்து செய்யூர் சார்பதிவாளர் அலுவலக 1 புத்தகம் 2016ம் ஆண்டின் 626 பத்திர எண்ணாக 9.3.2016தேதியில் பதிவு செய்யப்பட்ட கிரையப்பத்திரத்தின் மூலம் மதுராந்தகம் வட்டம் செய்யூர் சார்பதிவகம் 184நெ.பெரியவெண்மணி கிராமத்தில் புன்சை சர்வே எண்.180/9 - ஏக்கர் 1.02செண்ட் பூரா புன்சை சர்வே எண்.180/8 - ஏக்கர் 1.03செண்ட் பூரா

1வது பார்ட்டிகள் 2வது பார்ட்டி

D. Gautti

D. Arun kumar

S. Rey

139/2017

2 23

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भारत

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பெயர்.....
ஊர்.....
தேதி 01/2/017 எண் 2409
ரூ.....1000/-

S.V.
M. [illegible]
முத்திரைத்தாள் விற்பனையாளர்
உரியம் எண் [illegible]/12 dt 28.5.2012
5/3-22, [illegible]

-3-

புன்சை சர்வே எண்.180/5 - ஏக்கர் 1.03செண்ட் பூரா ஆக ஏக்கர் 3.08செண்ட் புன்சை நிலங்கள் நம்மில் 1வது பார்ட்டிகளில் 1வது நபர் திரு.த.கீதா அவர்கள் கிரையம் பெற்று நம்மில் 1வது பார்ட்டிகளில் 1வது நபர் திரு.த.கீதா அவர்கள் பெயரில் 941நெ.தனிப்பட்டாவில் தாக்கலாகி உள்ள சொத்துக்களாகும்.

நம்மில் 1வது பார்ட்டிகளில் 2வது நபர் திரு.த.அருண்குமார் அவர்கள் சுயமாய் 8.2.2016தேதியில் சென்னை-64 அஸ்தினாபுரம் வினேபாஜி நகர் 6வது தெரு எண்.30 என்ற முக்வரியில் வசிக்கும் திரு.அய்யாசாமி அவர்களின் குமாரர் திரு.A.ஜீவானந்தம் என்பவரிடமிருந்து செய்யூர் சார்பதிவாளர் அலுவலக 1 புத்தகம் 2016ம் ஆண்டின் 627 பத்திர எண்ணாக

1வது பார்ட்டிகள் 2வது பார்ட்டி

D. Geetha
D. Arun kumar

S. Reey

139/2017
3 23

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AC 745902

பெயர்.....
ஊர்.....
தேதி 01/2017 எண்.....
ரூபாய்.....

S.V.
M. ரவி
முத்திரைத்தாள் விற்பனையாளர்
உரிமம் எண்.01/2012 dt 28.5.2012
5/3-22, தாலுகா ஆபீஸ் ரோடு
மதுரைமாவட்டம்.

-4-

9.3.2016தேதியில் பதிவு செய்யப்பட்ட கிரையப்பத்திரத்தின் மூலம் மதுராந்தகம் வட்டம் செய்யூர் சார்பதிவகம் 184நெ.பெரியவெண்மணி கிராமத்தில் புன்சை சர்வே எண்.180/11 - ஏக்கர் 1.04செண்ட் பூரா புன்சை சர்வே எண்.180/10 - ஏக்கர் 1.04செண்ட் பூரா புன்சை சர்வே எண்.180/4 - ஏக்கர் 1.03செண்ட் பூரா புன்சை சர்வே எண்.179/2 - ஏக்கர் 0.25செண்ட் பூரா ஆக ஏக்கர் 3.36செண்ட் புன்சை நிலங்கள் நம்மில் 1வது பார்ட்டிகளில் 2வது நபர் திரு.த.அருண்குமார் அவர்கள் கிரையம் பெற்று நம்மில் 1வது பார்ட்டிகளில் 2வது நபர் திரு.த.அருண்குமார் அவர்கள் பெயரில் 942நெ.தனிப்பட்டாவில் தாக்கலாகி உள்ள சொத்துக்களாகும்.

ஆக மேற்கண்ட விவரங்களின்படி நம்மில் 1வது பார்ட்டிகள் கிரையம் பெற்று தற்போதைய பட்டா எண்கள்.941, 942 இவைகளில் தாக்கலாகி உள்ள 1வது பார்ட்டிகள்

2வது பார்ட்டி

D. Gopalan
D. Arun kumar

S. Reeg

139/2017
4
23

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பெயர்.....

ஊர்.....

தேதி 01/2/017 எண் 2411

ரூ.....1000/-

S.V.

M. ரவி

முத்திரைத்தாள் விற்பனையாளர்

உரிமம் எண் 01/CGL/12 28.5.2012

5/3-22, ... ரோடு

-5-

மதுராந்தகம் வட்டம் செய்யூர் சார்பதிவகம் 184நெ.பெரியவெண்மணி கிரமத்தில் உள்ள புன்சை நிலங்களில் குவாரி வேலை செய்ய அரசிடம் அனுமதி பெறுவதற்காக நம்மில் 2வது பார்ட்டி இன்றைய தேதியிலிருந்து 7 வருடங்களுக்கு குத்தகைக்கு கேட்டுக் கொண்டதின் பெயரில் அதற்கு 1வது பார்ட்டிகள் சம்மதித்து அதன்படி நாம் 1 மற்றும் 2வது பார்ட்டிகளும் கீழ்க்கண்ட விதிகளின்படி ஒப்பந்தம் செய்துக் கொள்கிறோம். இந்த குத்தகை ஒப்பந்தம் 7 வருட காலம் அமுலில் இருக்கும்:

1. கீழ்கண்ட நிலங்களில் அரசிடம் அனுமதி பெற்று மலைமண் எடுப்பதற்கும், கருங்கற்கள் உடைத்து எடுப்பதற்கும் மற்றும் அரசிடம் அனுமதி பெற்று கிரஷர் அமைத்துக் கொள்வதற்கும் 2வது பார்ட்டி வருடம்

1வது பார்ட்டிகள் 2வது பார்ட்டி

D. Gopth S. Ravi

D. Anup kumar

139/2017

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AC 745904

S.V. [signature]
M. ரவி
முத்திரைத்தாள் விற்பனையாளர்
உரிமம் எண்.01/CGL/12dt 28.5.2012
5/3-22, [illegible] ரோடு
[illegible]

பெயர்.....[illegible]
ஊர்.....[illegible]
தேதி 1/2/017 எண் 2012
ரூபாய்.....1000/-

-6-

ஒன்றுக்கு தலா ரூ.50,000/- வீதம் இரண்டு நபர்களுக்கு ரூ.1,00,000/- (ஒரு இலட்சம் மட்டும்) 1வது பார்ட்டிகளுக்கு கொடுத்து விட வேண்டியது. ஒவ்வொரு வருடமும் ஜனவரி மாதம் 5ம் தேதிக்குள் 2வது பார்ட்டி 1வது பார்ட்டிகளுக்கு செலுத்த வேண்டியது. இதற்கு முன்பணமாக தலா ரூ.50,000/- (ரூபாய்.ஐம்பதாயிரம் மட்டும்) வீதம் இரண்டு நபர்களுக்கு ரூ.1,00,000/- (ரூபாய்.ஒரு இலட்சம் மட்டும்) 2வது பார்ட்டி 1வது பார்ட்டிகளுக்கு செலுத்துகிறார்.

2. மேற்படி குத்தகை ஒப்பந்தம் ஆனது இன்றைய தேதியிலிருந்து 7 வருட காலத்திற்கு மட்டுமே செல்லக்கூடியது.

3.மேற்படி நிலங்களில் உள்ள கருங்கற்களை எடுப்பதற்கான உரிமம் போன்றவற்றை 2வது பார்ட்டி தன் பெயரிலேயே அரசிடம் அனுமதி பெற்று குவாரி வேலை செய்து வர வேண்டியது. மற்ற நபர்களின் பெயரில் உள்ள உரிமத்தை வைத்து கற்கள் எடுக்க அவருக்கு உரிமை இல்லை.

1வது பார்ட்டிகள்

D. Gautham
D. Anand Kumar

2வது பார்ட்டி

S. Reddy

139/2017
6
93

भारतीय गैर न्यायिक INDIA NON JUDICIAL

भारत

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INDIA

தமிழ்நாடு तमिलनाडु TAMILNADU AC 745905

பெயர்.....[illegible]

ஊர்.....[illegible]

தேதி 1/2/017 எண் 2413

ரூபாய்.....1000/-

S.V. [illegible]

M. [illegible]

முத்திரைத்தாள் விற்பனையாளர்

உரிமம் எண்.0[illegible] 23.5.2012

5/3-22, [illegible] ரோடு

[illegible]

-7-

4.குவாரி வேலை செய்யும் போது அரசின் கனிம விதிகளின்படி 2வது பார்ட்டி குவாரி வேலை செய்ய வேண்டும். விதி மீரல்கள் ஏதாவது இருப்பின் அதன் முழுபொறுப்பும் 2வது பார்ட்டியையும் சாரும்.

5.2வது பார்ட்டி அரசு கனிம விதிகளை மீறும் பட்சத்தில் அரசு அறிவுறுத்தலின்பேரில் குத்தகை வழங்கப்படும் 7வருட காலத்தில் குத்தகையை எந்த நேரத்திலும் ரத்து செய்ய 1வது பார்ட்டிக்கு முழு உரிமை உண்டு. குத்தகை ரத்து செய்யும் போது 2வது பார்ட்டியின் சம்மதம் தேவையில்லை என்பதை இருபார்ட்டிகளும் ஒப்புக் கொள்கின்றனர்.

6.நம்மில் 1வது பார்ட்டி இந்த குத்தகை நிலங்களை விற்பனை செய்யவோ வேறு நபருக்கு மாற்றவோ அல்லது மேல் வாடகைக்கு விடவோ கூடாது. அப்படி மேல் வாடகைக்கு விடும் பட்சத்தில் இந்த குத்தகை ரத்தாகிவிடும்.

1வது பார்ட்டிகள் 2வது பார்ட்டி

D. Gopi S. Reddy

D. Anupkumar

139/2017

7 23

தமிழ்நாடு तमिलनाडु TAMILNADU AC 745906

பெயர்.....
வகை.....
தேதி 01/2017
ரூபாய்.....

S.V.
M. ரவி
முத்திரைத்தாள் விற்பனையாளர்
29.5.2012

-8-

7.மேற்படி குத்தகை நிலங்களுக்கு 1வது பார்ட்டிகளின் வாரிசுகள் யாராக இருந்தாலும் இந்த குத்தகை கட்டுப்படுத்தும். அதுபோல் 2வது பார்ட்டியின் வாரிசுகள் யாருக்கும் இந்த குத்தகையில் உரிமை இல்லை.

8. மேற்படி நிலங்களில் மின்இணைப்புகள் பெற்றுக் கொள்வதற்கு 2வது பார்ட்டிக்கு 1வது பார்ட்டிகள் எந்தவித ஆட்சேபனையும் தெரிவிக்காது.

9.மேற்படி நிலங்களில் கற்கள் உடைத்து எடுத்து விற்பனை செய்வதற்காக அனைத்து கனிம விதிகளுக்கு உட்பட்டுசீழ்வரும் அரசு தொகை மற்றும் புதியதாக நியமிக்கப்படும் அரசாங்கத்தின் அனைத்து வரிகளும், செலவுகளும் நம்மில். 2வது பார்ட்டியே சாரும். 2வது பார்ட்டி கல்வெட்டி எடுப்பதற்காக மறுகுத்தகைக்கு வேறு நபர்களுக்கு வழங்கக்கூடாது.

1வது பார்ட்டிகள் 2வது பார்ட்டி

D. Anup kumar

137/2017

भारतीय गैर न्यायिक INDIA NON JUDICIAL

भारत

एक हजार रुपये ONE THOUSAND RUPEES

रु.1000 Rs.1000

INDIA

தமிழ்நாடு तमिलनाडु TAMILNADU

AC 745907

பெயர்.....

ஊர்.....

தேதி 01/2/017 எண் 2415

முகவரி.....1000/

S.V.

M. நவி

முத்திரைத்தாள் விற்பனையாளர்

உரிமம் எண் ... dt.28.5.2012

5/3-22, ... ஆவீன ரோடு

...

-9-

மேற்படி கற்களை உடைத்து எடுப்பதற்கான அனைத்து அரசாங்க கட்டணங்களையும், விற்பனை வரி, வருமானவரி, தொழில்வரி, மின்சார கட்டணம், போன்றவற்றை ஆகிய அனைத்து கட்டணங்களையும் 2வது பார்ட்டியே செலுத்த வேண்டியது.

10.மேற்படி நிலங்களை காலி செய்யும் சமயத்தில் அரசுக்கு செலுத்த வேண்டிய வரிவகையறாக்களை நிலுவை ஏதும்மின்றி பைசல் செய்து 2வது பார்ட்டி 1வது பார்ட்டிகளின் வசம் ஒப்படைக்க வேண்டியது.

11.குத்தகை காலம் முடிவதற்கு முன்னதாகவே 2வது பார்ட்டி காலிசெய்ய விருப்பப்பட்டால் இரண்டு மாதம் முன்னதாகவே எழுத்து மூலம் முன் அறிவிப்பு கொடுக்க வேண்டியது.

1வது பார்ட்டிகள்

D. Gopthi

D. Arun kumar

2வது பார்ட்டி

S. Ravi

139/2017

भारतीय गैर न्यायिक

पचास रुपये

FIFTY RUPEES

रु.50

Rs.50

INDIA

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU

AS 008960

S.V. [signature]

M. [illegible]

முத்திரைத்தாள் விற்பனையாளர்

[illegible] 28.5.2012

[illegible] ரோடு

பெயர்.....[illegible]

ஊர்.....[illegible]

ரூபாய்.....[illegible]

-10-

12. இந்த 7 வருட காலத்திற்குள் அரசு வழங்கும் 5வருட குத்தகை காலம் முன்னதாகவே முடிந்துவிட்டால் மீதமுள்ள பாக்கி குத்தகை காலத்திற்கு முன்னதாகவே ரத்து செய்து கொள்ள இரண்டு பார்ட்டிகளும் ஒப்புக் கொள்கிறார்கள்.

இந்தப்படிக்கு இருபார்ட்டிகளும் சேர்ந்து இன்று முழுமனதுடன் சம்மதித்து எழுதிக் கொடுத்த குத்தகை ஆவணம்.

1வது பார்ட்டிகள்

2வது பார்ட்டி

[signature]

D. Geeth

D. Anu kumar

[illegible] 10 [illegible] 23

भारतीय गैर न्यायिक

पचास रुपये रु.50

FIFTY RUPEES Rs.50

INDIA

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU

AS 008961

S.V.

M. ரவி

முத்திரைத்தாள் விற்பனையாளர்

பெயர்.....

எண்.....

தேதி 01/2/017 2412

ரூபாய்.....

-11-

சொத்து விவரம்

காஞ்சிபுரம் மாவட்டம் மதுராந்தகம் வட்டம் செய்யூர் சார்பதிவகம் 184நெ.பெரியவெண்மணி கிராமத்தில்

நம்மில் 1வது பார்ட்டிகளில் 1வது நபர் திரு.த.கீதா அவர்கள் பெயரில் 941நெ.தனிப்பட்டாவில் தாக்கலாகி வருகிற

புன்சை சர்வே எண்.180/9 - 0.41.5ஏர்ஸ் ஏக்கர் 1.02செண்ட் பூரா

புன்சை சர்வே எண்.180/8 - 0.41.5ஏர்ஸ் ஏக்கர் 1.03செண்ட் பூரா

புன்சை சர்வே எண்.180/5 - 0.41.5ஏர்ஸ் ஏக்கர் 1.03செண்ட் பூரா

ஆக ஏக்கர் 3.08செண்ட் புன்சை நிலங்கள்

1வது பார்ட்டிகள்

D. Geetha

D. Arun kumar

2வது பார்ட்டி

S. [illegible]

139/2017

11 23

भारतीय गैर न्यायिक

पचास रुपये रु.50

FIFTY RUPEES Rs.50

INDIA

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU

AS 008962

S.V.

பெயர்.....

ஊர்.....

தேதி 1/2/2017 D46

-12-

நம்மில் 1வது பார்ட்டிகளில் 2வது நபர் திரு.த.அருண்குமார் அவர்கள் பெயரில் 942நெ.தனிப்பட்டாவில் தாக்கலாகி வருகிற

புன்சை சர்வே எண்.180/11 - 0.42.0ஏர்ஸ் ஏக்கர் 1.04செண்ட் பூரா

புன்சை சர்வே எண்.180/10 - 0.42.0ஏர்ஸ் ஏக்கர் 1.04செண்ட் பூரா

புன்சை சர்வே எண்.180/4 - 0.41.5ஏர்ஸ் ஏக்கர் 1.03செண்ட் பூரா

ஆக ஏக்கர் 3.11செண்ட் புன்சை நிலங்கள்

1வது பார்ட்டிகள்

2வது பார்ட்டி

D. Geethi

D. Arun kumar

139/2017

12

भारतीय गैर न्यायिक

पचास रुपये रु.50

FIFTY RUPEES Rs.50

INDIA

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU

AS 008963

பெயர்.....
ஊர்.....
தேதி 01/2017 ஏண் 2019
ரூபாய்.....

S.V.
M. ரவி
முத்திரைத்தாள் விற்பனையாளர்
[illegible] 12.8.2012
[illegible]

-13-

ஆக மேற்கண்ட ஏக்கர் 6.19செண்ட் புன்சை நிலங்கள் மட்டும் இந்த குத்தகை ஆவணத்திற்குட்பட்டது.

1வது பார்ட்டிகள்

D. Gopathi
D. Anuskumar

2வது பார்ட்டி

S. [illegible]

139/2017
13 23

சாட்சிகள்

[illegible], D. Karthikeyan S/o K. Dhanasekar
NO 66, NEW NO 53, RAJENDRA PRASATH ROAD, KRISHNA NAGAR, CHROMEPET, CHENNAI - 600044.

K. [illegible] K. DHAKSHANAMURTHI. S/o. P. KOTHANDARAMAN.
NO.1. Reddiyan Street, Kozhiyalam village, maduranthagam (T.K)

ஆவணம் தயாரித்தவர்

[illegible] (இரா. இளங்குமரன்)
உரிமம் எண் [illegible]
[illegible]

இத்தகை வருடம் ஒரு நபருக்கு ரூ, 50,000/- வீதம்

இரண்டு நபர்களுக்கு = ரூ 1,00,000/- .

இத்தகை காலம் 7 வருடங்களுக்கு = ரூ 7,00,000/- .

முன்பணம் = ரூ 1,00,000/- .

கூடுதல் = ரூ 8,00,000/- .

Surcharge 1.8 % = ரூ 1,44,000/-

கூடுதல் = ரூ 9,44,000/- .

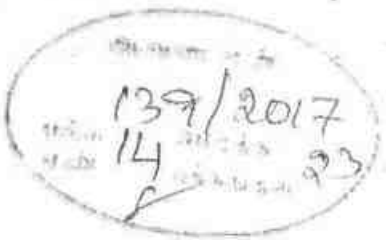
முத்திரை கட்டணம் 1% ரூ 9440/- .

பதிவு கட்டணம் 1% ரூ 9440/- .

D. Geeth
D. Anuskumar

S. [illegible]

139/2017
14 23



139/2017/BK1

முத்திரைச்சட்டம் பிரிவு 42-ன் கீழான சான்று

வ.எண் 39/ 2017

அண்ணாவரம் வசிக்கும் திருவாளர் கீதா என்பவரிடமிருந்து முத்திரைச் சட்டம் பிரிவு 41-ன் கீழ் முறையான /குறைவு முத்திரைக்கட்டணம் ரூ. 240 (ரூபாய் இருநூற்று நாற்பது ரூபாய்மட்டும் மட்டும்) வசூலிக்கப்பட்டது என மனநிறைவடைந்து சான்றளிக்கிறேன்.

சா.ப.அ: Cheyyur
நாள்: 01/02/2017

சார்பதிவாளர் மற்றும் இந்திய
முத்திரைச்சட்டம் பிரிவு 41-ன் கீழ் ஆட்சியர்

Cheyyur சார்பதிவாளர் அலுவலகத்தில் 01/02/2017 அன்று 4-5 மணிகளுக்கிடையில் தாக்கல் செய்து கட்டணம் ரூ 9515 செலுத்தியவர்

| இடது பெரு விரல்

D. Gaali

மேல் விவரம் ஆவண வாசகப்படி

9942984511

எழுதிக் கொடுத்ததாக ஒப்புக்கொண்டவர்

| இடது பெரு விரல்

D. Gaali

மேல் விவரம் ஆவண வாசகப்படி

ஆவண எண் 139/2017
பக்க எண் 15 இரசாத்த 23

Sheet no. 1 of 2

எழுதிக் கொடுத்ததாக ஒப்புக்கொண்டவர்

2 இடது பெரு விரல்

D. Anna kumar

மேல் விவரம் ஆவண வாசகப்படி

9942984514

எழுதி வாங்கியதாக ஒப்புக் கொண்டவர்

1 இடது பெரு விரல்

S. Reny

மேல் விவரம் ஆவண வாசகப்படி

9942984532

இன்னாரென் றுருபித்தவர்

1 [signature] பெயர் : 1 D.KARTHIKEYAN த/பெ K. DHANASEKAR, No 66, New No 53 RAJENDRA PRASATH ROAD, KRISHNA NAGAR, CHENNAI

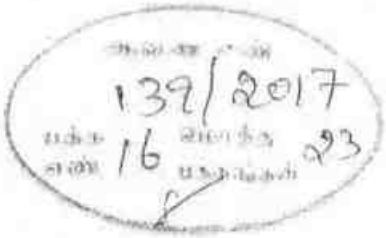
2 [signature] பெயர் : 2 K. DHAKSHANAMMAL த/பெ P. KOTHANDALAMAN. No. 1. Reddiyar Street. 44 Bozhiyalam village. maduranthaisam (T.K)

2017.ம் ஆண்டு பிப்ரவரி திங்கள் 1 ம் நாள்

சார்பதிவாளர் Cheyyur

1 புத்தகம் 2017 ம் ஆண்டு 139 ம் எண்ணாக பதிவு செய்யப்பட்டது

நாள் : 01/02/2017 சார்பதிவாளர்
Cheyyur



Sheet no 2 of 2

भारतीय विशिष्ट पहचान प्राधिकरण
भारत सरकार
Unique Identification Authority of India
Government of India

ASSISTANT DIRECTOR
GANCHENGALPATTU

பதிவேட்டு எண்/Enrolment No.: 2043/50346/00161

Date: 21/11/2016

D Geetha (த. கீதா)
W/O: Dhanasekar, 30/31, THIRUMALAI NAGAR
FIRST MAIN ROAD, Hasthinapuram, Kancheepuram,
Tamil Nadu - 600064

உங்கள் எண்/ Your No.:

6661 8819 8467

- அடையாளத்திற்கான சான்று, குடியுரிமைக்கு அல்ல.
- அடையாள சான்றை ஆன்லைன் ஆதன்புரிமையின் மூலமாகப் பெறவும்.
- இது மின்னாக்கி செய்யப்பட்ட ஒரு நகர் ஆகும்.

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

Validity unlimited

எனது ஆதார், எனது அடையாளம்.

- நாடு முழுவதிலும் செல்லுபடியாகும்.
- ஆதார் பெறுவதற்கு முதன் முறை மட்டுமே நிங்கள் விண்ணப்பத்தை பூர்த்தி செய்து பதிவு செய்ய வேண்டிய அவசியம் ஏற்படும்.
- தயவுசெய்து உங்களின் மாற்றத்தை புதிய மொபைல் நம்பர் மற்றும் e-மெயில் முகவரியை பதிவு செய்யவும். இதனால் உங்களுக்கு பல்வேறு வசதிகளை பெற்றுக் கொள்ளும் சௌகரியம் கிடைக்கும்.

- is valid throughout the country.
- You need to enrol only once for
- Please update your mobile number and e-mail address. This will help you to avail various services in future.

भारत सरकार
GOVERNMENT OF INDIA

த. கீதா
D Geetha
பிறந்த தாள்/ DOB: 30/07/1967
பெண் / FEMALE

6661 8819 8467

எனது ஆதார், எனது அடையாளம்.

भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

முகவரி:
கணவர் பெயர்: தனசேகர்,
30/31, திருமலை நகர் முதல்
மெயின் ரோடு,
அஸ்தினாபுரம், காஞ்சிபுரம்,
தமிழ் நாடு - 600064

Address:
W/O: Dhanasekar, 30/31,
THIRUMALAI NAGAR FIRST
MAIN ROAD, Hasthinapuram,
Kancheepuram,
Tamil Nadu - 600064

6661 8819 8467

MERA AADHAAR, MERI PEHACHAN

D Geetha
D. Amer kumar

139/2017
17 23

S. Rey

இந்திய தனிப்பட்ட அடையாள ஆணைய அமைப்பு

இந்திய அரசாங்கம்
Unique Identification Authority of India
Government of India

பதிவு அடையாளம் / Enrollment No. : 2043/50346/00163

To
D Arun Kumar
S/O: Dhanasekar
30/31
THIRUMALAI NAGAR FIRST MAIN ROAD
Hasthinapuram
Chitlapakkam Kancheepuram
Tamil Nadu - 600064
9942984514

22/04/2015

KH362851396FT
36285100

உங்கள் ஆதார் எண் / Your Aadhaar No. :

Government of India

AADHAAR

தகவல்

- ஆதார் அடையாளத்திற்கான சான்று குடியுரிமைக்கு அல்ல.
- அடையாள சான்றை இணையதளம் மூலம் உறுதிப்படுத்திக் கொள்ளவும்.

INFORMATION

- Aadhaar is proof of identity, not of citizenship.
- To establish identity, authenticate online.

- 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 தனிப்பட்ட அடையாள ஆணைய அமைப்பு
Unique Identification Authority of India

Address: S/O: Dhanasekar,
30/31, THIRUMALAI NAGAR
FIRST MAIN ROAD,
Hasthinapuram,
Chitlapakkam,
Kancheepuram, Tamil Nadu,
600064

7406 1747 0012

1947
1800 300 1947

help@uidai.gov.in

www.uidai.gov.in

D Arun kumar

139/2017
18 93

த கார்த்திகேயன்
D Karthikeyan
பிறந்த நாள்/ DOB: 04/06/1989
ஆண் / MALE

முக்வரி:
தந்தை / கார்ப் பெயர்:
தனசேகர், 30/31, திருமலை
நகர் முதல் மெயின் ரோடு,
அஸ்தினாபுரம், காஞ்சிபுரம்,
தமிழ்நாடு - 600064

Address:
S/o: Dhanasekar, 30/31,
THIRUMALAI NAGAR FIRST
MAIN ROAD, Hasthinapuram,
Kancheepuram
Tamil Nadu - 600064

ASSISTANT DIRECTOR
SAM CHENGALPATTU

4438 1755 9847

எனது ஆதார், எனது அடையாளம்.

4438 1755 9847

MERA AADHAAR, MERI PEHACHAN

D. Gaathi
D. Arun kumar

S. Rey

139/2017
19
23

ASSISTANT DIRECTOR
CHENGALPATTU

இந்திய அரசாங்கம்
Government of India

Raju Sivaji

DOB: 10/06/1951
Male

2724 8141 1823

சாதாரண மனிதனின் அதிகாரம்

Unique Identification Authority of India

Address: S/O: Sivaji, 177
THOLKAPPIYAM STREET
ANNA NAGAR
Hasthinapuram,
Chitlapakkam,
Kancheepuram, Tamil Nadu,
600064

2724 8141 1823

D. Gaethi
D. Anus kumar

S. Reny

139/2017
20 23

இந்திய அரசாங்கம்
Government of India
கே தட்சணமூர்த்தி
K Dhachanamoorthi

பிறந்த தேதி / DOB: 25/04/1979
ஆண்பால் / Male

9724 6689 3739

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

ஆதார்
முழுமை தனிப்பட்ட அடையாள ஆணைய தலைமை
Unique Identification Authority of India

முகவரி: தடப் கோதண்டாவன்
1 செட்டியார் தெரு
கோழியாளம் கிராமம்
திட்டமை அருகம் உத்திரமேரூர் வழி
கோழியாளம், உத்திரமேரூர் காஞ்சிபுரம்
தமிழ் நாடு, பாரத்

Address: S/O: Kothandaraman, House/ Bldg./Apt. 1 RETTIYAR STREET, Street/Road/Lane: KOZHIYALAM GRAMAM, Landmark: THELDALAM UTHIRAMERUR WAY, Village/Town/City: Kozhiyalam, District: Kancheepuram, P.O.

9724 6689 3739

1947
1800 300 1947
help@uidai.gov.in
www.uidai.gov.in

ASSISTANT DIRECTOR
GRM CHENGALPATTU

D. Gandhi
D. Anus kumar

S. Rey

139/2017
21
23

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : காஞ்சிபுரம் வட்டம் : மதுராந்தகம்

வருவாய் கிராமம் : பெரிய வெண்மணி பட்டா எண் : 942

உரிமையாளர்கள் பெயர்

1. தனசேகர் மகன் அருண்குமார்

		நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக் - ஏர்	ரூ - பை	ஹெக - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை
X 179	2	--	--	0 - 10.00	0.12	--	--
180	10	--	--	0 - 42.00	0.38	--	--
180	11	--	--	0 - 42.00	0.38	--	--
180	4	--	--	0 - 41.50	0.38	--	--
				1 - 35.50	1.26		

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் http://eservices.tn.gov.in என்ற இணைய தளத்தில் 03/07/184/00942/120495 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 25-01-2017 அன்று 12:46:18 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

D. Gopi

D. Arun kumar

S. Rey

139/2017

22 23

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : காஞ்சிபுரம் வட்டம் : மதுராந்தகம்

வருவாய் கிராமம் : பெரிய வெண்மணி பட்டா எண் : 941

உரிமையாளர்கள் பெயர்

1. தனசேகர் மனைவி கீதா

		நன்செய்		புனசெய்		மறறவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உடபிரிவு	ஹெக - ஏர்	ரூ - பை	ஹெக - ஏர்	ரூ - பை	ஹெக - ஏர்	ரூ - பை
180	5	--	--	0 - 41.50	0.38	--	--
180	8	--	--	0 - 41.50	0.38	--	--
180	9	--	--	0 - 41.50	0.38	--	--
				1 - 24.50	1.14		

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் http://eservices.tn.gov.in என்ற இணைய தளத்தில் 03/07/184/00941/120484 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 25-01-2017 அன்று 12:45:29 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

D. Gopi

D. Arun kumar

139/2017

ANNEXURE - VIII

ASSISTANT DIRECTOR

இந்திய அரசாங்கம்
Government of India
Raju Sivaji
Male
2724 8141 1823
- சாதாரண மனிதனின் அதிகாரம்

Unique Identification Authority of India
Address: S/O: Sivaji, 17/7,
THOLKAPPIYAM STREET
ANNA NAGAR
Hasthinapuram
Chitlapakkam
Kanchipuram, Tamil Nadu
600064
2724 8141 1823

D. Geetha
D. Arun kumar

S. Perry

139/2017

ANNEXURE - IX

तक नवीकृत
Renewed up to 18 NOV 1991

P Swamimurthy 14/9/89
Regional Controller of Mines
INDIAN BUREAU OF MINES
Ministry of Steel, Mines & Co.
MADRAS

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLANS

(Under Rule 22 (c) of Mineral Concession Rules 1960)

Shri A. JAGANATHAN *resident of* 5/247, JUNCTION MAIN ROAD, FIVE ROADS, SALEM - 4, *son of* SHRI P. ATHIAPPA GOUNDER, *having given satisfactory evidence of his qualifications and experience is hereby granted recognition under Rule 22 (c) of the Mineral Concession Rules, 1960 as a Qualified Person to prepare Mining Plans.*

His registration number is RQP / MAS / 019 / 87 /A

This recognition is valid for a period of two years ending 19.11.1989

P Swamimurthy
Regional Controller of Mines
Indian Bureau of Mines
MADRAS

Place : MADRAS
Date : 20.11.1987

तक नवीकृत
Renewed up to 17 NOV 1993

Regional Controller of Mines
INDIAN BUREAU OF MINES

तक नवीकृत
Renewed up to 17-11-2011

Regional Controller of Mines,
INDIAN BUREAU OF MINES

तक नवीकृत
Renewed up to 17-11-2021

REGIONAL CONTROLLER OF MINES
INDIAN BUREAU OF MINES
CHENNAI REGION

तक नवीकृत
Renewed up to 17 NOV 1995

क्षेत्रीय खान नियंत्रक
Regional Controller of Mines
भारतीय खान ब्यूरो
INDIAN BUREAU OF MINES

तक नवीकृत
Renewed up to 17 NOV 1997

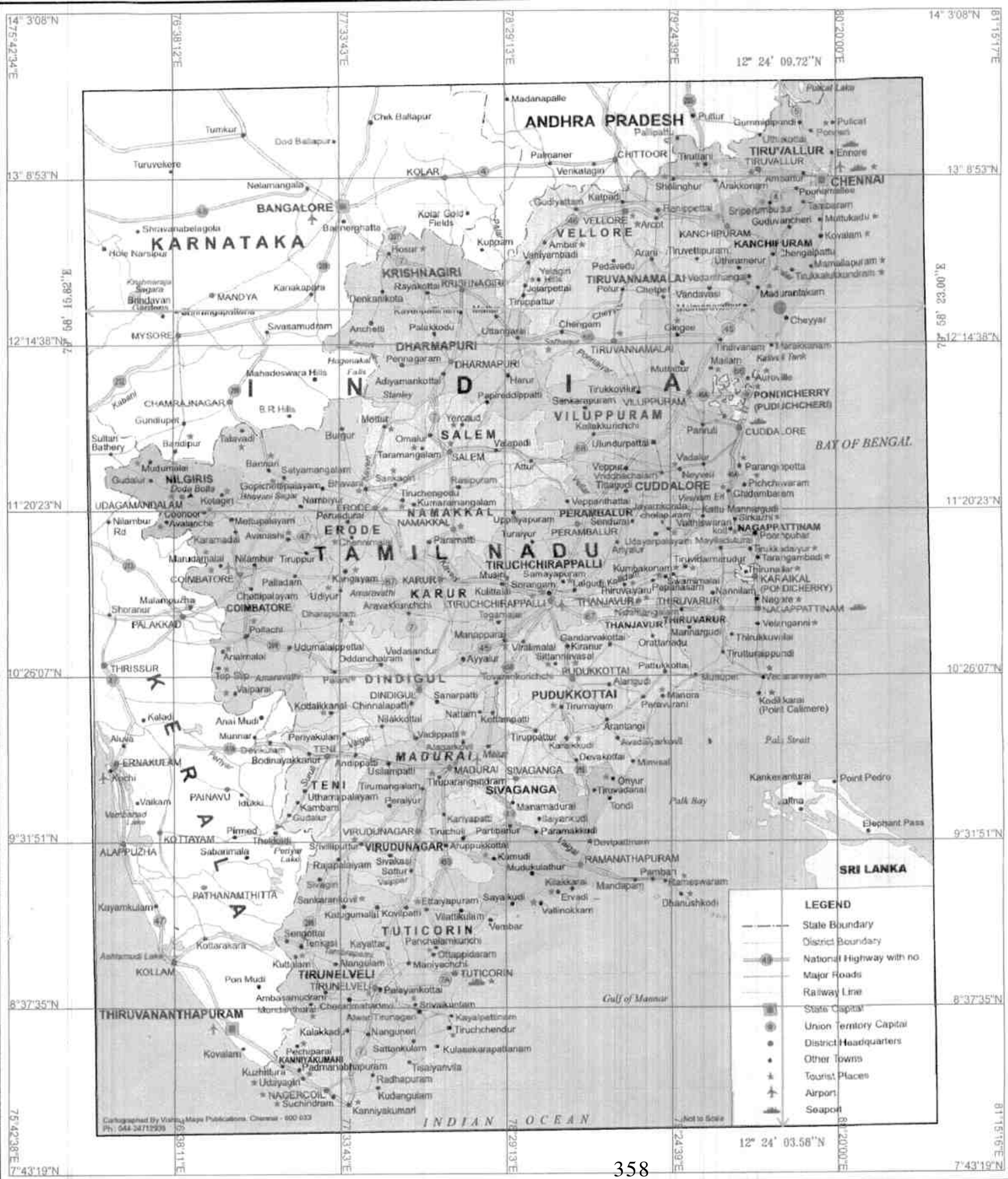
क्षेत्रीय खान नियंत्रक
Regional Controller of Mines
भारतीय खान ब्यूरो
INDIAN BUREAU OF MINES

तक नवीकृत
Renewed up to 17.11.99

Regional Controller of Mines
INDIAN BUREAU OF MINES
Ministry of Steel, Mines &
MADRAS

तक नवीकृत
Renewed up to 17.11.2001

Regional Controller of Mines,
INDIAN BUREAU OF MINES



N

ASSISTANT DIRECTOR · GEOLOGY AND MINING · CHENGALPATTU

PLATE NO:I

DATE OF SURVEY : 27.04.2021

APPLICANT:

Thiru.S.RAJU,
S/o.SIVAJI,
No.17/7, THOLKAPPIYAM STREET,
CHITLAPAKKAM,
KANCHIPURAM DISTRICT - 600 064.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NOs : 180/4, 5, 8, 9, 10, 11,
EXTENT : 2.50.0 ha.
VILLAGE : PERIYAVENMANI,
TALUK : MADURANTHAGAM,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

Q. L.A. AREA :

TOPO SHEET NO. : 57 P/15

LATITUDE : 12° 24' 03.58"N to 12° 24' 09.72"N

LONGITUDE : 79° 58' 15.82"E to 79° 58' 23.00"E

LOCATION PLAN

SCALE 1:24,00,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

A.JAGANNATHAN,BE.,F.C.C.,M.M.E.A.,M.I.E
RECOGNIZED QUALIFIED PERSON
RQP/MAS/019/87/A

OCTOBER TO DECEMBER

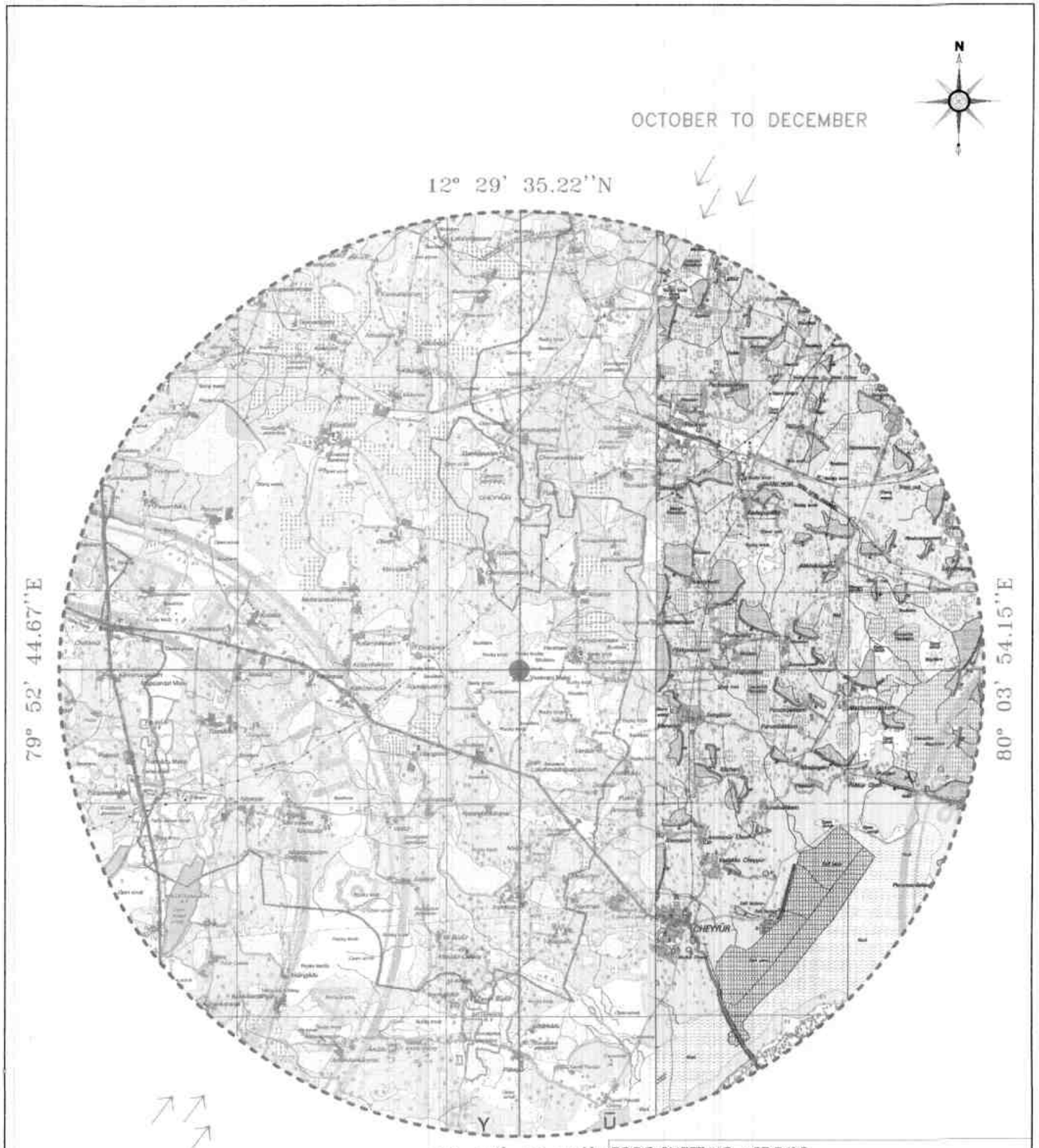
12° 29' 35.22"N

79° 52' 44.67"E

80° 03' 54.15"E

12° 18' 38.08"N

JULY TO SEPTEMBER



TOPO SHEET NO. : 57 P/15

LATITUDE : 12° 24' 03.58"N to 12° 24' 09.72"N

LONGITUDE : 79° 58' 15.82"E to 79° 58' 23.00"E

10KM RADIUS :

Q.L.APPLIED AREA :

PLATE NO:I-A

DATE OF SURVEY : 27.04.2021

ASSISTANT DIRECTOR GEM CHENGALPATTU

APPLICANT:

Thiru.S.RAJU,
S/o.SIVAJI,
No.17/7, THOLKAPPIYAM STREET,
CHITLAPAKKAM,
KANCHIPURAM DISTRICT - 600 064.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NOs : 180/4, 5, 8, 9, 10, 11,
EXTENT : 2.50.0 ha.
VILLAGE : PERIYAVENMANI,
TALUK : MADURANTHAGAM,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 10Km RADIUS

SCALE– 1:100000

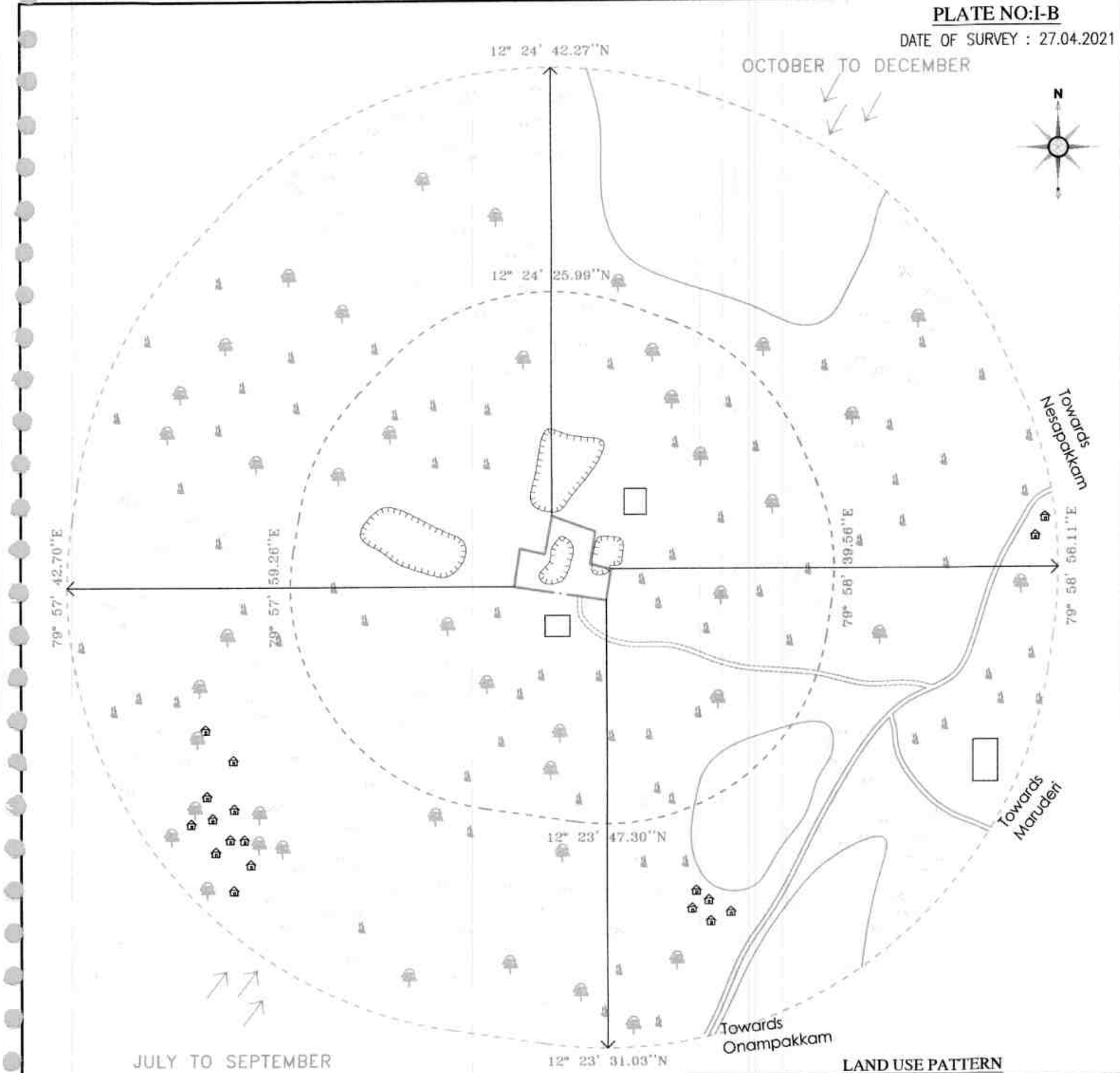
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

A.JAGANNATHAN,BE.,F.C.C.,M.M.E.A.,M.I.E
RECOGNIZED QUALIFIED PERSON
RQP/MAS/019/87/A

PLATE NO:I-B

DATE OF SURVEY : 27.04.2021



1Km Radius :

500m Radius :

Q.L.Applied Area :

ASSISTANT DIRECTOR (TL) GEOLOGY & MINING CHENGALPATTU

TOPO SHEET NO. : 57 P/15

LATITUDE : 12° 24' 03.58"N to 12° 24' 09.72"N

LONGITUDE : 79° 58' 15.82"E to 79° 58' 23.00"E

APPLICANT:

Thiru.S.RAJU,
S/o.SIVAJI,
No.17/7, THOLKAPPIYAM STREET,
CHITLAPAKKAM,
KANCHIPURAM DISTRICT - 600 064.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NOs : 180/4, 5, 8, 9, 10, 11,
EXTENT : 2.50.0 ha.
VILLAGE : PERIYAVENMANI,
TALUK : MADURANTHAGAM,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

- APPROACH ROAD
- VILLAGE ROAD
- HABITATION
- TREES
- AGRICULTURAL LAND
- PIT
- WIND DIRECTION
- POND
- CRUSHER PLANT
- BARREN LAND

TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 1Km RADIUS

SCALE- 1:10,000

LAND USE PATTERN

DESCRIPTION	PERCENTAGE	INDEX
TREES	(15%)	
SEASONAL AGRI LAND	(20%)	
BARREN LAND/POND	(40%)	
HABITATION	(10%)	
ROADS/CRUSHER	(15%)	
TOTAL	(100)	

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

A.JAGANNATHAN,BE.,F.C.C.,M.M.E.A.,M.I.E
RECOGNIZED QUALIFIED PERSON
RQP/MAS/019/87/A

PLATE NO:I-C

DATE OF URVEY : 27.04.2021

APPLICANT:

Thiru.S.RAJU,
S/o.SIVAJI,
No.17/7, THOLKAPPIYAM STREET,
CHITLAPAKKAM,
KANCHIPURAM DISTRICT - 600 064.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NOs : 180/4, 5, 8, 9, 10, 11,
EXTENT : 2.50.0 ha.
VILLAGE : PERIYAVENMANI,
TALUK : MADURANTHAGAM,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

Q.L.APPLIED AREA
NH-45
SH-115
VILLAGE ROAD
APPROACH ROAD

ROUTE MAP

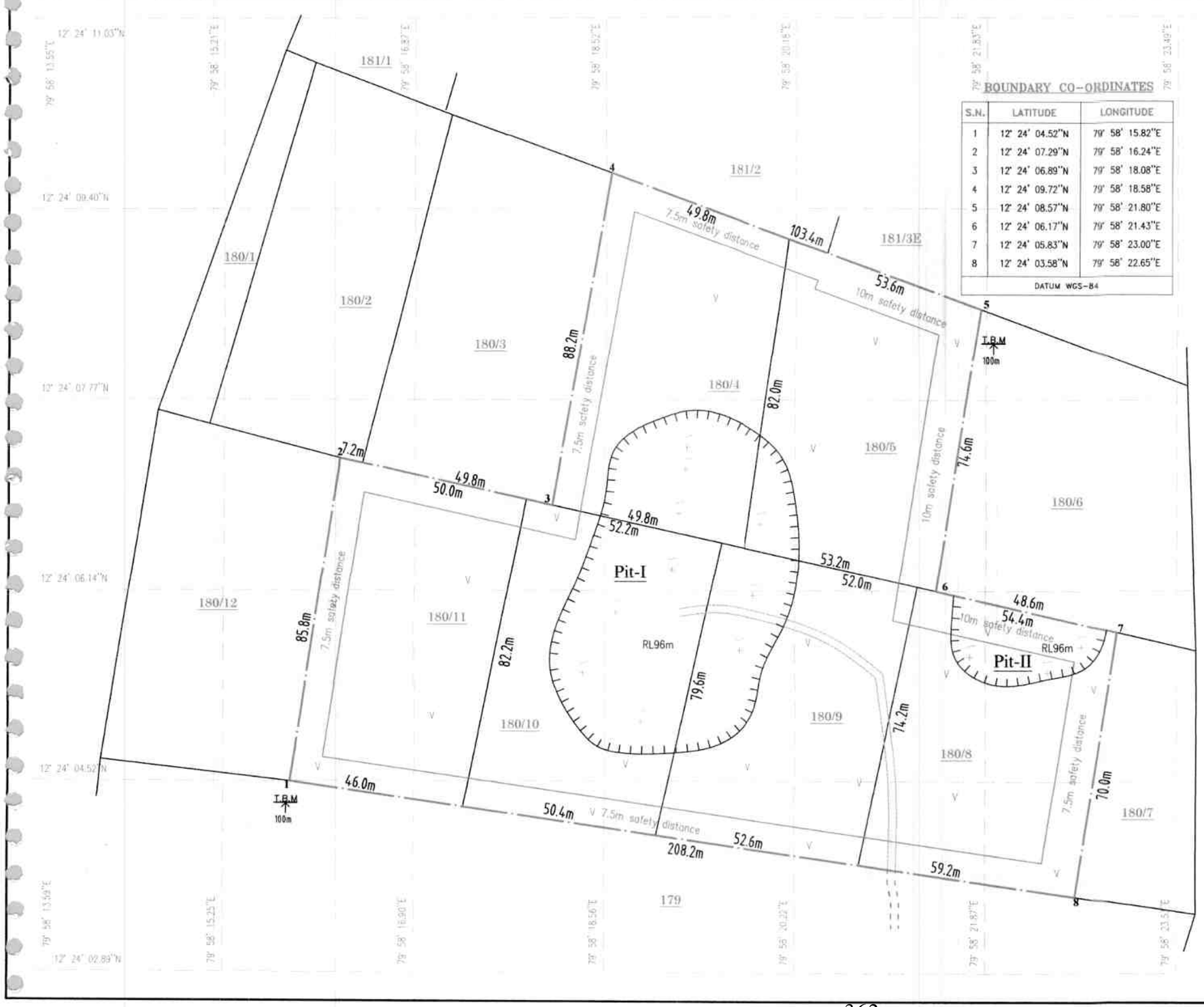
Not To Scale

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

ASSISTANT DIRECTOR CHENGALPATTU

A.JAGANNATHAN,BE.,F.C.C.,M.M.E.A.,M.I.E
RECOGNIZED QUALIFIED PERSON
RQP/MAS/019/87/A



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 24' 04.52"N	79° 58' 15.82"E
2	12° 24' 07.29"N	79° 58' 16.24"E
3	12° 24' 06.89"N	79° 58' 18.08"E
4	12° 24' 09.72"N	79° 58' 18.58"E
5	12° 24' 08.57"N	79° 58' 21.80"E
6	12° 24' 06.17"N	79° 58' 21.43"E
7	12° 24' 05.83"N	79° 58' 23.00"E
8	12° 24' 03.58"N	79° 58' 22.65"E

DATUM WGS-84

Present Pit Dimension(Max)
Pit-I = 89X56mX4m(d)
Pit-II = 40X20mX4m(d)

ASSISTANT DIRECTOR GEOLOGY AND MINING CHENGALPATTU

PLATE NO:I

DATE OF SURVEY : 27.04.2021

APPLICANT:
Thiru.S.RAJU,
S/o.SIVAJI,
No.17/7, THOLKAPPIYAM STREET,
CHITLAPAKKAM,
KANCHIPURAM DISTRICT - 600 064.

LOCATION OF QUARRY LEASE APPLIED AREA:
S.F.NOs : 180/4, 5, 8, 9, 10, 11,
EXTENT : 2.50.0 ha.
VILLAGE : PERIYAVENMANI,
TALUK : MADURANTHAGAM,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m,10m SAFETY DISTANCE
- TEMPORARY BENCH MARK (T.B.M)
- QUARRY ROAD
- QUARRY PIT
- ROUGH STONE
- APPROACH ROAD
- GRAVEL

QUARRY LEASE & SURFACE PLAN

SCALE 1 : 1000

PREPARED BY :

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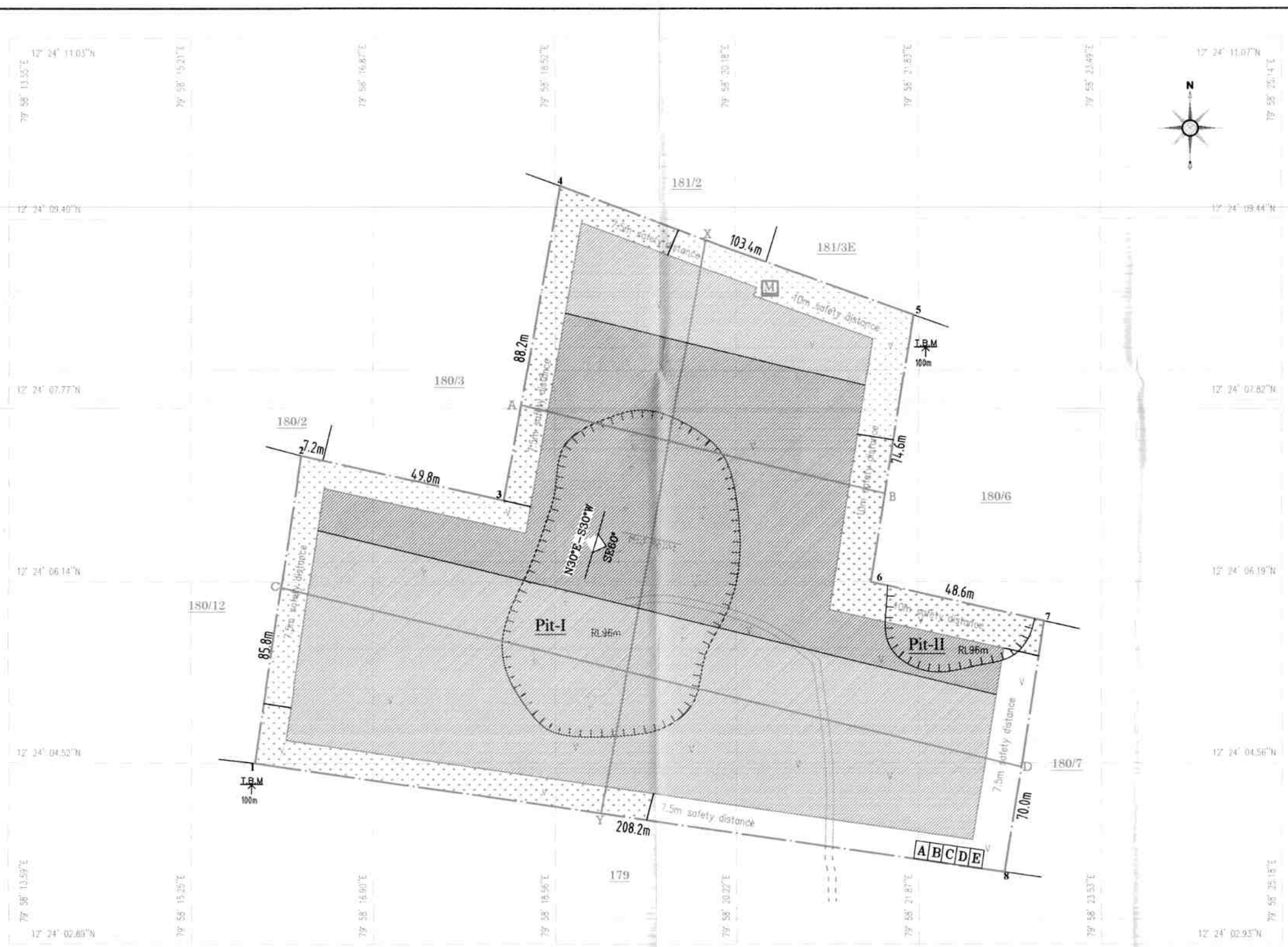
A.JAGANNATHAN,BE.,F.C.C.,M.M.E.A.,M.I.E
RECOGNIZED QUALIFIED PERSON
RQP/MAS/019/87/A



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 24' 04.52"N	79° 58' 15.82"E
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6	12° 24' 06.17"N	79° 58' 21.43"E
7	12° 24' 05.83"N	79° 58' 23.00"E
8	12° 24' 03.58"N	79° 58' 22.65"E

DATUM WGS-84

Present Pit Dimension(Max)
Pit-I = 89X56mX4m(d)
Pit-II = 40X20mX4m(d)

PLATE NO:III

DATE OF SURVEY : 27.04.2021

APPLICANT:
Thiru.S.RAJU,
S/o.SIVAJI,
No.17/7, THOLKAPPIYAM STREET,
CHITLAPAKKAM,
KANCHIPURAM DISTRICT - 600 064.

LOCATION OF QUARRY LEASE APPLIED AREA:
S.F.NOs : 180/4, 5, 8, 9, 10, 11,
EXTENT : 2.50.0 ha.
VILLAGE : PERIYAVENMANI,
TALUK : MADURANTHAGAM,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

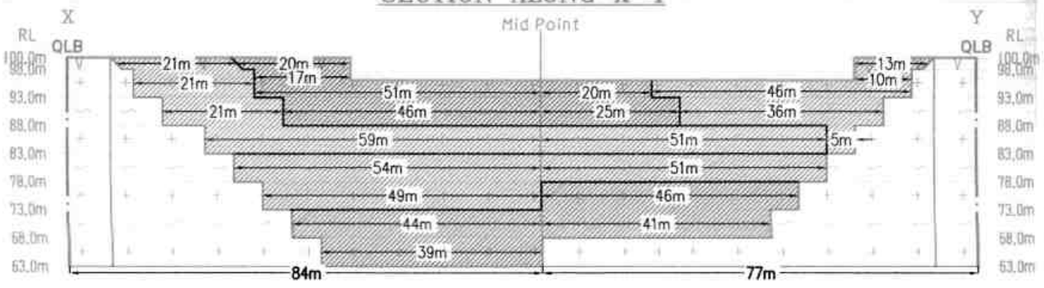
- Q.L. APPLIED AREA BOUNDARY
- 7.5m,10m SAFETY DISTANCE
- TEMPORARY BENCH MARK (TBM)
- QUARRY ROAD
- QUARRY PIT
- ROUGH STONE
- APPROACH ROAD
- GRAVEL
- STRIKE AND DIP

PROPOSED SITE SERVICES
A – OFFICE
B – STORE ROOM
C – FIRST AID ROOM
D – REST SHELTER
E – TOILET
M – MAGAZINE

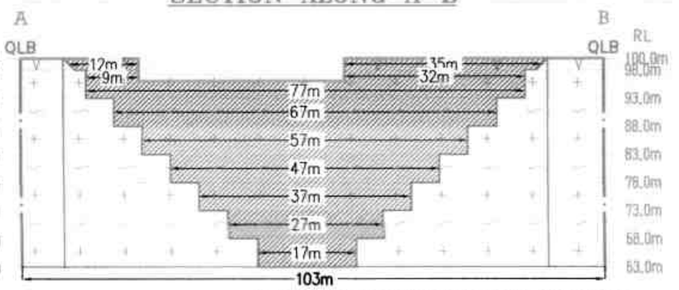
- I Yr PLANTATION
- II Yr PLANTATION
- III Yr PLANTATION
- IV Yr PLANTATION
- V Yr PLANTATION

- I Yr EXCAVATION
- II Yr EXCAVATION
- III Yr EXCAVATION
- IV Yr EXCAVATION
- V Yr EXCAVATION

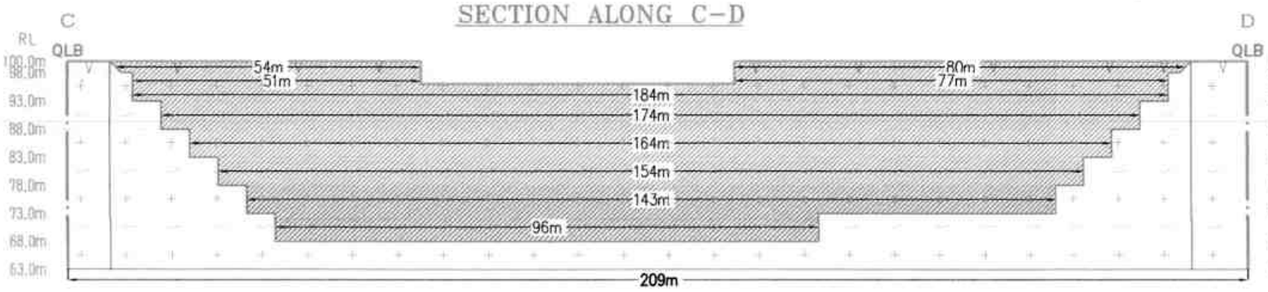
SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



PRESENT & POST LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	0.51.0	1.87.7
INFRASTRUCTURE	Nil	0.01.0
ROADS	0.01.0	0.02.0
GREEN BELT	Nil	0.45.0
UN-UTILIZED AREA	1.98.0	0.14.3
GRAND TOTAL	2.50.0	2.50.0

TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS

SCALE 1 : 1000
SECTION HOR 1 : 1000, VER 1: 1000

PREPARED BY :

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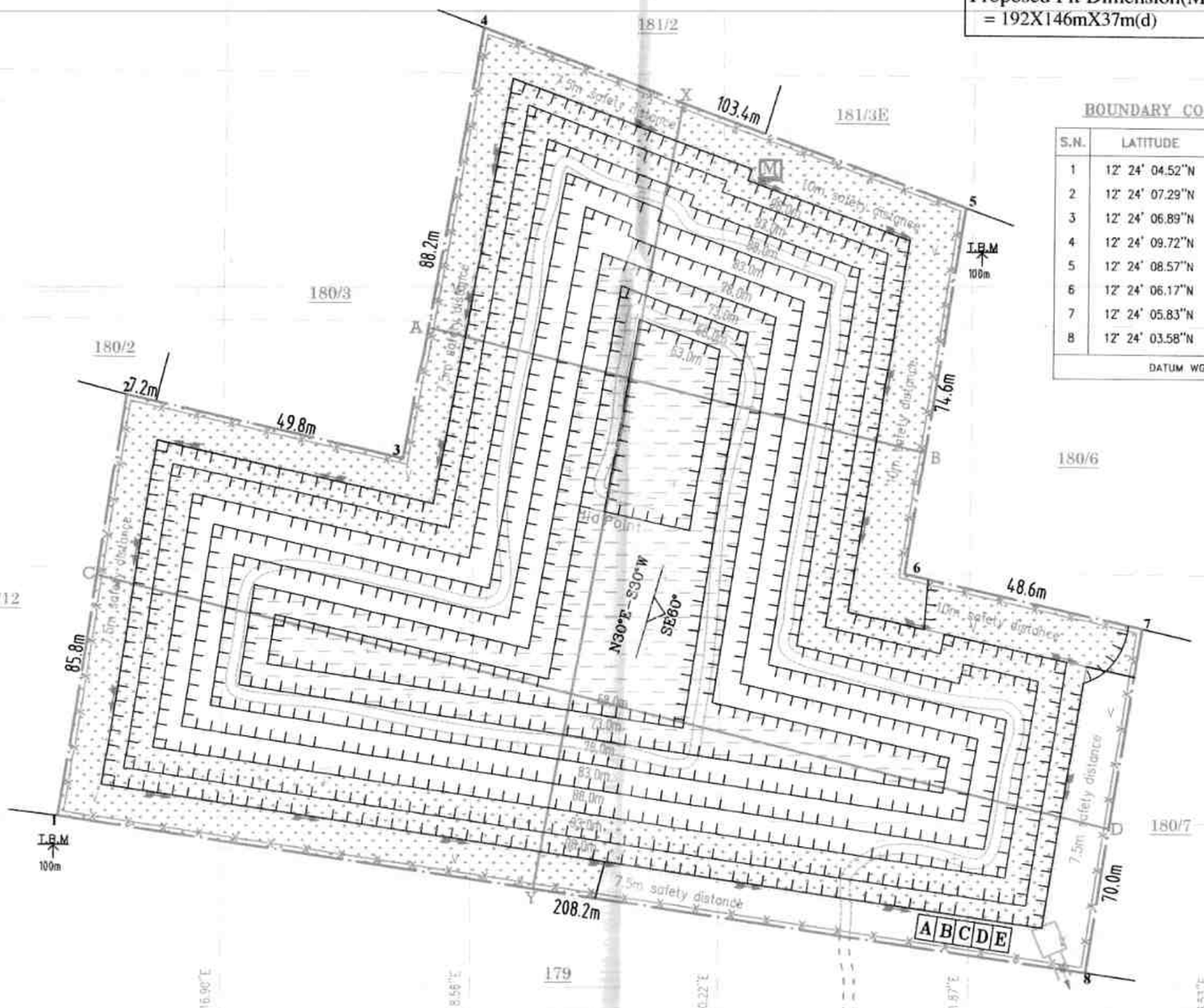
A.JAGANNATHAN,BE.,F.C.C.,M.M.E.A.,M.I.E
RECOGNIZED QUALIFIED PERSON
RQP/MAS/019/87/A

Proposed Pit Dimension(Max)
= 192X146mX37m(d)



BOUNDARY CO-ORDINATES

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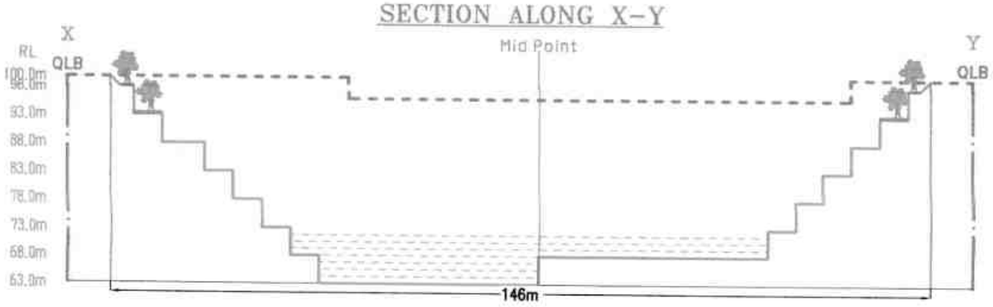
6	12° 24' 06.17"N	79° 58' 21.43"E
7	12° 24' 05.83"N	79° 58' 23.00"E
8	12° 24' 03.58"N	79° 58' 22.65"E

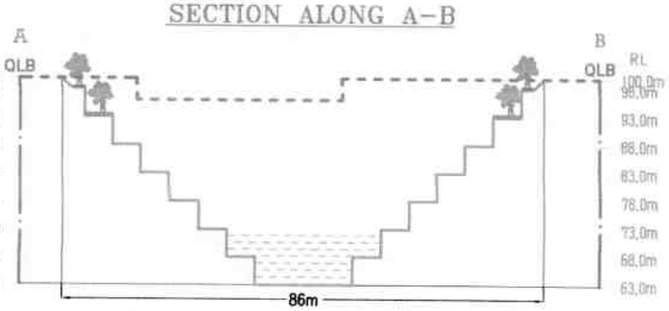
DATUM WGS-84

I-V Yr PLANTATION

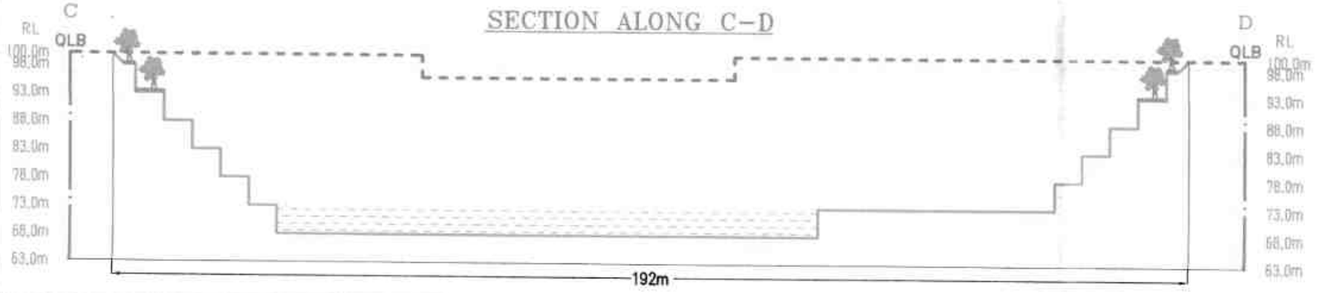
SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



I Yr PLANTATION
II Yr PLANTATION
III Yr PLANTATION
IV Yr PLANTATION
V Yr PLANTATION

SITE SERVICES
A - OFFICE
B - STORE ROOM
C - FIRST AID ROOM
D - REST SHELTER
E - TOILET
M - MAGAZINE

PLATE NO:IV

DATE OF SURVEY : 27.04.2021

APPLICANT:
Thiru.S.RAJU,
S/o.SIVAJI,
No.17/7, THOLKAPPIYAM STREET,
CHITLAPAKKAM,
KANCHIPURAM DISTRICT - 600 064.

LOCATION OF QUARRY
LEASE APPLIED AREA:
S.F.NOs : 180/4, 5, 8, 9, 10, 11,
EXTENT : 2.50.0 ha.
VILLAGE : PERIYAVENMANI,
TALUK : MADURANTHAGAM,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m,10m SAFETY DISTANCE
- TEMPORARY BENCH MARK (T.B.M)
- QUARRY ROAD
- QUARRY PIT
- ROUGH STONE
- APPROACH ROAD
- GRAVEL
- STRIKE AND DIP
- EXISTING LANDFORM
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- TREES
- SOIL LAYER
- FENCING
- PROPOSED GARLAND DRAIN
- PROPOSED WATER STORAGE
- REHABILITATED LAND FORM

PROGRESSIVE QUARRY
CLOSURE PLAN & SECTIONS
SCALE 1 : 1000
SECTION HOR 1 : 1000, VER 1: 1000

PREPARED BY :

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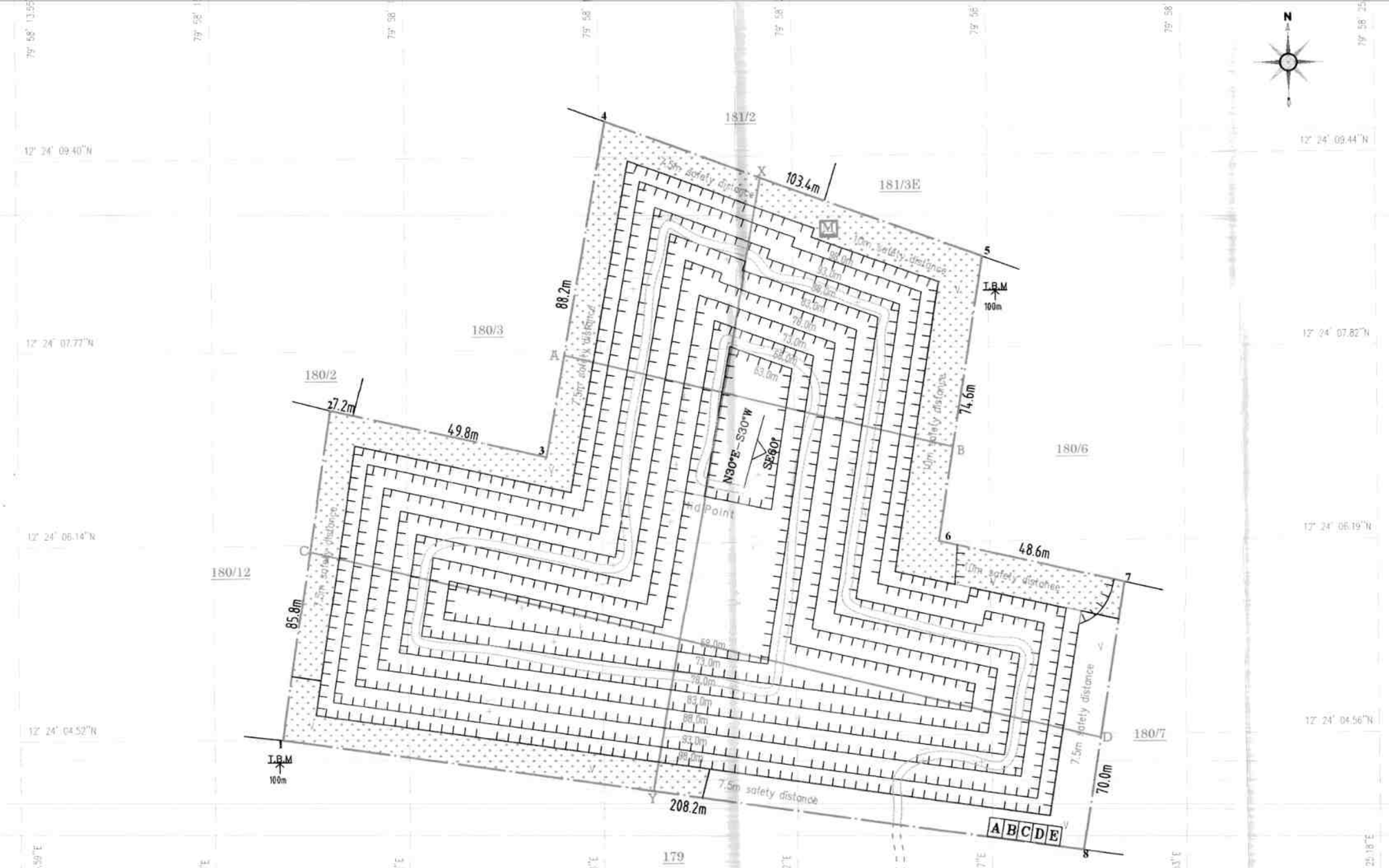
A.JAGANNATHAN,BE.,F.C.C.,M.M.E.A.,M.I.E
RECOGNIZED QUALIFIED PERSON
RQP/MAS/019/87/A



BOUNDARY CO-ORDINATES

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6	12° 24' 06.17"N	79° 58' 21.43"E
7	12° 24' 05.83"N	79° 58' 23.00"E
8	12° 24' 03.58"N	79° 58' 22.65"E

DATUM WGS-84

Ultimate Pit Dimension(Max)
= 192X146mX37m(d)

PLATE NO:V

DATE OF SURVEY : 27.04.2021

APPLICANT:
Thiru.S.RAJU,
S/o.SIVAJI,
No.17/7, THOLKAPPIYAM STREET,
CHITLAPAKKAM,
KANCHIPURAM DISTRICT - 600 064.

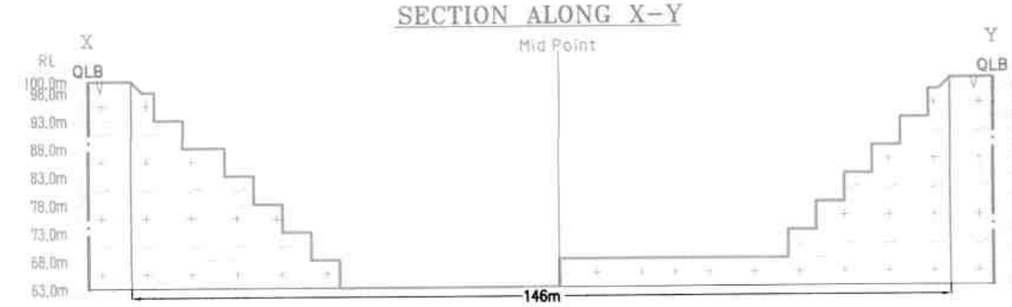
LOCATION OF QUARRY
LEASE APPLIED AREA:
S.F.NOs : 180/4, 5, 8, 9, 10, 11,
EXTENT : 2.50.0 ha.
VILLAGE : PERIYAVENMANI,
TALUK : MADURANTHAGAM,
DISTRICT : KANCHIPURAM,
STATE : TAMIL NADU.

INDEX

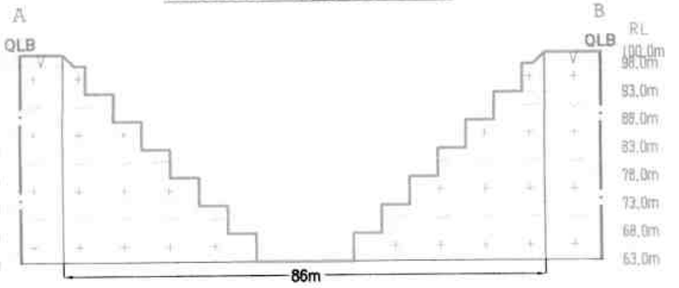
- Q.L. APPLIED AREA BOUNDARY
- 7.5m,10m SAFETY DISTANCE
- TEMPORARY BENCH MARK (I.B.M)
- QUARRY ROAD
- QUARRY PIT
- ROUGH STONE
- APPROACH ROAD
- GRAVEL
- STRIKE AND DIP

CONCEPTUAL PLAN & SECTIONS
SCALE 1 : 1000
SECTION HOR 1 : 1000, VER 1: 1000

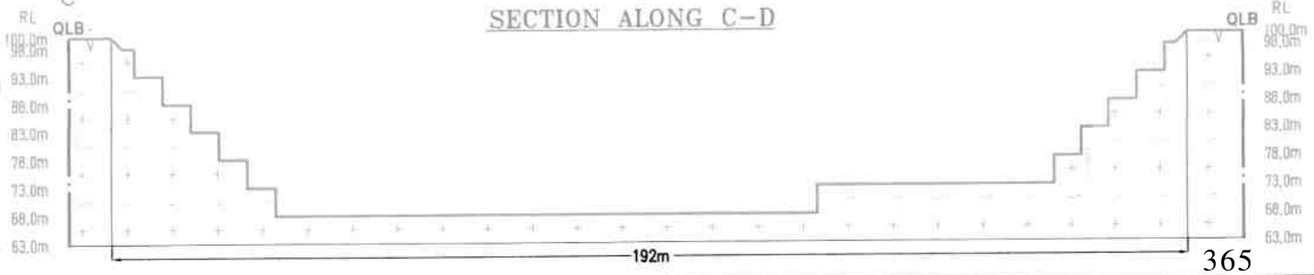
SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



- I Yr PLANTATION
- II Yr PLANTATION
- III Yr PLANTATION
- IV Yr PLANTATION
- V Yr PLANTATION

SITE SERVICES
A – OFFICE
B – STORE ROOM
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M – MAGAZINE

PREPARED BY :

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A.JAGANNATHAN,BE.,F.C.C.,M.M.E.A.,M.I.E
RECOGNIZED QUALIFIED PERSON
ROP/MAS/019/87/A

ASSISTANT DIRECTOR (GEOLOGY & MINING) VENGALPATTU

ANNEXURE XI: ENVIRONMENTAL POLICY

ENVIRONMENTAL POLICY

M/s. ***Thiru. S. Raju*** believes in and focuses attention on clean and green technologies in all its activities to protect the environment

We are committed to:

- Wholly support and comply with all statutory requirement concerning environmental management and practices.
- Conduct periodical monitoring of all environmental parameters including air, water, noise and emissions by authorized agency as per statute & law.
- Implement environmental friendly process with right mitigation of pollution, reclamation of land and prevention of Biodiversity.
- Continually improve the environmental performance of organizational processes and products through waste minimization and pollution abatement.
- Ensure sustainable development by maximizing recycle and reducing wastage.
- Ensure green belt development.
- Create awareness amongst employees, contractors and stake holders on health and environmental protection practices through pro-active communication and training.

This policy is available for public.

Thiru. S. Raju
S/o.Sivaji,
NO. 17/7, THOLKAPPIYAM STREET,
CHITLAPAKKAM, KANCHIPURAM,
TAMIL NADU STATE – 600 064

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

An Environment, Food, Soil & Biological Analytical Laboratory
(An ISO 9001:2015, 14001:2015 and 45001-2018 Certified Company)
Recognised by MoEF (Govt. of India), Accredited by ISO/IEC-17025:2017 (NABL) & UPPCB
Plot No. 1/32, South Side G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001
email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

TC-8771

ANNEXURE XII: BASLEINE REPORTS

TEST REPORT

TEST REPORT NO. ETS/575/12/2021 DATE OF REPORT : 05.03.2022

AMBIENT AIR QUALITY MONITORING AND ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA, SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Analysis Start Date : 07.12.2021
Analysis End Date : 05.03.2022
Sampling Done By : ETS STAFF
Sampling Location : AAQ-1 CORE ZONE
Sampling Method : ETS/STP/AIR-01
Sampling Machine Placed At Height : 1.5 MTR. (FROM GROUND)
Weather Condition : CLEAR

Monitoring			Particulates, µg/m³		Gaseous Pollutants, µg/m³					Other Pollutants (Particulate Phase), µg/m³				
Date	Period, hrs.	Fugitive Dust	$PM_{2.5}$	PM_{10}	SO_2	NO_2	NH_3	O_3 (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m³	As, ng/m³	Ni, ng/m³	C_6H_6, µg/m³	BaP, ng/m³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
04.12.2021	07.00-07.00	90.5	30.6	56.6	8.4	22.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
05.12.2021	07.15-07.15	93.8	31.9	53.1	8.2	26.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
11.12.2021	07.00-07.00	94.9	32.8	53.8	8.7	24.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
12.12.2021	07.15-07.15	90.2	31.4	54.5	8.1	25.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
18.12.2021	07.00-07.00	90.7	30.9	53.6	9.6	23.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
19.12.2021	07.15-07.15	93.5	29.1	54.1	9.5	24.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
25.12.2021	07.00-07.00	65.7	31.6	52.9	9.4	25.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
26.12.2021	07.15-07.15	96.8	33.6	53.8	8.5	24.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
02.01.2022	07.00-07.00	94.9	32.1	55.6	8.6	23.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
03.01.2022	07.15-07.15	91.3	30.5	55.1	9.4	23.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
09.01.2022	07.00-07.00	95.2	34.5	56.2	9.2	24.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
10.01.2022	07.15-07.15	97.7	33.1	53.5	9.3	25.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
16.01.2022	07.00-07.00	91.8	30.6	55.8	9.0	24.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
17.01.2022	07.15-07.15	90.8	31.6	55.2	9.4	25.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
23.01.2022	07.00-07.00	90.1	30.6	61.5	8.9	23.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
24.01.2022	07.15-07.15	91.2	33.5	62.7	8.9	24.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
30.01.2022	07.00-07.00	90.7	33.2	57.5	8.8	24.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
31.01.2022	07.15-07.15	95.2	34.1	56.8	8.1	25.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
06.02.2022	07.00-07.00	93.8	35.6	58.8	8.3	24.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
07.02.2022	07.15-07.15	95.6	33.4	56.9	9.2	23.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
13.02.2022	07.00-07.00	94.8	31.2	55.8	9.7	26.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
14.02.2022	07.15-07.15	91.1	32.2	54.8	9.5	27.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
20.02.2022	07.00-07.00	92.5	34.3	57.2	9.2	26.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
21.02.2022	07.15-07.15	92.9	33.8	56.9	9.8	27.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
27.02.2022	07.00-07.00	92.2	30.5	55.9	9.7	24.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
28.02.2022	07.15-07.15	92.7	33.1	59.2	9.3	25.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05

*****End of Test Report*****

For Enviro-Tech Services

Note:-
1. Test reports without ETS/QAF/FORM/01 are not issued by our laboratory.
2. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.
3. The sample shall be retained after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
4. The results indicated only refer to the tested samples and listed applicable parameters.
5. No complaint will be entertained if received after 7 days of issue of test report.
6. Our liability is limited to invoice value only.

FOR ENVIRO-TECH SERVICES
Md Humraj
Lab Manager
AUTHORIZED SIGNATORY

Doc. No. ETS/QAF/FORM/01 Rev. No. 03 Date 01.04.2019, Amd. No. 04 Date 01.04.2019

ENVIRO-TECH SERVICES
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(An ISO 9001:2015, 14001:2015 and 45001-2018 Certified Company)
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Plot No. 1/32, South Side G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001
email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ETS-LAB

TC-8771

TEST REPORT

TEST REPORT NO : ETS/576/12/2021 DATE OF REPORT : 05.03.2022

AMBIENT AIR QUALITY MONITORING AND ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Analysis Start Date : 07.12.2021
Analysis End Date : 05.03.2022
Sampling Done By : ETS STAFF
Sampling Location : AAQ-2 VENMARI
Sampling Method : ETS/STP/AIR-01
Sampling Machine Placed At Height : 1.5 MTR. (FROM GROUND)
Weather Condition : CLEAR

Monitoring			Particulates, µg/m³		Gaseous Pollutants, µg/m³					Other Pollutants (Particulate Phase), µg/m³				
Date	Period, hrs.	Fugitive Dust	PM2.5	PM10	SO_2	NO_2	NH_3	O_3 (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m³	As, ng/m³	Ni, ng/m³	C_6H_6, µg/m³	BaP, ng/m³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
04.12.2021	07.15-07.15	89.2	29.5	55.4	9	22.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
05.12.2021	07.30-07:30	92.5	30.8	51.9	8.8	26.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
11.12.2021	07.15-07.15	93.6	31.7	52.6	9.3	25.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
12.12.2021	07.30-07:30	88.9	30.3	53.3	8.7	25.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
18.12.2021	07.15-07.15	89.4	29.8	52.4	10.2	24	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
19.12.2021	07.30-07:30	92.2	28	52.9	10.1	25.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
25.12.2021	07.15-07.15	64.4	30.5	51.7	10	25.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
26.12.2021	07.30-07:30	95.5	32.5	52.6	9.1	24.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
02.01.2022	07.15-07.15	93.6	31	54.4	9.2	23.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
03.01.2022	07.30-07:30	90	29.4	53.9	10	24	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
09.01.2022	07.15-07.15	93.9	33.4	55	9.8	24.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
10.01.2022	07.30-07:30	96.4	32	52.3	9.9	26	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
16.01.2022	07.15-07.15	90.5	29.5	54.6	9.6	24.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
17.01.2022	07.15-07.15	89.5	30.5	54	10	26	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
23.01.2022	07.00-07.00	88.8	29.5	60.3	9.5	24.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
24.01.2022	07.15-07.15	89.9	32.4	61.5	9.5	25	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
30.01.2022	07.00-07.00	90.5	32.1	56.3	9.4	24.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
31.01.2022	07.15-07.15	93.9	33	55.6	8.7	25.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
06.02.2022	07.00-07.00	92.5	34.5	57.6	8.9	24.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
07.02.2022	07.15-07.15	94.3	32.3	55.7	9.8	24.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
13.02.2022	07.00-07.00	93.5	30.1	54.6	10.3	27	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
14.02.2022	07.15-07.15	89.8	31.1	53.6	10.1	28.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
20.02.2022	07.00-07.00	91.2	33.2	56	9.8	27.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
21.02.2022	07.15-07.15	91.6	32.7	55.7	10.4	28.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
27.02.2022	07.00-07.00	90.9	29.4	54.7	10.3	24.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
28.02.2022	07.15-07.15	91.4	32	58	9.9	25.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05

For Enviro-Tech Services

Note:-

FOR ENVIRO-TECH SERVICES

Amit Humrai
Laboratory Manager

CHECKED BY AUTHORIZED SIGNATORY

1. Test reports without ~~signature~~ and seal are not issued by our laboratory.
2. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.
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email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ETS-LAB

TC-8771

TEST REPORT

TEST REPORT NO : ETS/577/12/2021 DATE OF REPORT : 05.03.2022

AMBIENT AIR QUALITY MONITORING AND ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA, SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Analysis Start Date : 07.12.2021
Analysis End Date : 05.03.2022
Sampling Done By : ETS STAFF
Sampling Location : AAQ-3 PERIYAVENMANI
Sampling Method : ETS/STP/AIR-01
Sampling Machine Placed At Height : 1.5 MTR. (FROM GROUND)
Weather Condition : CLEAR

Monitoring			Particulates, µg/m³		Gaseous Pollutants, µg/m³					Other Pollutants (Particulate Phase), µg/m³				
Date	Period, hrs.	Fugitive Dust	PM2.5	PM10	SO_2	NO_2	NH_3	O_3 (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m³	As, ng/m³	Ni, ng/m³	C_6H_6, µg/m³	BaP, ng/m³
NAAQ Norms*		(24 hrs.)	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
04.12.2021	07.15-07.15	88.3	28.7	54.6	8.6	22.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
05.12.2021	07.30-07:30	91.6	30	51.1	8.4	26.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
11.12.2021	07.15-07.15	92.7	30.9	51.8	8.9	24.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
12.12.2021	07.30-07:30	88	29.5	52.5	8.3	25.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
18.12.2021	07.15-07.15	88.5	29	51.6	9.8	23.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
19.12.2021	07.30-07:30	91.3	27.2	52.1	9.7	24.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
25.12.2021	07.15-07.15	63.5	29.7	50.9	9.6	25.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
26.12.2021	07.30-07:30	94.6	31.7	51.8	8.7	24.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
02.01.2022	07.15-07.15	92.7	30.2	53.6	8.8	23.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
03.01.2022	07.30-07:30	89.1	28.6	53.1	9.6	23.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
09.01.2022	07.15-07.15	93	32.6	54.2	9.4	24.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
10.01.2022	07.30-07:30	95.5	31.2	51.5	9.5	25.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
16.01.2022	07.15-07.15	89.6	28.7	53.8	9.2	24.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
17.01.2022	07.15-07.15	88.6	29.7	53.2	9.6	25.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
23.01.2022	07.00-07.00	87.9	28.7	59.5	9.1	23.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
24.01.2022	07.15-07.15	89	31.6	60.7	9.1	24.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
30.01.2022	07.00-07.00	90.4	31.3	55.5	9	24.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
31.01.2022	07.15-07.15	93	32.2	54.8	8.3	25.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
06.02.2022	07.00-07.00	91.6	33.7	56.8	8.5	24.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
07.02.2022	07.15-07.15	93.4	31.5	54.9	9.4	23.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
13.02.2022	07.00-07.00	92.6	29.3	53.8	9.9	26.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
14.02.2022	07.15-07.15	88.9	30.3	52.8	9.7	27.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
20.02.2022	07.00-07.00	90.3	32.4	55.2	9.4	26.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
21.02.2022	07.15-07.15	90.7	31.9	54.9	10	27.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
27.02.2022	07.00-07.00	90	28.6	53.9	9.9	24	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
28.02.2022	07.15-07.15	90.5	31.2	57.2	9.5	25.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05

****End of Test Report****

For Enviro-Tech Services

Md Humraj

AUTHORIZED SIGNATORY

FOR ENVIRO TECH SERVICES

CHECKED BY:

Note:-

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4. The results indicated only refer to the tested samples and listed applicable parameters.
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email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

TC-8771

TEST REPORT

TEST REPORT NO : ETS/578/12/2021 DATE OF REPORT : 05.03.2022

AMBIENT AIR QUALITY MONITORING AND ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER, LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA, SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Analysis Start Date : 07.12.2021
Analysis End Date : 05.03.2022
Sampling Done By : ETS STAFF
Sampling Location : AAQ-4 CHINNAVELIKADU
Sampling Method : ETS/STP/AIR-01
Sampling Machine Placed At Height : 1.5 MTR. (FROM GROUND)
Weather Condition : CLEAR

Monitoring			Particulates, µg/m³		Gaseous Pollutants, µg/m³					Other Pollutants (Particulate Phase), µg/m³				
Date	Period, hrs.	Fugitive Dust	PM2.5	PM10	SO_2	NO_2	NH_3	O_3 (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m³	As, ng/m³	Ni, ng/m³	C_6H_6, µg/m³	BaP, ng/m³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
04.12.2021	07.00-07.00	87.6	27.9	54	10.5	25.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
05.12.2021	07.15-07:15	90.9	29.2	50.5	10.3	29.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
11.12.2021	07.00-07.00	92	30.1	51.2	10.8	27.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
12.12.2021	07.15-07:15	87.3	28.7	51.9	10.2	28.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
18.12.2021	07.00-07.00	87.8	28.2	51	11.7	26.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
19.12.2021	07.15-07:15	90.6	26.4	51.5	11.6	28.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
25.12.2021	07.00-07.00	62.8	28.9	50.3	11.5	28.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
26.12.2021	07.15-07:15	93.9	30.9	51.2	10.6	27.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
02.01.2022	07.00-07.00	92	29.4	53	10.7	26.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
03.01.2022	07.15-07:15	88.4	27.8	52.5	11.5	26.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
09.01.2022	07.00-07.00	92.3	31.8	53.6	11.3	27.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
10.01.2022	07.15-07:15	94.8	30.4	50.9	11.4	28.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
16.01.2022	07.00-07.00	88.9	27.9	53.2	11.1	27.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
17.01.2022	07.15-07.15	87.9	28.9	52.6	11.5	28.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
23.01.2022	07.00-07.00	87.2	27.9	58.9	11	26.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
24.01.2022	07.15-07.15	88.3	30.8	60.1	11	27.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
30.01.2022	07.00-07.00	90.4	30.5	54.9	10.9	27.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
31.01.2022	07.15-07.15	92.3	31.4	54.2	10.2	28.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
06.02.2022	07.00-07.00	90.9	32.9	56.2	10.4	27.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
07.02.2022	07.15-07.15	92.7	30.7	54.3	11.3	27.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
13.02.2022	07.00-07.00	91.9	28.5	53.2	11.8	29.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
14.02.2022	07.15-07.15	88.2	29.5	52.2	11.6	30.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
20.02.2022	07.00-07.00	89.6	31.6	54.6	11.3	30.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
21.02.2022	07.15-07.15	90	31.1	54.3	11.9	31	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
27.02.2022	07.00-07.00	89.3	27.8	53.3	11.8	27.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
28.02.2022	07.15-07.15	89.8	30.4	56.6	11.4	28.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05

FOR ENVIRO-TECH SERVICES

CHECKED BY

For Enviro-Tech Services

Md Humraj
Lab Manager
AUTHORIZED SIGNATORY

Note:-

1. **Test reports without E T S LAB HOLOGRAM are not issued by our laboratory.**
2. **This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.**
3. **The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.**
4. **The results indicated only refer to the tested samples and listed applicable parameters.**
5. **No complaint will be entertained if received after 7 days of issue of test report.**
6. **Our liability is limited to invoice value only.**

ENVIRO-TECH SERVICES
An Analytical Laboratory

ETS-LAB

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(An ISO 9001:2015, 14001:2015 and 45001-2018 Certified Company)
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Plot No. 1/32, South Side G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001
email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

TC-8771

TEST REPORT

TEST REPORT NO : ETS/579/12/2021 DATE OF REPORT : 05.03.2022

AMBIENT AIR QUALITY MONITORING AND ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA, SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Analysis Start Date : 07.12.2021
Analysis End Date : 05.03.2022
Sampling Done By : ETS STAFF
Sampling Location : AAQ-5 POONDI
Sampling Method : ETS/STP/AIR-01
Sampling Machine Placed At Height : 1.5 MTR. (FROM GROUND)
Weather Condition : CLEAR

Monitoring			Particulates, µg/m³		Gaseous Pollutants, µg/m³					Other Pollutants (Particulate Phase), µg/m³				
Date	Period, hrs.	Fugitive Dust	PM2.5	PM10	SO_2	NO_2	NH_3	O_3 (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m³	As, ng/m³	Ni, ng/m³	C_6H_6, µg/m³	BaP, ng/m³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
04.12.2021	07:30-07:30	86.8	31.3	56.6	9.7	24.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
05.12.2021	07:45-07:45	90.1	32.6	53.1	9.5	28.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
11.12.2021	07:30-07:30	91.2	33.5	53.8	10	27	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
12.12.2021	07:45-07:45	86.5	32.1	54.5	9.4	27.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
18.12.2021	07:30-07:30	87	31.6	53.6	10.9	25.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
19.12.2021	07:45-07:45	89.8	29.8	54.1	10.8	27.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
25.12.2021	07:30-07:30	62	32.3	52.9	10.7	27.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
26.12.2021	07:45-07:45	93.1	34.3	53.8	9.8	26.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
02.01.2022	07:30-07:30	91.2	32.8	55.6	9.9	25.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
03.01.2022	07:45-07:45	87.6	31.2	55.1	10.7	25.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
09.01.2022	07:30-07:30	91.5	35.2	56.2	10.5	26.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
10.01.2022	07:45-07:45	94	33.8	53.5	10.6	27.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
16.01.2022	07:30-07:30	88.1	31.3	55.8	10.3	26.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
17.01.2022	07.15-07.15	87.1	32.3	55.2	10.7	27.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
23.01.2022	07.00-07.00	86.4	31.3	61.5	10.2	26	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
24.01.2022	07.15-07.15	87.5	34.2	62.7	10.2	26.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
30.01.2022	07.00-07.00	90.3	33.9	57.5	10.1	26.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
31.01.2022	07.15-07.15	91.5	34.8	56.8	9.4	27.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
06.02.2022	07.00-07.00	90.1	36.3	58.8	9.6	26.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
07.02.2022	07.15-07.15	91.9	34.1	56.9	10.5	26.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
13.02.2022	07.00-07.00	91.1	31.9	55.8	11	28.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
14.02.2022	07.15-07.15	87.4	32.9	54.8	10.8	30	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
20.02.2022	07.00-07.00	88.8	35	57.2	10.5	29.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
21.02.2022	07.15-07.15	89.2	34.5	56.9	11.1	30.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
27.02.2022	07.00-07.00	88.5	31.2	55.9	11	26.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
28.02.2022	07.15-07.15	89	33.8	59.2	10.6	27.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05

****End of Test Report****

For Enviro-Tech Services

FOR ENVIRO-TECH SERVICES

CHECKED BY

AUTHORIZED SIGNATORY

Note:-
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2. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.
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email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ETS-LAB

TC-8771

TEST REPORT

TEST REPORT NO : ETS/680/12/2021 DATE OF REPORT : 05.03.2022

AMBIENT AIR QUALITY MONITORING AND ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA. SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Analysis Start Date : 07.12.2021
Analysis End Date : 05.03.2022
Sampling Done By : ETS STAFF
Sampling Location : AAQ-6 CHITTAMUR
Sampling Method : ETS/STP/AIR-01
Sampling Machine Placed At Height : 1.5 MTR. (FROM GROUND)
Weather Condition : CLEAR

Monitoring			Particulates, µg/m³		Gaseous Pollutants, µg/m³					Other Pollutants (Particulate Phase), µg/m³				
Date	Period, hrs.	Fugitive Dust	PM2.5	PM10	SO_2	NO_2	NH_3	O_3 (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m³	As, ng/m³	Ni, ng/m³	C_6H_6, µg/m³	BaP, ng/m³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
04.12.2021	08:00-08:00	86.2	30.3	56.3	9.9	23.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
05.12.2021	08:15-08:15	89.5	31.6	52.8	9.7	28	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
11.12.2021	08:00-08:00	90.6	32.5	53.5	10.2	26.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
12.12.2021	08:15-08:15	85.9	31.1	54.2	9.6	26.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
18.12.2021	08:00-08:00	86.4	30.6	53.3	11.1	25.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
19.12.2021	08:15-08:15	89.2	28.8	53.8	11	26.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
25.12.2021	08:00-08:00	61.4	31.3	52.6	10.9	26.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
26.12.2021	08:15-08:15	92.5	33.3	53.5	10	25.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
02.01.2022	08:00-08:00	90.6	31.8	55.3	10.1	24.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
03.01.2022	08:15-08:15	87	30.2	54.8	10.9	25.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
09.01.2022	08:00-08:00	90.9	34.2	55.9	10.7	25.8	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
10.01.2022	08:15-08:15	93.4	32.8	53.2	10.8	27.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
16.01.2022	08:00-08:00	87.5	30.3	55.5	10.5	26	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
17.01.2022	07.15-07.15	86.5	31.3	54.9	10.9	27.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
23.01.2022	07.00-07.00	85.8	30.3	61.2	10.4	25.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
24.01.2022	07.15-07.15	86.9	33.2	62.4	10.4	26.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
30.01.2022	07.00-07.00	90.2	32.9	57.2	10.3	26	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
31.01.2022	07.15-07.15	90.9	33.8	56.5	9.6	26.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
06.02.2022	07.00-07.00	89.5	35.3	58.5	9.8	25.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
07.02.2022	07.15-07.15	91.3	33.1	56.6	10.7	25.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
13.02.2022	07.00-07.00	90.5	30.9	55.5	11.2	28.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
14.02.2022	07.15-07.15	86.8	31.9	54.5	11	29.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
20.02.2022	07.00-07.00	88.2	34	56.9	10.7	28.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
21.02.2022	07.15-07.15	88.6	33.5	56.6	11.3	29.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
27.02.2022	07.00-07.00	87.9	30.2	55.6	11.2	25.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
28.02.2022	07.15-07.15	88.4	32.8	58.9	10.8	26.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05

****End of Test Report****

FOR ENVIRO-TECH SERVICES

For Enviro-Tech Services

AUTHORISED SIGNATORY

Note:-

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4. The results indicated only refer to the tested samples and listed applicable parameters.
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email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

TEST REPORT

TEST REPORT NO. : ETS/581/12/2021 DATE OF REPORT : 05.03.2022

AMBIENT AIR QUALITY MONITORING AND ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU S. RAJU, LEASE AREA: 2.50.0 HA, SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Analysis Start Date : 07.12.2021
Analysis End Date : 05.03.2022
Sampling Done By : ETS STAFF
Sampling Location : AAQ-7 KOLLAMBAKKAM
Sampling Method : ETS/STP/AIR-01
Sampling Machine Placed At Height : 1.5 MTR. (FROM GROUND)
Weather Condition : CLEAR

Monitoring			Particulates, µg/m³		Gaseous Pollutants, µg/m³					Other Pollutants (Particulate Phase), µg/m³				
Date	Period, hrs.	Fugitive Dust	PM2.5	PM10	SO_2	NO_2	NH_3	O_3 (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m³	As, ng/m³	Ni, ng/m³	C_6H_6, µg/m³	BaP, ng/m³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
04.12.2021	08:00-08:00	85.3	30.1	55.6	9.2	23.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
05.12.2021	08:15-08:15	88.6	31.4	52.1	9.0	27.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
11.12.2021	08:00-08:00	89.7	32.3	52.8	9.5	25.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
12.12.2021	08:15-08:15	85	30.9	53.5	8.9	26.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
18.12.2021	08:00-08:00	85.5	30.4	52.6	10.4	24.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
19.12.2021	08:15-08:15	88.3	28.6	53.1	10.3	25.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
25.12.2021	08:00-08:00	60.5	31.1	51.9	10.2	26.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
26.12.2021	08:15-08:15	91.6	33.1	52.8	9.3	25.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
02.01.2022	08:00-08:00	89.7	31.6	54.6	9.4	24.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
03.01.2022	08:15-08:15	86.1	30	54.1	10.2	24.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
09.01.2022	08:00-08:00	90	34	55.2	10	25.1	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
10.01.2022	08:15-08:15	92.5	32.6	52.5	10.1	26.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
16.01.2022	08:00-08:00	86.6	30.1	54.8	9.8	25.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
17.01.2022	07.15-07.15	85.6	31.1	54.2	10.2	26.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
23.01.2022	07.00-07.00	84.9	30.1	60.5	9.7	24.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
24.01.2022	07.15-07.15	86	33	61.7	9.7	25.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
30.01.2022	07.00-07.00	90.1	32.7	56.5	9.6	25.3	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
31.01.2022	07.15-07.15	90	33.6	55.8	8.9	26	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
06.02.2022	07.00-07.00	88.6	35.1	57.8	9.1	25.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
07.02.2022	07.15-07.15	90.4	32.9	55.9	10	24.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
13.02.2022	07.00-07.00	89.6	30.7	54.8	10.5	27.4	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
14.02.2022	07.15-07.15	85.9	31.7	53.8	10.3	28.5	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
20.02.2022	07.00-07.00	87.3	33.8	56.2	10	27.7	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
21.02.2022	07.15-07.15	87.7	33.3	55.9	10.6	28.6	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
27.02.2022	07.00-07.00	87	30	54.9	10.5	24.9	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05
28.02.2022	07.15-07.15	87.5	32.6	58.2	10.1	26.2	<5	<5	<0.1	<0.05	<1.0	<1.0	<1.0	<0.05

****End of Test Report****

For Enviro-Tech Services

Authorized Signatory

FOR ENVIRO-TECH SERVICES

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TC-8771

Plot No. 1/32, South Side G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

	Fugitive Dust	PM2.5	PM10	SO_2	NO_2
	AQQ-1				
Max	97.70	35.60	62.70	9.80	27.80
Max	65.70	29.10	52.90	8.10	22.30
Mean	91.95	32.30	56.07	9.03	24.95
98 Percentile Value	97.25	35.05	62.10	9.75	27.75
STDEV	5.77	1.58	2.43	0.53	1.33
	AQQ-2				
Max	96.40	34.50	61.50	10.40	28.20
Max	64.40	28.00	51.70	8.70	22.70
Mean	90.69	31.20	54.87	9.63	25.35
98 Percentile Value	95.95	33.95	60.90	10.35	28.15
STDEV	5.76	1.58	2.43	0.53	1.33
	AQQ-3				
Max	95.50	33.70	60.70	10.00	27.70
Max	63.50	27.20	50.90	8.30	22.20
Mean	89.82	30.40	54.07	9.23	24.85
98 Percentile Value	95.05	33.15	60.10	9.95	27.65
STDEV	5.76	1.58	2.43	0.53	1.33
	AQQ-4				
Max	94.80	32.90	60.10	11.90	31.00
Max	62.80	26.40	50.30	10.20	25.50
Mean	89.15	29.60	53.47	11.13	28.15
98 Percentile Value	94.35	32.35	59.50	11.85	30.95
STDEV	5.77	1.58	2.43	0.53	1.33
	AQQ-5				
Max	94.00	36.30	62.70	11.10	30.10
Max	62.00	29.80	52.90	9.40	24.60
Mean	88.37	33.00	56.07	10.33	27.25
98 Percentile Value	93.55	35.75	62.10	11.05	30.05
STDEV	5.77	1.58	2.43	0.53	1.33
	AQQ-6				
Max	93.40	35.30	62.40	11.30	29.30
Max	61.40	28.80	52.60	9.60	23.80
Mean	87.79	32.00	55.77	10.53	26.45
98 Percentile Value	92.95	34.75	61.80	11.25	29.25
STDEV	5.78	1.58	2.43	0.53	1.33
	AQQ-7				
Max	92.50	35.10	61.70	10.60	28.60
Max	60.50	28.60	51.90	8.90	23.10
Mean	86.92	31.80	55.07	9.83	25.75
98 Percentile Value	92.05	34.55	61.10	10.55	28.55
STDEV	5.80	1.58	2.43	0.53	1.33

For Enviro-Tech Services

FOR ENVIRO-TECH SERVICES

CHECKED BY

Md Humra
Manager
AUTHORIZED SIGNATORY

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ABSTRACT OF AMBIENT AIR QUALITY DATA

Sl. No.	Parameter	Pollutant Concentration, µg/m³			
		$PM_{2.5}$	PM_{10}	SO_2	NO_2
1	No. of Observations	182	182	182	182
2	10th Percentile Value	17.80	39.90	5.30	17.07
3	20th Percentile Value	18.30	40.50	5.42	17.50
4	30th Percentile Value	18.60	40.90	5.68	17.80
5	40th Percentile Value	19.10	41.30	5.80	18.10
6	50th Percentile Value	19.80	41.60	6.00	18.40
7	60th Percentile Value	20.60	42.10	6.20	18.70
8	70th Percentile Value	21.60	42.59	6.42	19.20
9	80th Percentile Value	22.60	43.20	6.90	19.50
10	90th Percentile Value	23.53	43.80	8.44	21.30
11	95th Percentile Value	24.10	44.80	9.20	22.16
12	98th Percentile Value	24.90	45.20	9.59	23.83
13	Arithmetic Mean	**20.99**	**42.35**	**6.81**	**19.41**
14	Geometric Mean	20.86	42.32	6.67	19.31
15	Standard Deviation	2.50	1.74	1.54	2.14
16	NAAQ Norms*	**60**	**100**	**80**	**80**
17	% Values exceeding Norms*	**0**	**0**	**0**	**0**

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ETS/ QA/ FOR 02 Issue No. 06 Date 01.04.2019 Amd. No. 04 Date 01.04.2019

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TC-8771

TEST REPORT

TEST REPORT NO.: ETS/582/12/2021 DATE OF REPORT: 05.03.2022

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Date of Sampling : 20.02.2022
Analysis Start Date : 25.02.2022
Analysis End Date : 02.03.2022
Sampling Done By : ETS STAFF
Sampling Description : GROUND WATER
Sampling Location : GW-1 VENMARI
Sampling Method : ETS/STP/WATER-02
Sample Quantity : 2.0 + 0.5 Ltr.
Packing Condition : SEALED
Packed In : P.V.C. AND GLASS BOTTLE

S. No.	Test Parameter	Unit	Result	Specification/Limit (As per IS:10500: 2012)		Test Method
				Desirable	Permissible	
1	Colour	Hazen	< 5	5	15	APHA 2120-B
2	Odour	...	Agreeable	Agreeable	Agreeable	APHA 2150-B
3	pH	...	7.53	6.5 - 8.5	No Relaxation	APHA 4500-H+
4	Conductivity	µs/cm	671	Not Specified	Not Specified	APHA 2510-B
5	Turbidity	NTU	< 1	1	5	APHA 2130-B
6	Total Dissolved Solids (TDS)	mg/L	463	500	2000	APHA 2540-C
7	Total Hardness (as $CaCO_3$)	mg/L	122	200	600	APHA 2340-C
8	Calcium (Ca)	mg/L	25.8	75	200	APHA 3500-(Ca)-B
9	Magnesium (Mg)	mg/L	16.2	30	100	APHA 3500-(Mg)-B
10	Total Alkalinity (CaCO3)	mg/L	188	200	600	APHA 2320-B
11	Chloride (Cl)	mg/L	71	250	1000	APHA 4500-(Cl-)-B
12	Sulphate (SO_4)	mg/L	18.6	200	400	APHA 4500-(SO_4)-E
13	Iron (Fe)	mg/L	0.15	0.3	No Relaxation	APHA-3120B
14	Chlorine (Residual)	mg/L	<0.1	0.2	1	APHA 4500-(Cl)-B
15	Fluoride (F)	mg/L	0.16	1	1.5	APHA 4500-(F-)-D
16	Nitrate (NO_3)	mg/L	17	45	No Relaxation	APHA 4500-(NO_3-)-B
17	Copper (Cu)	mg/L	<0.005	0.05	1.5	APHA 3120B
18	Manganese (Mn)	mg/L	<0.005	0.1	0.3	APHA-3120B
19	Mercury (Hg)	ug/L	<0.001	0.001	No Relaxation	APHA-3114C
20	Cadmium (Cd)	mg/L	<0.001	0.003	No Relaxation	APHA 3120B
21	Selenium (Se)	mg/L	<0.005	0.01	No Relaxation	APHA-3120B
22	Aluminium (Al)	mg/L	<0.01	0.03	0.2	APHA-3120B
23	Lead (Pb)	mg/L	<0.005	0.01	No Relaxation	APHA-3120B
24	Zinc (Zn)	mg/L	<0.005	5	15	APHA-3120B
25	Total Chromium (Cr)	mg/L	<0.05	Not Specified	Not Specified	APHA-3120B
26	Boron (B)	mg/L	<0.01	0.5	1	APHA 4500-(B)-C
27	Mineral Oil	mg/L	<0.001	0.5	No Relaxation	IS 3025 (Part-39)
28	Phenolic Compound (C_6H_5OH)	mg/L	Absent	0.001	0.002	APHA 5530-C
29	Anionic Detergent (MBAS)	mg/L	<0.01	0.2	1	APHA 5540-C
30	Cyanide (CN)*	mg/L	Absent	0.05	No Relaxation	APHA 4500-(CN-)-D
31	Total Coliform Count	MPN/100mL	Absent	Shall Not Be Detectable		IS 1622
32	Escherichia coli	MPN/100mL	Absent	Shall Not Be Detectable		IS 1622
33	Barium (Ba)	mg/L	<0.005	0.7	No Relaxation	APHA 3120B
34	Ammonia (as Total NH_3-N)*	mg/L	<0.05	0.5	No Relaxation	APHA 4500-(NH3)-C
35	Sulphide (H_2S)	mg/L	<0.05	0.05	No Relaxation	APHA 4500-(S_2-)-D
36	Molybdenum (Mo)	mg/L	<0.005	0.07	No Relaxation	APHA-3120B
37	Arsenic (As)	mg/L	<0.005	0.01	0.05	APHA 3120B
38	Total Suspended Solids (TSS)	mg/L	<2.0	Not Specified	Not Specified	APHA 2540-D

*****End of Test Report*****

Notes:

FOR ENVIRO-TECH SERVICES

For Enviro-Tech Services

Md Humra

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email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

TEST REPORT

TEST REPORT NO.: ETS/583/12/2021 DATE OF REPORT: 05.03.2022

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA. SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU
Date of Sampling	:	20.02.2022
Analysis Start Date	:	25.02.2022
Analysis End Date	:	02.03.2022
Sampling Done By	:	ETS STAFF
Sampling Description	:	GROUND WATER
Sampling Location	:	GW-2 PERIYAVENMANI
Sampling Method	:	ETS/STP/WATER-02
Sample Quantity	:	2.0 + 0.5 Ltr.
Packing Condition	:	SEALED
Packed In	:	P.V.C. AND GLASS BOTTLE

S. No.	Test Parameter	Unit	Result	Specification/Limit (As per IS:10500: 2012)		Test Method
				Desirable	Permissible	
1	Colour	Hazen	< 5	5	15	APHA 2120-B
2	Odour	...	Agreeable	Agreeable	Agreeable	APHA 2150-B
3	pH	...	7.66	6.5 - 8.5	No Relaxation	APHA 4500-H+
4	Conductivity	µs/cm	747	Not Specified	Not Specified	APHA 2510-B
5	Turbidity	NTU	< 1	1	5	APHA 2130-B
6	Total Dissolved Solids (TDS)	mg/L	516	500	2000	APHA 2540-C
7	Total Hardness,($CaCO_3$)	mg/L	215.5	200	600	APHA 2340-C
8	Calcium,(Ca)	mg/L	46.2	75	200	APHA 3500:(Ca)-B
9	Magnesium,(Mg)	mg/L	23.7	30	100	APHA 3500:(Mg)-B
10	Total Alkalinity,(CaCO3)	mg/L	189	200	600	APHA 2320-B
11	Chloride,(Cl)	mg/L	90.3	250	1000	APHA 4500:(Cl^-)-B
12	Sulphate (SO_4)	mg/L	26	200	400	APHA 4500:(SO_4)-E
13	Iron,(Fe)	mg/L	0.21	0.3	No Relaxation	APHA-3120B
14	Chlorine (Residual)	mg/L	<0.1	0.2	1	APHA 4500:(Cl)-B
15	Fluoride,(F)	mg/L	0.17	1	1.5	APHA 4500:(F^-)-D
16	Nitrate,(NO_3)	mg/L	14	45	No Relaxation	APHA 4500:(NO_3-)-B
17	Copper,(Cu)	mg/L	<0.005	0.05	1.5	APHA 3120B
18	Manganese,(Mn)	mg/L	<0.005	0.1	0.3	APHA-3120B
19	Mercury,(Hg)	ug/L	<0.001	0.001	No Relaxation	APHA-3114C
20	Cadmium,(Cd)	mg/L	<0.001	0.003	No Relaxation	APHA 3120B
21	Selenium,(Se)	mg/L	<0.005	0.01	No Relaxation	APHA-3120B
22	Aluminium,(Al)	mg/L	<0.01	0.03	0.2	APHA-3120B
23	Lead,(Pb)	mg/L	<0.005	0.01	No Relaxation	APHA-3120B
24	Zinc,(Zn)	mg/L	<0.005	5	15	APHA-3120B
25	Total Chromium,(Cr)	mg/L	<0.05	Not Specified	Not Specified	APHA-3120B
26	Boron,(B)	mg/L	<0.01	0.5	1	APHA 4500:(B)-C
27	Mineral Oil	mg/L	<0.001	0.5	No Relaxation	IS 3025 (Part-39)
28	Phenolic Compound,(C_6H_5OH)	mg/L	Absent	0.001	0.002	APHA 5530-C
29	Anionic Detergent,(MBAS)	mg/L	<0.01	0.2	1	APHA 5540-C
30	Cyanide,(CN)*	mg/L	Absent	0.05	No Relaxation	APHA 4500:(CN-)-D
31	Total Coliform Count	MPN/100mL	Absent	Shall Not Be Detectable		IS 1622
32	Escherichia coli	MPN/100mL	Absent	Shall Not Be Detectable		IS 1622
33	Barium,(Ba)	mg/L	<0.005	0.7	No Relaxation	APHA 3120B
34	Ammonia,(as Total NH_3-N)*	mg/L	<0.05	0.5	No Relaxation	APHA 4500:(NH3)-C
35	Sulphide,(H_2S)	mg/L	<0.05	0.05	No Relaxation	APHA 4500:(S_2-)-D
36	Molybdenum,(Mo)	mg/L	<0.005	0.07	No Relaxation	APHA-3120B
37	Arsenic,(As)	mg/L	<0.005	0.01	0.05	APHA 3120B
38	Total Suspended Solids,(TSS)	mg/L	<2.0	Not Specified	Not Specified	APHA 2540-D

*****End of Test Report*****

FOR ENVIRO-TECH SERVICES

For Enviro-Tech Services

AUTHORIZED SIGNATORY

Quality Manager

Format No. ETS/FOR/01 Issue No. 03 Date: 01.04.2020 Page No. 1 of 1

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TEST REPORT

TEST REPORT NO. : ETS/584/12/2021 DATE OF REPORT: 05.03.2022

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA. SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Date of Sampling : 20.02.2022
Analysis Start Date : 25.02.2022
Analysis End Date : 02.03.2022
Sampling Done By : ETS STAFF
Sampling Description : GROUND WATER
Sampling Location : GW-3 CHINNAVELIKADU
Sampling Method : ETS/STP/WATER-02
Sample Quantity : 2.0 + 0.5 Ltr.
Packing Condition : SEALED
Packed In : P.V.C. AND GLASS BOTTLE

S. No.	Test Parameter	Unit	Result	Specification/Limit (As per IS:10500: 2012)		Test Method
				Desirable	Permissible	
1	Colour	Hazen	< 5	5	15	APHA 2120-B
2	Odour	...	Agreeable	Agreeable	Agreeable	APHA 2150-B
3	pH	...	6.96	6.5 - 8.5	No Relaxation	APHA 4500-H+
4	Conductivity	µs/cm	708	Not Specified	Not Specified	APHA 2510-B
5	Turbidity	NTU	< 1	1	5	APHA 2130-B
6	Total Dissolved Solids.(TDS)	mg/L	489	500	2000	APHA 2540-C
7	Total Hardness.($CaCO_3$)	mg/L	192	200	600	APHA 2340-C
8	Calcium.(Ca)	mg/L	34.5	75	200	APHA 3500.(Ca)-B
9	Magnesium.(Mg)	mg/L	21.4	30	100	APHA 3500.(Mg)-B
10	Total Alkalinity.(CaCO3)	mg/L	138	200	600	APHA 2320-B
11	Chloride.(Cl)	mg/L	86.3	250	1000	APHA 4500:(Cl-)-B
12	Sulphate.(SO_4)	mg/L	28.5	200	400	APHA 4500:(SO_4)-E
13	Iron.(Fe)	mg/L	0.12	0.3	No Relaxation	APHA-3120B
14	Chlorine (Residual)	mg/L	<0.1	0.2	1	APHA 4500:(Cl)-B
15	Fluoride.(F)	mg/L	0.14	1	1.5	APHA 4500:(F-)-D
16	Nitrate.(NO_3)	mg/L	18.6	45	No Relaxation	APHA 4500:(NO_3-)-B
17	Copper.(Cu)	mg/L	<0.005	0.05	1.5	APHA 3120B
18	Manganese.(Mn)	mg/L	<0.005	0.1	0.3	APHA-3120B
19	Mercury.(Hg)	ug/L	<0.001	0.001	No Relaxation	APHA-3114C
20	Cadmium.(Cd)	mg/L	<0.001	0.003	No Relaxation	APHA 3120B
21	Selenium.(Se)	mg/L	<0.005	0.01	No Relaxation	APHA-3120B
22	Aluminium.(Al)	mg/L	<0.01	0.03	0.2	APHA-3120B
23	Lead.(Pb)	mg/L	<0.005	0.01	No Relaxation	APHA-3120B
24	Zinc.(Zn)	mg/L	<0.005	5	15	APHA-3120B
25	Total Chromium.(Cr)	mg/L	<0.05	Not Specified	Not Specified	APHA-3120B
26	Boron.(B)	mg/L	<0.01	0.5	1	APHA 4500:(B)-C
27	Mineral Oil	mg/L	<0.001	0.5	No Relaxation	IS 3025 (Part-39)
28	Phenolic Compound.(C_6H_5OH)	mg/L	Absent	0.001	0.002	APHA 5530-C
29	Anionic Detergent.(MBAS)	mg/L	<0.01	0.2	1	APHA 5540-C
30	Cyanide.(CN)*	mg/L	Absent	0.05	No Relaxation	APHA 4500:(CN-)-D
31	Total Coliform Count	MPN/100mL	Absent	Shall Not Be Detectable		IS 1622
32	Escherichia coli	MPN/100mL	Absent	Shall Not Be Detectable		IS 1622
33	Barium.(Ba)	mg/L	<0.005	0.7	No Relaxation	APHA 3120B
34	Ammonia.(as Total NH_3-N)*	mg/L	<0.05	0.5	No Relaxation	APHA 4500:(NH3)-C
35	Sulphide.(H_2S)	mg/L	<0.05	0.05	No Relaxation	APHA 4500:(S_2-)-D
36	Molybdenum.(Mo)	mg/L	<0.005	0.07	No Relaxation	APHA-3120B
37	Arsenic.(As)	mg/L	<0.005	0.01	0.05	APHA 3120B
38	Total Suspended Solids.(TSS)	mg/L	<2.0	Not Specified	Not Specified	APHA 2540-D

*****End of Test Report*****

For Enviro-Tech Services

Rear Admiral
Quality Manager

AUTHORISED SIGNATORY

FOR ENVIRO-TECH SERVICES

CHECKED BY

Format No. ETS/LAB/TR-09, Issue No. 05, Date 01.04.2019, Amd. No. 04 Date 01.04.2019

Note:

1. **Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.**
2. **This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission from the laboratory.**
3. **The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.**
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ENVIRO-TECH SERVICES

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Plot No. 1/32, South Side G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

TC-8771

TEST REPORT

TEST REPORT NO.: ETS/585/12/2021 DATE OF REPORT: 05.03.2022

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA, SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Date of Sampling : 20.02.2022
Analysis Start Date : 25.02.2022
Analysis End Date : 02.03.2022
Sampling Done By : ETS STAFF
Sampling Description : GROUND WATER
Sampling Location : GW-4 POONDI
Sampling Method : ETS/STP/WATER-02
Sample Quantity : 2.0 + 0.5 Ltr.
Packing Condition : SEALED
Packed In : P.V.C. AND GLASS BOTTLE

S. No.	Test Parameter	Unit	Result	Specification/Limit (As per IS:10500: 2012)		Test Method
				Desirable	Permissible	
1	Colour	Hazen	< 5	5	15	APHA 2120-B
2	Odour	...	Agreeable	Agreeable	Agreeable	APHA 2150-B
3	pH	...	7.67	6.5 - 8.5	No Relaxation	APHA 4500-H+
4	Conductivity	µs/cm	659	Not Specified	Not Specified	APHA 2510-B
5	Turbidity	NTU	< 1	1	5	APHA 2130-B
6	Total Dissolved Solids.(TDS)	mg/L	455	500	2000	APHA 2540-C
7	Total Hardness.($CaCO_3$)	mg/L	197.4	200	600	APHA 2340-C
8	Calcium.(Ca)	mg/L	27.5	75	200	APHA 3500.(Ca)-B
9	Magnesium.(Mg)	mg/L	21	30	100	APHA 3500.(Mg)-B
10	Total Alkalinity.(CaCO3)	mg/L	166	200	600	APHA 2320-B
11	Chloride.(Cl)	mg/L	71	250	1000	APHA 4500.(Cl-)-B
12	Sulphate.(SO_4)	mg/L	27	200	400	APHA 4500.(SO_4)-E
13	Iron.(Fe)	mg/L	0.12	0.3	No Relaxation	APHA-3120B
14	Chlorine (Residual)	mg/L	<0.1	0.2	1	APHA 4500.(Cl)-B
15	Fluoride.(F)	mg/L	0.21	1	1.5	APHA 4500.(F-)-D
16	Nitrate.(NO_3)	mg/L	23	45	No Relaxation	APHA 4500.(NO_3-)-B
17	Copper.(Cu)	mg/L	<0.005	0.05	1.5	APHA 3120B
18	Manganese.(Mn)	mg/L	<0.005	0.1	0.3	APHA-3120B
19	Mercury.(Hg)	ug/L	<0.001	0.001	No Relaxation	APHA-3114C
20	Cadmium.(Cd)	mg/L	<0.001	0.003	No Relaxation	APHA 3120B
21	Selenium.(Se)	mg/L	<0.005	0.01	No Relaxation	APHA-3120B
22	Aluminium.(Al)	mg/L	<0.01	0.03	0.2	APHA-3120B
23	Lead.(Pb)	mg/L	<0.005	0.01	No Relaxation	APHA-3120B
24	Zinc.(Zn)	mg/L	<0.005	5	15	APHA-3120B
25	Total Chromium.(Cr)	mg/L	<0.05	Not Specified	Not Specified	APHA-3120B
26	Boron.(B)	mg/L	<0.01	0.5	1	APHA 4500.(B)-C
27	Mineral Oil	mg/L	<0.001	0.5	No Relaxation	IS 3025 (Part-39)
28	Phenolic Compound.(C_6H_5OH)	mg/L	Absent	0.001	0.002	APHA 5530-C
29	Anionic Detergent.(MBAS)	mg/L	<0.01	0.2	1	APHA 5540-C
30	Cyanide.(CN)*	mg/L	Absent	0.05	No Relaxation	APHA 4500.(CN-)-D
31	Total Coliform Count	MPN/100mL	Absent	Shall Not Be Detectable		IS 1622
32	Escherichia coli	MPN/100mL	Absent	Shall Not Be Detectable		IS 1622
33	Barium.(Ba)	mg/L	<0.005	0.7	No Relaxation	APHA 3120B
34	Ammonia.(as Total NH_3-N)*	mg/L	<0.05	0.5	No Relaxation	APHA 4500.(NH3)-C
35	Sulphide.(H_2S)	mg/L	<0.05	0.05	No Relaxation	APHA 4500.(S_2-)-D
36	Molybdenum.(Mo)	mg/L	<0.005	0.07	No Relaxation	APHA-3120B
37	Arsenic.(As)	mg/L	<0.005	0.01	0.05	APHA 3120B
38	Total Suspended Solids.(TSS)	mg/L	<2.0	Not Specified	Not Specified	APHA 2540-D

*****End of Test Report*****

FOR ENVIRO-TECH SERVICES

CHECKED BY

For Enviro-Tech Services

AUTHORIZED SIGNATORY

Quality Manager

Note:

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email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

TC-8771

TEST REPORT NO. : ETS/586/12/2021 DATE OF REPORT: 05.03.2022

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU
Date of Sampling	:	20.02.2022
Analysis Start Date	:	25.02.2022
Analysis End Date	:	02.03.2022
Sampling Done By	:	ETS STAFF
Sampling Description	:	GROUND WATER
Sampling Location	:	GW-5 CHITTAMUR
Sampling Method	:	ETS/STP/WATER-02
Sample Quantity	:	2.0 + 0.5 Ltr.
Packing Condition	:	SEALED
Packed In	:	P.V.C. AND GLASS BOTTLE

S. No.	Test Parameter	Unit	Result	Specification/Limit (As per IS:10500: 2012)		Test Method
				Desirable	Permissible	
1	Colour	Hazen	< 5	5	15	APHA 2120-B
2	Odour	...	Agreeable	Agreeable	Agreeable	APHA 2150-B
3	pH	...	7.03	6.5 - 8.5	No Relaxation	APHA 4500-H+
4	Conductivity	µs/cm	739	Not Specified	Not Specified	APHA 2510-B
5	Turbidity	NTU	< 1	1	5	APHA 2130-B
6	Total Dissolved Solids,(TDS)	mg/L	510	500	2000	APHA 2540-C
7	Total Hardness,($CaCO_3$)	mg/L	216.6	200	600	APHA 2340-C
8	Calcium,(Ca)	mg/L	28	75	200	APHA 3500:(Ca)-B
9	Magnesium,(Mg)	mg/L	18.6	30	100	APHA 3500:(Mg)-B
10	Total Alkalinity,(CaCO3)	mg/L	176	200	600	APHA 2320-B
11	Chloride,(Cl)	mg/L	86.5	250	1000	APHA 4500:(Cl-)-B
12	Sulphate,(SO_4)	mg/L	22	200	400	APHA 4500:(SO_4)-E
13	Iron,(Fe)	mg/L	0.10	0.3	No Relaxation	APHA-3120B
14	Chlorine (Residual)	mg/L	<0.1	0.2	1	APHA 4500:(Cl)-B
15	Fluoride,(F)	mg/L	0.20	1	1.5	APHA 4500:(F-)-D
16	Nitrate,(NO_3)	mg/L	13	45	No Relaxation	APHA 4500:(NO_3-)-B
17	Copper,(Cu)	mg/L	<0.005	0.05	1.5	APHA 3120B
18	Manganese,(Mn)	mg/L	<0.005	0.1	0.3	APHA-3120B
19	Mercury,(Hg)	ug/L	<0.001	0.001	No Relaxation	APHA-3114C
20	Cadmium,(Cd)	mg/L	<0.001	0.003	No Relaxation	APHA 3120B
21	Selenium,(Se)	mg/L	<0.005	0.01	No Relaxation	APHA-3120B
22	Aluminium,(Al)	mg/L	<0.01	0.03	0.2	APHA-3120B
23	Lead,(Pb)	mg/L	<0.005	0.01	No Relaxation	APHA-3120B
24	Zinc,(Zn)	mg/L	<0.005	5	15	APHA-3120B
25	Total Chromium,(Cr)	mg/L	<0.05	Not Specified	Not Specified	APHA-3120B
26	Boron,(B)	mg/L	<0.01	0.5	1	APHA 4500:(B)-C
27	Mineral Oil	mg/L	<0.001	0.5	No Relaxation	IS 3025 (Part-39)
28	Phenolic Compound,(C_6H_5OH)	mg/L	Absent	0.001	0.002	APHA 5530-C
29	Anionic Detergent,(MBAS)	mg/L	<0.01	0.2	1	APHA 5540-C
30	Cyanide,(CN)*	mg/L	Absent	0.05	No Relaxation	APHA 4500:(CN-)-D
31	Total Coliform Count	MPN/100mL	Absent	Shall Not Be Detectable		IS 1622
32	Escherichia coli	MPN/100mL	Absent	Shall Not Be Detectable		IS 1622
33	Barium,(Ba)	mg/L	<0.05	0.7	No Relaxation	APHA 3120B
34	Ammonia,(as Total NH_3-N)*	mg/L	<0.05	0.5	No Relaxation	APHA 4500:(NH3)-C
35	Sulphide,(H_2S)	mg/L	<0.005	0.05	No Relaxation	APHA 4500:(S_2-)-D
36	Molybdenum,(Mo)	mg/L	<0.005	0.07	No Relaxation	APHA-3120B
37	Arsenic,(As)	mg/L	<2.0	0.01	0.05	APHA 3120B
38	Total Suspended Solids,(TSS)	mg/L	<0.05	Not Specified	Not Specified	APHA 2540-D

*****End of Test Report*****

FOR ENVIRO-TECH SERVICES

For Enviro-Tech Services

CHECKED BY

Md Humra

AUTHORIZED SIGNATORY

Note:-

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email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ETS-LAB

TC-8771

TEST REPORT

TEST REPORT NO : ETS/587/12/2021 DATE OF REPORT : 05.03.2022

NOISE MONITORING REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER
LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA.
SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE,
MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Monitoring Start Date : 20.12.2021
Monitoring End Date : 21.12.2021
Monitoring Done By : ETS STAFF
Sampling Method : ETS/STP/NOISE-01
Category Of Area : INDUSTRIAL AREA

Location		N1 - Core Zone			N2 – VENMARI			N3 – PERIYAVENMANI		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	dB(A)	Min dB(A)	Max dB(A)	dB(A)	Min dB(A)	Max dB(A)	dB(A)
1	0600	39.5	40.5	**38.9**	39.5	49.9	**47.5**	33.7	41.9	**39.6**
2	0700	39.5	42.2	**42.1**	42.5	49.7	**47.4**	32.9	42.4	**37.7**
3	0800	40.7	45.5	**43.6**	41.2	49.7	**46.6**	33.3	43.2	**40.8**
4	0900	40.1	47.3	**45.0**	40.4	48.3	**45.8**	34.2	41.7	**39.6**
5	1000	40.6	48.7	**46.6**	43.6	50.0	**48.3**	34.6	46.5	**38.1**
6	1100	41.5	49.2	**47.0**	42.5	49.3	**42.3**	35.7	45.6	**41.4**
7	1200	43.4	45.5	**44.6**	43.7	52.4	**49.7**	36.1	47.8	**44.2**
8	1300	44.5	48.5	**46.6**	43.4	52.9	**49.2**	40.6	48.5	**46.2**
9	1400	44.8	46.6	**45.8**	42.9	50.5	**48.4**	39.6	47.1	**44.7**
10	1500	43.5	50.2	**48.7**	39.8	48.8	**45.8**	34.4	41.9	**39.6**
11	1600	44.8	53.2	**51.3**	37.1	49.9	**47.0**	38.2	45.6	**43.1**
12	1700	45.7	54.4	**51.9**	38.3	48.2	**44.6**	36.4	43.2	**40.7**
13	1800	44.8	51.5	**49.0**	36.4	45.3	**42.7**	36.5	44.5	**42.4**
14	1900	43.8	51.6	**49.6**	38.7	45.9	**43.7**	32.9	42.9	**38.5**
15	2000	40.6	50.6	**48.0**	36.2	44.9	**42.3**	33.3	42.1	**37.6**
16	2100	40.6	51.7	**49.4**	38.6	45.8	**43.3**	34.5	42.3	**40.0**
17	2200	39.7	48.4	**46.4**	35.5	45.1	**42.6**	34.6	43.2	**40.5**
18	2300	38.5	40.2	**39.4**	32.7	43.5	**39.0**	36.1	44.7	**42.1**
19	0000	37.8	39.7	**38.5**	34.8	44.4	**41.7**	34.6	42.9	**38.5**
20	0100	36.4	39.5	**38.8**	31.5	42.9	**40.7**	33.6	41.4	**39.3**
21	0200	34.5	36.7	**35.9**	32.6	43.5	**39.6**	31.4	38.5	**36.4**
22	0300	34.6	38.8	**37.7**	32.6	42.8	**39.1**	32.6	42.6	**38.2**
23	0400	34.7	37.7	**36.6**	33.4	40.5	**38.1**	33.9	40.7	**38.4**
24	0500	33.8	36.7	**35.6**	33.7	41.7	**39.5**	33.5	42.7	**39.8**
			Day Mean dB(A)	46.8		Day Mean dB(A)	45.7		Day Mean dB(A)	40.3
			Night Mean dB(A)	37.6		Night Mean dB(A)	39.5		Night Mean dB(A)	38.5

Note:-

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4. The results mentioned only refer to the tested samples and listed applicable parameters.
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For Enviro-Tech Services ****End of Test Report****

FOR ENVIRO-TECH SERVICES

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AUTHORIZED SIGNATORY

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TEST REPORT

TEST REPORT NO : ETS/588/12/2021 DATE OF REPORT : 05.03.2022

NOISE MONITORING REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER
LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA.
SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE,
MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Monitoring Start Date : 21.01.2022
Monitoring End Date : 22.01.2022
Monitoring Done By : ETS STAFF
Sampling Method : ETS/STP/NOISE-01
Category Of Area : INDUSTRIAL AREA

Location		N4 – CHINNAVELIKADU			N5 – POONDI			N6 – CHITTAMUR		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	dB(A)	Min dB(A)	Max dB(A)	dB(A)	Min dB(A)	Max dB(A)	dB(A)
1	0600	31.6	47.3	**43.2**	42.2	49.3	**46.3**	34.8	40.5	**38.3**
2	0700	29.6	48.6	**45.6**	44.3	46.9	**45.1**	33.6	41.4	**39.1**
3	0800	33.5	49.2	**46.6**	45.1	42.6	**46.5**	31.4	43.2	**39.6**
4	0900	34.5	47.6	**44.6**	45.4	47.6	**46.7**	32.2	40.7	**38.4**
5	1000	38.6	46.5	**44.2**	45.9	48.2	**47.2**	33.6	41.6	**39.1**
6	1100	36.5	45.9	**43.0**	44.3	46.5	**45.5**	31.5	40.5	**38.3**
7	1200	36.5	46.5	**43.3**	43.2	46.2	**45.0**	32.2	40.6	**37.9**
8	1300	35.4	47.4	**44.5**	44.2	45.4	**44.9**	33.8	41.6	**39.2**
9	1400	34.6	45.8	**43.1**	44.8	46.5	**45.6**	35.1	44.4	**41.8**
10	1500	36.5	45.5	**43.4**	42.9	45.7	**45.2**	33.7	43.2	**39.5**
11	1600	38.7	44.5	**42.2**	44.6	46.6	**45.5**	34.6	43.7	**41.4**
12	1700	39.2	48.4	**46.0**	45.5	47.5	**46.4**	35.8	44.5	**42.3**
13	1800	35.1	46.9	**44.2**	45.7	42.3	**46.6**	35.2	42.3	**39.9**
14	1900	39.4	44.3	**42.6**	45.8	47.4	**46.6**	36.4	44.5	**42.2**
15	2000	36.2	47.3	**44.9**	46.2	48.6	**47.2**	31.9	42.2	**36.3**
16	2100	31.5	46.5	**43.6**	45.7	47.6	**46.0**	32.4	40.1	**37.8**
17	2200	32.3	48.6	**45.5**	46.2	47.6	**46.2**	32.6	41.6	**39.2**
18	2300	30.4	42.6	**39.8**	38.7	42.3	**40.9**	32.5	40.6	**38.6**
19	0000	31.7	39.7	**36.7**	35.9	42.3	**40.4**	31.4	39.2	**36.9**
20	0100	31.6	37.6	**35.6**	34.8	38.7	**37.7**	33.4	41.5	**39.1**
21	0200	27.2	36.6	**33.9**	36.1	35.4	**35.3**	32.8	40.3	**38.0**
22	0300	24.4	35.6	**32.9**	34.2	35.5	**34.9**	31.4	39.6	**36.4**
23	0400	26.3	34.7	**32.6**	35.2	38.6	**37.1**	33.6	42.7	**40.2**
24	0500	25.7	32.8	**30.3**	33.5	37.4	**35.8**	32.6	43.8	**38.5**
Day Mean dB(A)				**44.3**	Day Mean dB(A)		**46.6**	Day Mean dB(A)		**39.2**
Night Mean dB(A)				**34.7**	Night Mean dB(A)		**37.7**	Night Mean dB(A)		**38.9**

End of Test Report

Note:-

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email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

TC-8771

TEST REPORT

TEST REPORT NO : ETS/589/12/2021 DATE OF REPORT : 05.03.2022

NOISE MONITORING REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER
LESSEE: THIRU.S. RAJU. LEASE AREA: 2.50.0 HA.
SURVEY NOS. 180/4, 180/5, 180/6, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE,
MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Monitoring Start Date : 22.02.2022
Monitoring End Date : 23.02.2022
Monitoring Done By : ETS STAFF
Sampling Method : ETS/STP/NOISE-01
Category Of Area : INDUSTRIAL AREA

Location	N7 – KOLLAMBAKKAM			
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	dB(A)
1	0600	33.5	38.3	35.5
2	0700	36.6	40.7	38.6
3	0800	34.9	41.5	39.1
4	0900	33.4	39.5	37.4
5	1000	34.5	40.2	37.9
6	1100	33.8	41.9	39.1
7	1200	36.6	43.6	41.2
8	1300	36.8	38.5	36.3
9	1400	34.9	41.7	39.4
10	1500	33.5	40.9	38.6
11	1600	3428	43.4	41.1
12	1700	32.6	40.4	38.1
13	1800	35.5	43.1	40.4
14	1900	36.3	40.6	38.6
15	2000	34.2	43.6	41.5
16	2100	36.8	47.1	44.7
17	2200	33.8	41.7	38.9
18	2300	33.3	42.1	39.7
19	0000	31.5	39.4	37.6
20	0100	32.4	40.3	37.9
21	0200	33.4	41.7	39.3
22	0300	31.4	38.5	36.7
23	0400	32.6	39.8	38.7
24	0500	31.5	37.6	36.3
Day Mean dB(A)				39.5
Night Mean dB(A)				37.3

End of Test Report

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TEST REPORT

TEST REPORT NO.: ETS/590/12/2021 DATE OF REPORT: 05.03.2022

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER, LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA, SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Date of Sampling : 20.02.2022
Analysis Start Date : 25.02.2022
Analysis End Date : 02.03.2022
Sampling Done By : ETS STAFF
Sampling Description : SOIL
Sampling Location : S-1 VENMARI
Sampling Method : ETS/STP/SOIL-01
Sample Quantity : 2.0 Kg.
Packing Condition : SEALED
Packed In : POLY BAG

S. No.	Test Parameter	Unit	Result	Test Method
1	pH	...	7.63	IS 2720 (Part-26)
2	Electrical Conductivity (EC)	µs/cm	332	IS 14767
3	Texture	...	Clay Loam	IS 2720 (Part-4)
4	Sand	%	33.5	IS 2720 (Part-4)
5	Silt	%	35.2	IS 2720 (Part-4)
6	Clay	%	31.3	IS 2720 (Part-4)
7	Water Holding Capacity (WHC)	%	45.6	IS 2720 (Part-2)
8	Bulk Density	g/cm^3	1.27	IS 2386 (Part-4)
9	Porosity	%	32.5	IS 13030
10	Calcium,(Ca)	mg/kg	126	IS 2720 (Part-23)
11	Magnesium,(Mg)	mg/kg	25.8	ETS/STP/SOIL-08
12	Manganese,(Mn)	mg/kg	36.2	ETS/STP/SOIL-18
13	Zinc,(Zn)	mg/kg	0.54	ETS/STP/SOIL-18
14	Boron (as B)	mg/kg	0.43	ETS/STP/SOIL-18
15	Chloride,(Cl)	mg/kg	132	BS 1377 -3
16	Total Soluble Sulphate	mg/kg	135	IS 2720 (Part-27)
17	Potassium (K)	mg/kg	40.6	ETS/STP/SOIL-18
18	Phosphorus (PO4)	mg/kg	0.87	ETS/STP/SOIL-19
19	Total Nitrogen (N)	mg/kg	169	ETS/STP/SOIL-15
20	Cadmium,(Cd)	mg/kg	<0.005	ETS/STP/SOIL-18
21	Chromium,(Cr)	mg/kg	<0.005	ETS/STP/SOIL-18
22	Copper,(Cu)	mg/kg	<0.005	ETS/STP/SOIL-18
23	Lead,(Pb)	mg/kg	0.77	ETS/STP/SOIL-18
24	Iron,(Fe)	mg/kg	2.63	ETS/STP/SOIL-18
25	Organic Matter,(OM)	%	1.45	IS 2720 (Part-22)
26	Organic Carbon,(OC)	%	0.81	BS 1377 -3
27	Cation Exchange Capacity (CEC)	meq/100g	31.6	IS 2720 (Part-24)

*****End of Test Report*****

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Quality Manager

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TC-8771

TEST REPORT

TEST REPORT NO.: ETS/591/12/2021 DATE OF REPORT: 05.03.2022

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA, SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Date of Sampling : 20.02.2022
Analysis Start Date : 25.02.2022
Analysis End Date : 02.03.2022
Sampling Done By : ETS STAFF
Sampling Description : SOIL
Sampling Location : S-2 PERIYAVENMANI
Sampling Method : ETS/STP/SOIL-01
Sample Quantity : 2.0 Kg.
Packing Condition : SEALED
Packed In : POLY BAG

S. No.	Test Parameter	Unit	Result	Test Method
1	pH	...	8.26	IS 2720 (Part-26)
2	Electrical Conductivity (EC)	µs/cm	413	IS 14767
3	Texture	...	Clay Loam	IS 2720 (Part-4)
4	Sand	%	36.2	IS 2720 (Part-4)
5	Silt	%	34.3	IS 2720 (Part-4)
6	Clay	%	29.5	IS 2720 (Part-4)
7	Water Holding Capacity (WHC)	%	40.0	IS 2720 (Part-2)
8	Bulk Density	g/cm³	1.11	IS 2386 (Part-4)
9	Porosity	%	29.6	IS 13030
10	Calcium,(Ca)	mg/kg	160	IS 2720 (Part-23)
11	Magnesium,(Mg)	mg/kg	21.5	ETS/STP/SOIL-08
12	Manganese,(Mn)	mg/kg	25.3	ETS/STP/SOIL-18
13	Zinc,(Zn)	mg/kg	0.82	ETS/STP/SOIL-18
14	Boron (as B)	mg/kg	0.78	ETS/STP/SOIL-18
15	Chloride,(Cl)	mg/kg	139	BS 1377 -3
16	Total Soluble Sulphate	mg/kg	153	IS 2720 (Part-27)
17	Potassium (K)	mg/kg	41.6	ETS/STP/SOIL-18
18	Phosphorus (PO4)	mg/kg	1.52	ETS/STP/SOIL-19
19	Total Nitrogen (N)	mg/kg	169.6	ETS/STP/SOIL-15
20	Cadmium,(Cd)	mg/kg	<0.005	ETS/STP/SOIL-18
21	Chromium,(Cr)	mg/kg	<0.005	ETS/STP/SOIL-18
22	Copper,(Cu)	mg/kg	<0.005	ETS/STP/SOIL-18
23	Lead,(Pb)	mg/kg	0.52	ETS/STP/SOIL-18
24	Iron,(Fe)	mg/kg	2.06	ETS/STP/SOIL-18
25	Organic Matter,(OM)	%	1.71	IS 2720 (Part-22)
26	Organic Carbon,(OC)	%	1.02	BS 1377 -3
27	Cation Exchange Capacity (CEC)	meq/100g	41.0	IS 2720 (Part-24)

*****End of Test Report*****

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TC-8771

TEST REPORT

TEST REPORT NO.: ETS/592/12/2021 DATE OF REPORT: 05.03.2022

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE, THIRU.S. RAJU, LEASE AREA: 2.50.0 HA, SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU
Date of Sampling	:	20.02.2022
Analysis Start Date	:	25.02.2022
Analysis End Date	:	02.03.2022
Sampling Done By	:	ETS STAFF
Sampling Description	:	SOIL
Sampling Location	:	S-3 CHINNAVELIKADU
Sampling Method	:	ETS/STP/SOIL-01
Sample Quantity	:	2.0 Kg.
Packing Condition	:	SEALED
Packed In	:	POLY BAG

S. No.	Test Parameter	Unit	Result	Test Method
1	pH	...	7.66	IS 2720 (Part-26)
2	Electrical Conductivity (EC)	µs/cm	353	IS 14767
3	Texture	...	Clay Loam	IS 2720 (Part-4)
4	Sand	%	37.4	IS 2720 (Part-4)
5	Silt	%	30.2	IS 2720 (Part-4)
6	Clay	%	32.4	IS 2720 (Part-4)
7	Water Holding Capacity (WHC)	%	42.6	IS 2720 (Part-2)
8	Bulk Density	g/cm^3	0.94	IS 2386 (Part-4)
9	Porosity	%	27.1	IS 13030
10	Calcium,(Ca)	mg/kg	163.5	IS 2720 (Part-23)
11	Magnesium,(Mg)	mg/kg	25.6	ETS/STP/SOIL-08
12	Manganese,(Mn)	mg/kg	23.4	ETS/STP/SOIL-18
13	Zinc,(Zn)	mg/kg	1.17	ETS/STP/SOIL-18
14	Boron (as B)	mg/kg	0.63	ETS/STP/SOIL-18
15	Chloride,(Cl)	mg/kg	129.5	BS 1377 -3
16	Total Soluble Sulphate	mg/kg	135.1	IS 2720 (Part-27)
17	Potassium (K)	mg/kg	52.6	ETS/STP/SOIL-18
18	Phosphorus (PO4)	mg/kg	0.86	ETS/STP/SOIL-19
19	Total Nitrogen (N)	mg/kg	158	ETS/STP/SOIL-15
20	Cadmium,(Cd)	mg/kg	<0.005	ETS/STP/SOIL-18
21	Chromium,(Cr)	mg/kg	<0.005	ETS/STP/SOIL-18
22	Copper,(Cu)	mg/kg	<0.005	ETS/STP/SOIL-18
23	Lead,(Pb)	mg/kg	0.78	ETS/STP/SOIL-18
24	Iron,(Fe)	mg/kg	2.23	ETS/STP/SOIL-18
25	Organic Matter,(OM)	%	1.98	IS 2720 (Part-22)
26	Organic Carbon,(OC)	%	1.15	BS 1377 -3
27	Cation Exchange Capacity (CEC)	meq/100g	36	IS 2720 (Part-24)

*****End of Test Report*****

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TC-8771

TEST REPORT

TEST REPORT NO.: ETS/593/12/2021 DATE OF REPORT: 05.03.2022

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU.

Date of Sampling : 20.02.2022
Analysis Start Date : 25.02.2022
Analysis End Date : 02.03.2022
Sampling Done By : ETS STAFF
Sampling Description : SOIL
Sampling Location : S-4 POONDI
Sampling Method : ETS/STP/SOIL-01
Sample Quantity : 2.0 Kg.
Packing Condition : SEALED
Packed In : POLY BAG

S. No.	Test Parameter	Unit	Result	Test Method
1	pH	...	8.02	IS 2720 (Part-26)
2	Electrical Conductivity (EC)	µs/cm	541	IS 14767
3	Texture	...	Clay Loam	IS 2720 (Part-4)
4	Sand	%	31.3	IS 2720 (Part-4)
5	Silt	%	42.6	IS 2720 (Part-4)
6	Clay	%	26.1	IS 2720 (Part-4)
7	Water Holding Capacity (WHC)	%	44.5	IS 2720 (Part-2)
8	Bulk Density	g/cm³	1.05	IS 2386 (Part-4)
9	Porosity	%	33.5	IS 13030
10	Calcium,(Ca)	mg/kg	184.5	IS 2720 (Part-23)
11	Magnesium,(Mg)	mg/kg	33	ETS/STP/SOIL-08
12	Manganese,(Mn)	mg/kg	20.4	ETS/STP/SOIL-18
13	Zinc,(Zn)	mg/kg	1.13	ETS/STP/SOIL-18
14	Boron (as B)	mg/kg	0.74	ETS/STP/SOIL-18
15	Chloride,(Cl)	mg/kg	126	BS 1377 -3
16	Total Soluble Sulphate	mg/kg	150.2	IS 2720 (Part-27)
17	Potassium (K)	mg/kg	41	ETS/STP/SOIL-18
18	Phosphorus (PO4)	mg/kg	1.03	ETS/STP/SOIL-19
19	Total Nitrogen (N)	mg/kg	201	ETS/STP/SOIL-15
20	Cadmium,(Cd)	mg/kg	<0.005	ETS/STP/SOIL-18
21	Chromium,(Cr)	mg/kg	<0.005	ETS/STP/SOIL-18
22	Copper,(Cu)	mg/kg	<0.005	ETS/STP/SOIL-18
23	Lead,(Pb)	mg/kg	1.33	ETS/STP/SOIL-18
24	Iron,(Fe)	mg/kg	2.50	ETS/STP/SOIL-18
25	Organic Matter,(OM)	%	1.75	IS 2720 (Part-22)
26	Organic Carbon,(OC)	%	1.13	BS 1377 -3
27	Cation Exchange Capacity (CEC)	meq/100g	28.5	IS 2720 (Part-24)

*****End of Test Report*****

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TC-8771

TEST REPORT

TEST REPORT NO.: ETS/594/12/2021 DATE OF REPORT: 05.03.2022

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer : PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU.S. RAJU, LEASE AREA: 2.50.0 HA, SURVEY NOS. 180/4, 180/5, 180/6, 180/9, 180/10 & 160/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU

Date of Sampling : 20.02.2022
Analysis Start Date : 25.02.2022
Analysis End Date : 02.03.2022
Sampling Done By : ETS STAFF
Sampling Description : SOIL
Sampling Location : S-5 CHITTAMUR
Sampling Method : ETS/STP/SOIL-01
Sample Quantity : 2.0 Kg.
Packing Condition : SEALED
Packed In : POLY BAG

S. No.	Test Parameter	Unit	Result	Test Method
1	pH	...	7.83	IS 2720 (Part-26)
2	Electrical Conductivity (EC)	µs/cm	352	IS 14767
3	Texture	...	Clay Loam	IS 2720 (Part-4)
4	Sand	%	38.3	IS 2720 (Part-4)
5	Silt	%	33.1	IS 2720 (Part-4)
6	Clay	%	28.6	IS 2720 (Part-4)
7	Water Holding Capacity (WHC)	%	38	IS 2720 (Part-2)
8	Bulk Density	g/cm^3	1.14	IS 2386 (Part-4)
9	Porosity	%	26	IS 13030
10	Calcium,(Ca)	mg/kg	146	IS 2720 (Part-23)
11	Magnesium,(Mg)	mg/kg	23	ETS/STP/SOIL-08
12	Manganese,(Mn)	mg/kg	28.7	ETS/STP/SOIL-18
13	Zinc,(Zn)	mg/kg	1.06	ETS/STP/SOIL-18
14	Boron (as B)	mg/kg	1.69	ETS/STP/SOIL-18
15	Chloride,(Cl)	mg/kg	137	BS 1377 -3
16	Total Soluble Sulphate	mg/kg	146	IS 2720 (Part-27)
17	Potassium (K)	mg/kg	36.4	ETS/STP/SOIL-18
18	Phosphorus (PO4)	mg/kg	1.26	ETS/STP/SOIL-19
19	Total Nitrogen (N)	mg/kg	138.8	ETS/STP/SOIL-15
20	Cadmium,(Cd)	mg/kg	<0.005	ETS/STP/SOIL-18
21	Chromium,(Cr)	mg/kg	<0.005	ETS/STP/SOIL-18
22	Copper,(Cu)	mg/kg	<0.005	ETS/STP/SOIL-18
23	Lead,(Pb)	mg/kg	1.38	ETS/STP/SOIL-18
24	Iron,(Fe)	mg/kg	2.14	ETS/STP/SOIL-16
25	Organic Matter,(OM)	%	1.61	IS 2720 (Part-22)
26	Organic Carbon,(OC)	%	0.85	BS 1377 -3
27	Cation Exchange Capacity (CEC)	meq/100g	39	IS 2720 (Part-24)

*****End of Test Report*****

FOR ENVIRO-TECH SERVICES

For Enviro-Tech Services

CHECKED BY

AUTHORIZED SIGNATORY

Quality Manager

Note:-

1. **Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.**
2. **This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.**
3. **The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.**
4. **The results indicated only refer to the tested samples and listed applicable parameters.**
5. **No complaint will be entertained if received after 7 days of issue of test report.**
6. **Our liability is limited to invoice value only.**

ENVIRO-TECH SERVICES

An Analytical Laboratory

An Environment, Food, Soil & Biological Analytical Laboratory

(An ISO 9001:2015, 14001:2015 and 45001-2018 Certified Company)

Recognised by MoEF (Govt. of India), Accredited by ISO/IEC-17025:2017 (NABL) & UPPCB

Plot No. 1/32, South Side G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

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ETS-LAB

TC-8771

TEST REPORT

TEST REPORT NO.: ETS/595/12/2021 DATE OF REPORT: 05.03.2022

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	PERIYA VENMANI ROUGH STONE AND GRAVEL QUARRY CLUSTER LESSEE: THIRU S. RAJU, LEASE AREA: 2.50.0 HA. SURVEY NOS. 180/4, 180/5, 180/8, 180/9, 180/10 & 180/11, PERIYA VENMANI VILLAGE, MADURANTHAGAM TALUK, KANCHIPURAM DISTRICT, TAMIL NADU
Date of Sampling	:	20.02.2022
Analysis Start Date	:	25.02.2022
Analysis End Date	:	02.03.2022
Sampling Done By	:	ETS STAFF
Sampling Description	:	SOIL
Sampling Location	:	S-6 KOLLAMBAKKAM
Sampling Method	:	ETS/STP/SOIL-01
Sample Quantity	:	2.0 Kg.
Packing Condition	:	SEALED
Packed In	:	POLY BAG

S. No.	Test Parameter	Unit	Result	Test Method
1	pH	...	7.59	IS 2720 (Part-26)
2	Electrical Conductivity (EC)	µs/cm	329	IS 14767
3	Texture	...	Sandy Clay Loam	IS 2720 (Part-4)
4	Sand	%	44.4	IS 2720 (Part-4)
5	Silt	%	18.6	IS 2720 (Part-4)
6	Clay	%	37.0	IS 2720 (Part-4)
7	Water Holding Capacity (WHC)	%	48.3	IS 2720 (Part-2)
8	Bulk Density	g/cm³	0.83	IS 2385 (Part-4)
9	Porosity	%	36.5	IS 13030
10	Calcium,(Ca)	mg/kg	138	IS 2720 (Part-23)
11	Magnesium,(Mg)	mg/kg	29.7	ETS/STP/SOIL-08
12	Manganese,(Mn)	mg/kg	12	ETS/STP/SOIL-18
13	Zinc,(Zn)	mg/kg	0.53	ETS/STP/SOIL-18
14	Boron (as B)	mg/kg	0.44	ETS/STP/SOIL-18
15	Chloride,(Cl)	mg/kg	157	BS 1377 -3
16	Total Soluble Sulphate*	mg/kg	113	IS 2720 (Part-27)
17	Potassium (K)	mg/kg	26.5	ETS/STP/SOIL-18
18	Phosphorus (PO4)	mg/kg	0.74	ETS/STP/SOIL-19
19	Total Nitrogen (N)	mg/kg	245	ETS/STP/SOIL-15
20	Cadmium,(Cd)	mg/kg	<0.005	ETS/STP/SOIL-18
21	Chromium,(Cr)	mg/kg	<0.005	ETS/STP/SOIL-18
22	Copper,(Cu)	mg/kg	<0.005	ETS/STP/SOIL-18
23	Lead,(Pb)	mg/kg	0.47	ETS/STP/SOIL-18
24	Iron,(Fe)	mg/kg	2.66	ETS/STP/SOIL-18
25	Organic Matter,(OM)	%	1.77	IS 2720 (Part-22)
26	Organic Carbon,(OC)	%	1.08	BS 1377 -3
27	Cation Exchange Capacity (CEC)	meq/100g	41	IS 2720 (Part-24)

*****End of Test Report*****

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