
**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT
&
ENVIRONMENT MANAGEMENT PLAN**

B1” CATEGORY – MINOR MINERAL – CLUSTER – NON-FOREST LAND-PATTA LAND

PACHAPALAYAM ROUGH STONE AND GRAVEL CLUSTER QUARRIES

At

Pachapalayam Village, Sulur Taluk, Coimbatore District

For Obtaining

**Environmental Clearance under EIA Notification – 2006
Schedule Sl. No. 1 (a) (i): Mining Project**

IN CLUSTER OVER AN EXTENT OF 13.00.5 Ha

NAME OF PROPOSED PROJECT PROPONENTS APPLYING IN CLUSTER

CODE	Name of the proponent	Extent (Ha)	Terms of Reference (ToR)
P1	Thiru. L.Thangarasu	1.81.5	Lr.No.SEIAA-TN/F.No.9538/SEAC/ToR-1322/2023 Dated:10.02.2023
P2	Thiru.D.Karthikeyan	1.21.0	Lr.No.SEIAA-TN/F.No.8860/SEAC/ToR-1122/2021 Dated:23.03.2022
P3	Thiru.S.Durairaj	1.47.5	Lr.No.SEIAA-TN/F.No.9172/SEAC/ToR-1186/2022 Dated:06.07.2022
P4	Thiru. N. Thangavelu,	4.62.0	Lr No.SEIAA- /F.No.10099/ToR- 1515/2023 Dated: 01.08.2023.

Environmental Consultant

GEO EXPLORATION AND MINING SOLUTIONS



Old No. 260-B, New No. 17,

Advaitha Ashram Road, Alagapuram,

Salem – 636 004, Tamil Nadu, India



Accredited for sector 1 Category ‘A’, sector 31 Category ‘B’ & 38 Category ‘B’

Certificate No : NABET/EIA/2225/RA 0276 Dated: 20.02.2023

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ENVIRONMENTAL LAB

KGS ENVIRO LABORATORY PVT LTD

**No.16, F1, Bharathi flats, Bharathiar Street, Cholambedu Main Road,
Thirumullaivoyal, Chennai – 600 062.**

Baseline Monitoring Season – March 2022 to May 2022

AUGUST- 2023

For the easy representation the proposed, existing, abandoned and expired quarries are designated as below –

PROPOSED QUARRIES				
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	Status
P1	Thiru. L. Thangarasu , S/o. R. Lakshmanasamy, residing at No.3/87, West Arasur, Arasur, Sulur Taluk Coimbatore District,	408/2B and 408/2C, Pachapalayam Village, Sulur Taluk	1.81.5	Obtained ToR vide, Lr.No. SEIAA-TN/F.No.9538/SEAC/ToR-1322/2023 Dated:10.02.2023
P2	Thiru. D. Karthikeyan , S/o. S. Devaraj, residing at Door No.2/15, Post office Street, Periyakuyilai Post, Chettipalayam Via, Coimbatore District, Tamil Nadu State – 641 201	409/1A1(Part), 409/1A2(Part), 409/1B1 and 409/1B2, Pachapalayam Village, Sulur Taluk	1.21.0	Obtained ToR vide, Lr.No. SEIAA-TN/F.No.8860/SEAC/ToR-1122/2021 Dated:23.03.2022
P3	Thiru.S. Durairaj , S/o.Sellappan, Malakkadu Thottam, Periyakuyilai Post, Pachapalayam, Coimbatore District	408/3B and 408/3C, Pachapalayam Village, Sulur Taluk	1.47.5	Obtained ToR vide, Lr.No. SEIAA-TN/F.No.9172/SEAC/ToR-1186/2022 Dated:06.07.2022
P4	Thiru. N. Thangavelu , S/o. Nachimuthu Goundar, No. 153/A, Maraimalai Adigal Street, Palladam Taluk, Tiruppur District – 641 664	407/2A, &407/2B, Pachapalayam Village,	4.62.0	Obtained ToR vide, Lr No.SEIAA-/F.No.10099/ToR-1515/2023 Dated: 01.08.2023.
Total			9.12.0	
NEAREST PROPOSED QUARRY				
CODE	Name of the Proponent and Address	S.F.Nos , Village & Taluk	Extent in Ha	Lease Period
P5	Thiru.K.Ganesh	407/1F, & 407/1G Pachapalayam Village,	2.46.0	Precise area Communicated
Total			2.46.0	
EXISTING QURRIES				
CODE	Name of the Proponent and Address	S.F.Nos , Village & Taluk	Extent in Ha	Lease Period
E-1	Thiru.A. Ayyasamy	407/1D , Pachapalayam Village,	0.37.0	15.09.2017-14.09.2022
E-2	Thiru.M. Appusamy	408/1B,408/2A &408/3A , Pachapalayam Village,	1.05.5	06.12.2017- 05.12.2022
Total			1.42.5	
ABANDONED QURRY				
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	Lease Period

A-1	Thiru.E.Anandhakumar	408-2E, Pachapalayam Village,	1.28.5	11.05.2011 to 10.05.2016
Total			1.28.5	
EXPIRED QURRY				
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	Lease Period
-	-	-	-	-
TOTAL CLUSTER EXTENT			13.00.5 Ha	

Note:-

- **Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016**

As per above notification S.O.2269(E) dated : 01.07.2016 in para (b) in Appendix XI,- (ii)(5): The lease not operative for three years or more and leases which have got environmental clearance as on 15th January, 2016 shall not be counted for calculating the area of cluster, but shall be included in the Environment Management Plan and the Regional Environmental Management Plan”

TERMS OF REFERENCE (ToR) COMPLIANCE

P-1 Thiru. L. Thangarasu,

“ToR issued vide Lr.No. SEIAA-TN/F.No.9538/SEAC/ToR-1322/2023 Dated:10.02.2023”

SPECIFIC CONDITIONS		
1	The proponent must submit certified compliance report obtained from IRO of MoEF&CC as per OM IA3-2 2022 1A-III Dated 08-06.2022.	Noted and agreed
2	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees and safety distance between the adjacent quarries and water bodies nearby provided as per the approved mining plan.	Noted and agreed
3	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1km of the proposed quarry.	Noted and agreed Detailed in water environment chapter-3
4	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	Detailed in Ecology and Biodiversity chapter-3
5	The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.	Noted and agreed
6	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.	Noted and agreed
7	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate. mine foreman, II/I Class mines manager appointed by the proponent	Noted and agreed
8	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30m from the blast site.	Noted and agreed
9	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past. either in the same location or elsewhere in the State with video and photographic evidences.	Noted and agreed Detailed photographic evidences of lease area in chapter-2

10	<p>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.</p> <p>What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?</p> <p>a. Quality of minerals mined out.</p> <p>b. Highest production achieved in any one year</p> <p>c. Detail of approved depth of mining.</p> <p>d. Actual depth of the mining achieved earlier'</p> <p>e. Name of the person already mined in that lease area.</p> <p>f. If EC and CTO already obtained, the copy of the same shall be submitted.</p> <p>g. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</p>	<p>It is a existing lease application Patta land (No.989) Land Release deed Document No.5341/2021</p>
11	<p>All comer coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet. Topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).</p>	<p>Noted and agreed. Project area boundary coordinates superimposed on Toposheet – Figure No. 1.3.</p>
12	<p>The PP shall carry out Drone video survey covering the cluster, green belt, fencing etc..</p>	<p>Noted and agreed</p>
13	<p>The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the proposed quarry based on the volume of rock handled & area of excavation.</p>	<p>Noted and agreed</p>
14	<p>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.</p>	<p>Noted and agreed</p>
15	<p>The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications. The anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.</p>	<p>Details of Geological Resources and Proposed reserves are discussed under Chapter No. 2.</p>
16	<p>The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.</p>	<p>Discussed about Organization chart in Chapter 6</p>
17	<p>The Project Proponent shall conduct the hydrogeological study considering the contour</p>	<p>The hydro-geological study was conducted to evaluate the possible impact on the ground water</p>

	map of the water table detailing the number of ground water pumping & open wells. and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non_monsoon seasons from the PWD /TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data. it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may. be provided.	table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3.
18	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 Data were collected for Summer season March to May 2022 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
19	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of air pollution. water pollution. & Health impacts. Accordingly. the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in chapter – 7
20	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted and agreed
21	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.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3.
22	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area. distance from mine lease, its land use, R&R issues. If any, should be provided.	Not applicable
23	Proximity to Areas declared critically Polluted (or) the Project areas which attracts the court restrictions for mining operation. should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
24	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.	Mine Closure in Chapter -2
25	Impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2

26	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.	Details of the trees in the buffer zone given in Chapter No.3.
27	A detailed mine closure plan for the proposed project shall be included in EIAEMP report which should be site-specific.	Mine closure plan is detailed in Chapter:4.
28	Public Hearing points raised and commitments 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 and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF-& CC accordingly.	Noted and agreed
29	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Noted and agreed
30	The PP shall produce/display the EIA report (, Executive summary and other related information with respect to public hearing in Tamil Language also.	Noted and agreed
31	As a part of the study of flora and fauna around the vicinity of the proposed site. the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study. wherever possible.	Noted and agreed
32	The purpose of green belt around the project is to capture the fugitive emissions. Carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO. State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planed in a mixed manner.	Species are proposed to plant in the safety barrier as mentioned in the ToR appendix. Proposed species are given in the Chapter No 4
33	Taller/one year old Saplings raised in appropriate size of bags. preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	It is an Existing Lease. Around 900 trees are proposed to plant
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan details in Chapter-7
35	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.	A Risk Assessment and management Plan Chapter- 7
36	Occupational Health impacts of the Project should	Occupational Health impacts chapter- 10

	be anticipated and the proposed preventive measures spelt out in detail. details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	It is explained in Chapter -3
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible. quantitative dimensions may be given with time frames for implementation.	Details are listed in Chapter:3.
39	Details of litigation pending against the project, if any. with direction /order passed by any Court of Law against the Project should be given	No Litigation is pending
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic' employment potential, etc.	Noted and agreed
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought. the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is Existing Lease
42	The PP shall prepare the EMP for the entire, life/lease of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	It is explained in Chapter -10 Environment Management Plan
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (protection) Act. 1986.	Noted and agreed

Annexure-B		
1	Cluster Management Committee, which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Noted & agreed
2	The members must coordinate among themselves for the effective implementation of EMP as committed including green belt development, Water sprinkling.	Chapter 6 details of Methodology of Monitoring Mechanism

	tree plantation, blasting, etc,	
3	The List of members of the committees formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/ Mines.	Noted & agreed
4	detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	Noted & agreed
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan	Chapter 7, 7.2 risk assessment and management plan furnished.
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	To be furnish
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Proposal quarry (Existing lease)
8	The committee shall furnish the Emergency Management plan within the cluster.	Noted, to be furnish.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	No Public Health Implications anticipated due to this project. Details of CER and CSR are discussed under Chapter 8.
10	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & bio-diversity. b) Climate change leading to droughts, floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local People. d) Possibilities of water contamination and impact on aquatic ecosystem health.	Noted and agreed. Study report will be submitted in the Final EIA/EMP report.

	<p>e) Agriculture, Forestry & Traditional practices</p> <p>f) Bio-geochemical processes and its foot prints including environmental stress.</p> <p>g) Sediment geochemistry in the surface streams</p> <p>h) Hydrothermal/Geothermal effect due to destruction in the environment.</p>	
11	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted & agreed
12	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Detailed discussed in chapter 7.
13	The measures taken to control Noise, Air, water, Dust Control and steps adopted to efficiently utilise the energy shall be furnished.	Detailed discussed in chapter 4.
14	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	Chapter 3 details of Fauna and flora diversification and impacts of Environment (Chapter 4)
15	Impact on surrounding agricultural fields around the proposed mining Area.	There is no impact agriculture field. Chapter 3, Land environment details of Land use/Landcover.
16	Erosion Control measures.	Detailed discussed in chapter 4.
17	Impact on soil flora & vegetation around the project site.	Chapter 3 details of Fauna and flora diversification and impacts of Environment (Chapter 4)
18	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, water-bodies/ Rivers, & any ecological fragile areas.	Details discussed in the chapter No.4. Page No: 119.
19	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, Water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.	AD Letter 500m Cluster certificate.
20	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.	To be furnished
21	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	Details of carbon emission and mitigation activities are given int the Chapter No.4

	climate mitigation activities.	
22	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem the soil micro flora, fauna and so seed banks and suggest measures to maintain the natural Ecosystem.	Chapter 3, details of Ecology and Biodiversity
23	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Chapter 3,4 details of Ecology and Biodiversity, Impacts of sustainable management of the area.
24	The project proponent shall study impact on fish habitats and the rood web/ food chain in the water body and Reservoir.	The nearest water bodies from the project area are Kuttai in 550m North West and the Odai is 980m South East. No proposal for the disposal of pit water to the nearby water bodies hence this project will not create impact to the food chain in the water body. After completion of quarry operation, the pit will act as temporary reservoir and pisciculture activities will be involved. Details of Nearest water bodies from the project site is given in Chapter No. 3, Table No 3.4, Page No 65.
25	The terms of Reference should specifically study impact on soil health, soil erosion. the soil physical. chemical components and microbial components.	There is no Top soil in the project area, the overburden in the form of Gravel formation. Details of impact on soil environment is detailed in Chapter No.4, Page No 120.
26	The Environmental Impact assessment should study impact on forest, vegetation, endemic vulnerable and endangered indigenous flora and fauna.	The area is surrounded by Coconut plantation, existing quarries on the NE and South Barren land on South East and West. Coconut plantation is the main agriculture activity in the study area. Details of flora and fauna studies given in the Chapter No.3, Page No. 107
27	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	The entire area is a broken land, No major trees within the project area
28	The Environmental Impact Assessment should study on wetlands, water bodies. Rivers streams. lakes and farmer sites.	Nearest agriculture activity is coconut plantation located North side of the project area. Proponent erected fencing in the previous lease period. The same will be reconstructed around the quarry pits.
29	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	Budgetary allocation is given in the Chapter No. 4, Table No 4.13, Page No.139.
30	The Environmental impact Assessment should study impact on climatic change. Temperature rise, pollution and above soil & below soil carbon stock.	The project will not cause significant impact on climatic change. Description about the project and climatic changes is described in Chapter No.4.
31	The Environmental Impact Assessment should study impact on protected areas' Reserve Forests. National	Anticipated Environment Impact and Mitigation measures are detailed in Chapter No.4. Page

	Parks, Corridors and Wildlife pathways, near project site.	No.130.
32	The project proponent shall study and furnish the impact of project on plantations in adjoin pattalands, Horticulture, Agriculture and livestock.	The project area is bounded by Existing quarries on the south side East and west side of the area is dry barren land no agriculture activities carried out.
33	The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.	Chapter 3 details of Ecology and Bio diversity.
34	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site and archaeological sites possible land form changes visual and aesthetic impacts.	Noted & agreed. Detailed under Chapter 3.
35	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. the ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Chapter 3 details of Ecology and Bio diversity.
36	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	There is no RF and wildlife.
37	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers' tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data. it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	Chapter3, details of Water Environment with Ground water and surface water details etc.
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method or mining activity, & its related activities covering the entire mine lease period as per precise area communication order issued.	Chapter 7, 7.3 disaster management plan furnished.
39	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Chapter 7, 7.2 risk assessment and management plan furnished.
40	detailed Mine Closure plan covering the entire mine lease period as per precise area communication order	Chapter2, detailed Mine Closure plan Closure Plan and Sections

	issued.	
41	Detailed Environment Management plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed Environment Management Plan for the project to mitigate the anticipated impacts described under Chapter 4 is discussed under Chapter 10.

TERMS OF REFERENCE (ToR) COMPLIANCE

P-2 Thiru.D.Karthikeyan

“ToR issued vide Lr.No.SEIAA-TN/F.No.8860/SEAC/ToR-1122/2021 Dated:23.03.2022

SPECIFIC CONDITIONS		
1	The Proponent shall carry out the cumulative & comprehensive impact study due to mining operations carried out in the quarry cluster specifically with reference to the environment in terms of air pollution, water pollution, & health impacts, accordingly the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	Detailed cluster mapping in chapter 1 and chapter 10 Environment Management plan.
2	The PP shall furnish the certified EC compliance report shall be included in the EIA Report.	Noted and agreed
3	The entire Cluster of mine lease area shall be video graphed through Drone and submit the same along with EIA report.	Noted and agreed
4	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 ADDD mines? b) Quantity of minerals mined out. c) Highest production achieved in any one year d) Detail of approved depth of mining. e) Actual depth of the mining achieved earlier. l) Name of the person already mined in that leases area. g) If EC and CTO already obtained, the copy of the same shall be submitted. h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	<p>☞ the applied area has been considered quarrying operation earlier. The quarry lease was first granted in favour of Thiru. K. Shanmugam, over an extent of 1.78.0 hectares of Patta land in S.F.No. 409/1 of Pachapalayam village, Suler (formerly Palladam) Taluk, Coimbatore District vide R.C.No. 973/2005/M.M.2, dated: 24.05.2005 for the period of Five years.</p> <p>☞ Another quarry lease was granted in favour of Tmt. D. Bakkiyalakshmi, over an extent of 0.89.0 hectares of Patta land in S.F.No. 409/1B of Pachapalayam village, Suler Taluk, Coimbatore District vide R.C.No. 190/2011/M.M-2, dated: 28.09.2011 for the period of three years from 28.09.2011 to 31.10.2014.</p> <p>There is an existing quarry pit.</p>
5	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Toposheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Noted and agreed. Project area boundary coordinates superimposed on Toposheet – Figure No. 1.
6	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees	Noted and agreed Chapter 3 details of Ecology and Bio diversity.

	& safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	
7	The Project Proponent shall provide the details of mineral reserves and mineable reserves. planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	Details of Geological Resources and Proposed reserves are discussed under Chapter No. 2.
8	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Discussed about Organization chart in Chapter 6
9	The Project Proponent shall conduct the hydrogeological study considering the contour map of the water table detailing the number of ground water pumping & open wells. and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non_monsoon seasons from the PWD /TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data. it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may. be provided.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3.
10	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 Data were collected for One Season (Summer season) March to May 2022 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3
11	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.	Details of the trees in the buffer zone given in Chapter No.3.
12	A detailed mine closure plan for the proposed project shall be included in EIAEMP report (which should be site-specific.	Mine closure plan is detailed in Chapter:4
13	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Noted and Agreed
14	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	Noted and Agreed

	O.A.No.405 12016 md, O.A.No.520 of 2016 (M.A.No. 981/2016, M.A.No.982/2016 & M.A.No.384/2017).	
15	The purpose of green belt around the project is to capture the fugitive emissions. Carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planed in a mixed manner.	Species are proposed to plant in the safety barrier as mentioned in the ToR appendix. Proposed species are given in the Chapter No 4
16	Taller/one year old Saplings raised in appropriate size of bags. preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	It is an Existing Lease. Around 600 trees are proposed to plant
17	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan details in Chapter-7
18	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.	A Risk Assessment and management Plan Chapter- 7
19	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Details are listed in Chapter:3.
20	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is an Existing Lease
21	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (protection) Act. 1986.	Noted and agreed
GENERAL CONDITIONS		
1	As per the MoEF& CC office memorandum F.No.22_65/2017 [A.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the	Noted and agreed

	concerns raised during the public consultation and all the activities proposed shall be plan 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 the emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given int the Chapter No.4
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.	Discussed in Chapter: 3.
4	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	The Eco System of the area will be retained during the mining operation by the way of planting trees in the boundary barrier and un utilized areas. After completion of mining operation, the quarried-out pit will be facilitated to collect the rainwater to pit act as temporary reservoir.
5	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Nearest water bodies are Kuttai, odai, Nadi, Kothavadi Lake, Pallapalayam lake etc.,
6	The Terms of Reference should specifically study impact on soil health, soil erosion the soil physical, chemical components and microbial components.	There is no Top soil in the project area, the overburden in the form of Gravel formation. The Gravel has been removed during the previous lease period. No proposal for the removal of Top soil in this plan period. Details of impact on soil environment is detailed in Chapter No.4.
7	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The area is surrounded by quarries on the North, East, South side. Coconut plantation is the main agriculture activity in the study area. Details of flora and fauna studies given in the Chapter No.3.
8	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	About 1300 trees is planted in safety and along roads
9	The Environmental impact Assessment should study on wetlands, water bodies, rivers streams. lakes and farmer sites.	Details are discussed in the Chapter No 3.
10	The Environmental impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	Detailed Environmental Management plan with budgetary allocations given in the Chapter No. 10,
11	The Environmental Impact Assessment should study impact on climate change. Temperature rise, pollution and above soil & below soil carbon stock.	The project will not cause significant impact on climatic change. Description about the project and climatic changes is described in Chapter No.3
12	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests. National Parks, Corridors and Wildlife pathways, near project site.	Anticipated Environment Impact and Mitigation measures are detailed in Chapter No.4

13	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	The project area is bounded by Existing quarries on the East, South and west side and crusher located on North side. Proponent proposed to erect green mesh along with fencing on the South side besides, Budgetary allocation given in the Chapter No. 10.
14	The project proponent shall study and furnish the details on postcoital fragmentation impact of natural environment, by the activities.	Noted and agreed
15	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	Noted and agreed
16	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Plastic waste management plan has been suggested in Chapter:7.
17	The project proponent shall submit detailed study on impact of mining on Reserve forests free ranging wildlife.	Noted and agreed

TERMS OF REFERENCE (ToR) COMPLIANCE

P-3 Thiru.S.Durairaj

“ToR issued vide Lr.No.SEIAA-TN/F.No.9172/SEAC/ToR-1186/2022 Dated:06.07.2022”

SPECIFIC CONDITIONS		
1	In the case of proposed lease in an existing (or old) quarry where the benches are non-existent (or partially formed critical of the bench geometry approved in the Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action plan' for carrying out the realignment of the 'highwall' benches to ensure slope stability in the proposed quarry lease which shall be vetted by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.	Noted and agreed
2	The PP shall include the letter received from DFO concerned stating the proximity details of Reserve Forests, Protected from the proposed site.	Noted and agreed
3	The PP shall conduct a survey regarding the structures/wind mill etc., located in 500m radius from the project site and the same shall be included in the EIA report.	Noted and agreed
4	The Proponent shall submit a conceptual 'slope stability plan' for the proposed quarry indicating the proposed stabilizing measures during the appraisal while obtaining the EC, as the depth of the proposed working is extended beyond 30 m below ground level.	Noted and agreed
5	The Proponent shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager directly employed on fulltime basis only by the proponent.	Noted and Agreed
6	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	Noted and agreed
7,8	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 ADDD mines? b) Quantity of minerals mined out. c) Highest production achieved in any one year d) Detail of approved depth of mining. e) Actual depth of the mining achieved earlier. l) Name of the person already mined in that leases area. g) If EC and CTO already obtained, the copy of the same shall be submitted. h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	It is a fresh application; the area has been quarrying earlier. Jointly Registered the Name of Applicant (Durairaj), Ravichandran and Subbulakshmi vide Patta Nos.574 & 471.
9	All comer coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Toposheet, topographic sheet,	Noted and agreed. Project area boundary coordinates superimposed on Toposheet – Figure No. 1.3.

	geomorphology, lithology and geology of the mining lease area should be provided. Such an imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	
10	The PP shall carry out Drone video survey covering the cluster. Green belt, fencing etc.,	Noted and agreed
11	The proponent shall furnish photographs of adequate fence, 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.	Noted and agreed
12	The Project Proponent shall provide the details of mineral reserves and mineable reserves. planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	Details of Geological Resources and Proposed reserves are discussed under Chapter No. 2.
13	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Discussed about Organization chart in Chapter 6
14	The project proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc., within 1 Km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/ TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect ground water. Necessary data and documentation in this regard may be provided.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3, Page No 45 No of Ground water pumping wells, Open wells within radius of 1km along with Contour map is given in the Chapter No.3 Page No.46-49 Table No. 3.11 & 3.12. Figure No. 3.6 & 3.7.
15	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 Data were collected for One Season (Summer season) March to May 2022 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
16	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of air pollution. water pollution. & Health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in chapter – 7
17	Rain water harvesting management with recharging details along with water balance (both	Noted and agreed

	monsoon & non-monsoon) be submitted.	
18	Issues relating to Mine Safety, including slope geometry in case of Granite quarrying, blasting parameters etc. should be detailed. The proposed safeguard measures in each case should also be provided.	Noted and agreed
19	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.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3.
20	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues. If any, should be provided.	Not applicable
21	Since non-saleable waste /OB / intermediate waste etc. is huge in the granite quarry, the Proponent shall provide the details pertaining to management of the above material with year wise utilization and average moving inventory be submitted.	Not applicable
22	Proximity to Areas declared critically Polluted (or) the Project areas which attracts the court restrictions for mining operation, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range
23	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	Mine Closure in Chapter -2
24	Impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2
25	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.	Details of the trees in the buffer zone given in Chapter No.3.
26	A detailed mine closure plan for the proposed project shall be included in EIAEMP report (which should be site-specific.	Mine closure plan is detailed in Chapter:4.
27	Public Hearing points raised and commitments 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 and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF-& CC	Noted and agreed

	accordingly.	
28	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Noted and Agreed
29	The PP shall produce/display the EIA report (, Executive summary and other related information with respect to public hearing in Tamil Language also.	Noted and Agreed
30	As a part of the study of flora and fauna around the vicinity of the proposed site. the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study. wherever possible.	Noted and Agreed
31	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 12016 md, O.A.No.520 of 2016 (M.A.No. 981/2016, M.A.No.982/2016 & M.A.No.384/2017).	Noted and Agreed
32	The purpose of green belt around the project is to capture the fugitive emissions. Carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO. State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planed in a mixed manner.	Species are proposed to plant in the safety barrier as mentioned in the ToR appendix. Proposed species are given in the Chapter No 4
33	Taller/one year old Saplings raised in appropriate size of bags. preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	It is an Existing Lease. Around 740 trees are proposed to plant
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the Lease period.	Disaster management Plan details in Chapter-7
35	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.	A Risk Assessment and management Plan Chapter- 7
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive	Occupational Health impacts chapter- 10

	measures spelt out in detail. details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Details are listed in Chapter:3 &7
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible. quantitative dimensions may be given with time frames for implementation.	Details are listed in Chapter:3.
39	Details of litigation pending against the project, if any. with direction /order passed by any Court of Law against the Project should be given.	No Litigation is pending
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic' employment potential, etc.	Noted and agreed
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought. the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is a Existing Lease
42	Consealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted and agreed
ADDITIONAL CONDITIONS		
1	Detailed study shall be carried out regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.	Noted and agreed
2	As per the MoEF& CC office memorandum F.No.22-65/2017-1A 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.	Noted and agreed
3	The Environmental Impact Assessment shall study in detail on 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.	Noted and agreed Detailed under Chapter 3.

4	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Noted and agreed Detailed under Chapter 3.
5	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed. Detailed under Chapter 4.
6	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the nearby water body and Reservoir.	Noted & agreed. Detailed under Chapter 3.
7	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	Noted & agreed. Detailed under Chapter 3.
8	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Noted & agreed. Detailed under Chapter 3.
9	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Noted & agreed. Detailed under Chapter 3.
10	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Noted & agreed. Detailed under Chapter 3.
11	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	Noted & agreed. Detailed under Chapter 10.
12	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Noted & agreed. Detailed under Chapter 3.
13	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Noted & agreed. Detailed under Chapter 3.
14	The project proponent shall study and furnish the impact of project on plantations in adjoin patta lands, Horticulture, Agriculture and livestock.	Noted & agreed. Detailed under Chapter 3.
15	The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.	Noted & agreed. Detailed under Chapter 3.
16	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site. And archaeological sites possible land form changes visual and aesthetic impacts.	Noted & agreed. Detailed under Chapter 3.
17	The project proponent shall study and furnish the possible pollution due to plastic and micro plastic on the environment. The ecological risks and impacts of plastic & micro plastic on aquatic environment and fresh water systems due to activities contemplated during mining may be investigated and reported.	Noted & agreed. Detailed under Chapter 3.
18	The project proponent shall study on impact of mining on Reserve forests free ranging wildlife.	Noted & agreed. Detailed under Chapter 3.
19	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise	Noted and agreed

	area communication order issued from reputed research institutions on the following	
	a) Soil health & bio-diversity.	
	b) Climate change leading to Droughts, Floods etc. SEIAA-TN	
	c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people,	
	d) Possibilities of water contamination and impact on aquatic ecosystem health.	
	e) Agriculture, Forestry & Traditional practices.	
	f) Hydrothermal/Geothermal effect due to destruction in the Environment.	
	g) Bio-geochemical processes and its foot prints including environmental stress.	
	h) Sediment geochemistry in the surface streams:	
20	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 km (radius) so as to assess the impacts on the nearby water bodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. covering the entire mine lease period.	Noted & agreed. Detailed under Chapter 3.
21	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Noted & agreed. Detailed under Chapter 7.
22	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Noted & agreed. Detailed under Chapter 7
23	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Noted & agreed. Detailed under Chapter 2.
24	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Noted & agreed. Detailed under Chapter 10

TERMS OF REFERENCE (ToR) COMPLIANCE

P-4 Thiru. N. Thangavelu,

“ToR issued vide Lr No.SEIAA- /F.No.10099/ToR- 1515/2023 Dated:

01.08.2023.

SPECIFIC CONDITIONS		
1	The PP shall furnish mitigation measures for the non-compliance stated in the certified Compliance Report (CCR) dt: 15.06.2023	Noted and agreed
2	The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.	Not applicable, there is no worship around 500m radius
3	SEAC has noted habitations and school (1.27km) around the proposed mining area- hence the PP shall submit details of mining methodology and impact of dust/particulate emission and vibration on the surrounding environment in regard to peak production of the cluster area along with details of transport route of quarried minerals & mitigation measures adopted for fly rock and fugitive emission due to vehicular movement/ transport route.	Noted and agreed
4	The proponent shall furnish a revised EMP budget for entire life of proposed mining.	Chapter 10 explained EMP budget.
Annexure-1		
1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	Noted and agreed
2	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	Noted and agreed
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of	Not applicable, there is no worship around 500m radius

	residents, their profession and income, etc	
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, watertanks, etc are located within 1km of the proposed quarry.	Noted and agreed
5	The Proponent shall carry out Biodiversity study through reputed Institution and the same shall be included in EIA Report.	Explained Biodiversity study chapter 3 and 4
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site'	Noted and agreed
7	In the case of proposal lease in an existing (or old) quarry where the benches are not formed (or partially formed) as per the approved mining plan, the project proponent (PP) shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed research and Academic institutions- CSIR-Central institute of mining and fuel research/Dhanbad, NIRM Bangalore, Division of geotechnical engineering-IIT-Madras, NIT-Dept of Mining engg. Surathkal and Anna University Chennai-CEG campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Noted and agreed
8	The Proponent shall submit a conceptual 'slope stability plan' for the proposed quarry indicating the proposed stabilizing measures during the appraisal while obtaining the EC, as the depth of the proposed working is extended beyond 30 m below ground level.	Noted and agreed
9	The Proponent shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager directly employed on fulltime basis only by the proponent.	Not applicable
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	Noted and agreed
11	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	Noted and agreed
12	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall	Noted and agreed

	furnish the following details from AD/DD, mines,	
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Noted and agreed
14	Quantity of minerals mined out. <ul style="list-style-type: none"> • Highest production achieved in any one year • Detail of approved depth of mining. • Actual depth of the mining achieved earlier. • Name of the person already mined in that leases area. • If EC and CTO already obtained, the copy of the same shall be submitted. • Whether the mining was carried out as per the approved mine plan (or EC if issued) • with stipulated benches. 	Noted and agreed
15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Toposheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Noted and agreed. Project area boundary coordinates superimposed on Toposheet – Figure No. 1.3.
16	The PP shall carry out Drone video survey covering the cluster. Green belt, fencing etc.,	Noted and agreed
17	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Noted and agreed
18	The Project Proponent shall provide the details of mineral reserves and mineable reserves. planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	Details of Geological Resources and Proposed reserves are discussed under Chapter No. 2.
19	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Discussed about Organization chart in Chapter 6
20	The Project Proponent shall conduct the hydrogeological study considering the contour map of the water table detailing the number of ground water pumping & open wells. and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non_monsoon seasons from the PWD /TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data. it may	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3.

	clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may. be provided.	
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality. soil quality & flora/fauna including traffic /vehicular movement study.	Baseline Data were collected for One Season (Summer) Mar to May2022 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of air pollution. water pollution. & Health impacts. Accordingly. the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in chapter – 7
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted and agreed
24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary. national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3.
25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area. distance from mine lease, its land use, R&R issues. If any, should be provided.	Not applicable
26	Proximity to Areas declared critically Polluted (or) the Project areas which attracts the court restrictions for mining operation. should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in ‘Critically Polluted’ Area and does not come under ‘Aravalli Range.
27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Mine Closure in Chapter -2
28	Impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2
29	A tree survey study shall be carried out (nos., name of the species, age, diameter etc..) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Details of the trees in the buffer zone given in Chapter No.3.
30	A detailed mine closure plan for the proposed project shall be included in EIAEMP report (which should be site-specific.	Mine closure plan is detailed in Chapter:4.

31	As a part of the study of flora and fauna around the vicinity of the proposed site. the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study. wherever possible.	Noted and Agreed
32	The purpose of green belt around the project is to capture the fugitive emissions. Carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO. State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planed in a mixed manner.	Species are proposed to plant in the safety barrier as mentioned in the ToR appendix. Proposed species are given in the Chapter No 4
33	Taller/one year old Saplings raised in appropriate size of bags. preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	It is an Existing Lease. Around 1530 trees are proposed to plant
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan details in Chapter-7
35	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.	A Risk Assessment and management Plan Chapter- 7
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts chapter- 10
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	It is explained in Chapter -3
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible. quantitative dimensions may be given with time frames for implementation.	Details are listed in Chapter:3.
39	Details of litigation pending against the project, if any. with direction /order passed by any Court of	No Litigation is pending

	Law against the Project should be given	
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic' employment potential, etc.	Noted and agreed
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought. the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is an Existing Lease area
42	the PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	- Details of EMP are given in the Chapter No.10
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted and agreed

ADDITIONAL CONDITIONS		
Annexure -B Cluster Management Committee		
1	Cluster Management Committee, which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Details in chapter 1 and 7 salient features of quarry with existing quarry.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,	Noted & agreed
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Noted & agreed
4	Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	Transport details in chapter-2
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Noted & agreed
6	The Cluster Management Committee shall from Environmental Policy to practice sustainable mining in scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Noted & agreed
7	The committee shall furnish action plan regarding the restoration strategy with respect to the	Noted & agreed

	individual quarry falling under the cluster in a holistic manner.	
8	The committee shall furnish the Emergency Management plan within the cluster.	Details discussed in chapter 7.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Details discussed in chapter 10.
10	The committee shall furnish an action plan to achieve sustainable development goals with inference to water, sanitation & safety.	Noted & agreed
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents	Detailed discussed in chapter 7.
Impact study of mining		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as precise area communication order issued from reputed search institutions on the following. a) Soil health and soil biological, physical land chemical features. b) Climate change leading to droughts, floods etc. c) Pollution leading to release of greenhouse gases (GHG), rise in temperature and Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health. e) Agriculture, forestry and traditional practices. f) Hydrothermal/Geothermal effect due to destruction in the environment. g) Bio-geochemical processes and its foot prints including environmental stresses. h) Sediment geochemistry in the surface streams.	It is explained Chapter3 Soil environment and lab details etc.,
13	Impact on surrounding agricultural fields around the proposed mining Area.	Detailed discussed in chapter 4.
14	Impact on soil flora & Vegetation around the project site.	Detailed discussed in chapter 4.
15	Details of type of vegetation including no. of trees & Shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	Details in Chapter 2,3 and 7
16	The EIA should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural ecosystem.	Details in Chapter 3
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	
18	The project proponent shall study and furnish the impact of project on adjoining Patta lands, Horticulture, Agriculture and livestock.	The project area is bounded by Existing quarries on the East, South and west side and crusher located on North side. Nearest Coconut agriculture land is situated South side of the area. Proponent proposed to erect green mesh along with fencing on the South side besides, Budgetary allocation given in the Chapter No. 10.
Forests		

19	The project proponent shall detail study on Impact of mining on Reserve forests free ranging wildlife.	Noted and agreed, there is no reserve forest and wildlife in the buffer zone.
20	The Environmental Impact assessment should study impact on forests, vegetation, endemic, vulnerable and endangered indigeneous flora and fauna.	Detailed discussed in the chapter 3 Flora and Fauna study and important.
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for production.	Detailed discussed in the chapter 4
22	The Environmental Impact Assessment should study impact on protected areas, RF, National Park, Corridors and wildlife pathways, near project site.	Noted and agreed, there is no reserve forest and wildlife in the buffer zone.
Water Environment		
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within km (radius) so as to assess the impacts on the nearby water bodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	Detailed discussed in the chapter 3.
24	Erosion Control Measures.	Not applicable
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, waterbodies/Rivers and any ecological fragile areas.	Details in Chapter 2
26	The project proponent shall study impact on fish habitats and the food WEB/food chain in the waterbody and Reservoir.	Details in Chapter 2 and 4 impact of bio diversity.
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment by the activities.	Noted & agreed. Detailed under Chapter 3.
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	Noted & agreed. Detailed under Chapter 3.
29	The terms of Reference should specifically study impact on soil health, Soil Erosion, the soil physical, chemical components and microbial components.	Details in Chapter 3 soil environment.
30	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Nearest agriculture activity is coconut plantation located North side of the project area. Proponent erected fencing in the previous lease period. The same will be reconstructed around the quarry pits
Energy		
31	The measure taken control Noise, Air, water, dust control and steps adopted to efficiently utilize the energy shall be furnished.	Details in Chapter 3 environmental monitoring details.
Climate changes		

32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest to measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given in the Chapter No.4
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and soil and below soil carbon stock.	Details in Chapter-3 for meteorological and climate/weather data representation of graphs.
Mine Closure Plan		
34	Detailed mine closure plan covering the entire mine lease period as per precise area communication order issued.	Details in Chapter 2 mine closure plan
EMP		
35	Detailed environment management plan along with adaptation, mitigation and remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed environment management plan in chapter 6 and 10 covering the entire mine lease period.
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	Details in Green belt development in chapter 7
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	A Risk Assessment and management Plan Chapter- 7
Disaster management plan		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/unfavorable accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Disaster management Plan details in Chapter-7
Others		
39	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations. Schools, Archaeological sites, structures, railway lines, roads, water bodies such as streams, odis, vaari, canal, channel, river, lake pond, tank etc.,	Details in chapter-2 with attached annexure
40	As per the MoEF &CC office memorandum F.No.22-65/2017-IA.III dated:30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management plan.	Noted and agreed, to be furnished public hearing
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastics & Microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Details of carbon emission and mitigation activities are given in the Chapter No.4

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.	Not applicable. This is Not a violation category project. This proposal falls under B1 Category
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 applied land for quarrying is a Patta Land. Document is enclosed along with Approved Mining Plan as Annexure Volume 1.
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	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).	Map showing – Project area is with adjacent quarries details is enclosed in Figure No1.1 Project area boundary coordinates superimposed on Toposheet – Figure No. 1.1A Toposheet of the project area covering 10km radius – Figure No. 1.2 Geology map of the project area covering 10km radius - Figure No. 2.11
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.	Map showing – Geology map of the project area covering 10km radius - Figure No. 2.11 Geomorphological features are incorporated in the Toposheet map covering 10km radius around the project area Figure No. 2.12
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 was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	The proponent has framed their Environmental Policy and the same is discussed in the Chapter No 10.1.

8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an opencast quarrying operation proposed to operate in Mechanized method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90 ⁰ bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
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.	Noted & agreed. The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is 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.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3
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	Not Applicable. There is no waste anticipated during this quarry operation. The entire quarried out Rough stone will be transported to the needy customers. No Dumps is proposed outside the lease area.
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.	Not Applicable. There is no Forest Land involved in the proposed Existing project area. The proposed project area is a Patta land. Approved Mining Plan is enclosed as Annexure Volume 1.
13	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable. The proposed project area does not involve any Forest Land.
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. The project doesn't attract Recognition of Forest Rights Act, 2006.
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No Reserve Forest within the Study Area.
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area	Not Applicable. There are No National Parks, Biosphere Reserves,

	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.	Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
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. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
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.	Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease) was carried out and discussed under Chapter No. 3. 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.
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli 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).	Not Applicable. The project doesn't attract The C. R. Z. Notification, 2018.
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	Not Applicable. There are no approved habitations within a radius of 300 meters. Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.

	requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	
22	One season (non-monsoon) [i.e., March-May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the predominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Baseline Data were collected for Summer Season (March to May 2022 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
23	Air quality modelling 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 modelling 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 for prediction of incremental GLC's of pollutant was carried out using AERMOD view 9.6.1 Model. Details in Chapter No. 4,
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.	Total Water Requirement for this project is given in the chapter No 2, Table No 2.13.
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Water for dust suppression, greenbelt development and domestic use will be obtained from accumulated rainwater/seepage water in mine pits. Drinking water will be sourced from the approved water vendors, No 2, Table No 2.13.
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and	Impact Studies and Mitigation Measures of Water Quality discussed in Chapter No. 4.

	necessary safeguard measures, if any required, should be provided.	
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	<p>The ground water table is at 65-70m below ground level.</p> <p>The ultimate depth of this projects is 40m from the general ground profile.</p> <p>Maximum depth is proposed in this cumulative EIA project is 40m.</p> <p>It is inferred the quarrying activities in the Cumulative EIA project (Quarries) will not intersect the Ground water table.</p>
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	<p>Highest elevation of the project area is 405m AMSL</p> <p>Ultimate depth of the mine is 40m AMSL</p> <p>Water level in the area is 70m BGL to 65m BGL</p>
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.	Progressive greenbelt development plan has been prepared and discussed along with Recommended Species details are given in the Chapter 4, Table No.4.9 .
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.	Traffic density survey was carried out to analyse the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no much significant impact due to the proposed transportation from the project area. Details in Chapter 2.
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.	Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in the Chapter No.2.
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Discussed in chapter No 2.
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given	Details in Chapter 10.

	in the EIA report.	
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Details in Chapter 10.
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Details in Chapter 4.
37	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Environment Management Plan Chapter 10.
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.	The outcome of public hearing will be updated in the final EIA/AMP report
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.	No litigation is pending in any court against this 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.	The proposed capital cost for Environmental Monitoring Programme is Rs 3,80,000/- and the recurring cost is Rs 76,000/- per annum. Details in Chapter 6.
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.	Details in Chapter 10.
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Details in Chapter 7.
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.	Details in Chapter.8.
44	Besides the above, the below mentioned general points are also to be followed: -	
A	Executive Summary of the EIA/EMP Report	Encloses as separate volume
B	All documents to be properly referenced with index and continuous page numbering.	All the documents are 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.	List of Tables and source of the data collected are given properly.
D	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC / NABL accredited	Baseline monitoring reports are enclosed with mining plan

	laboratories. All the original analysis/testing reports should be available during appraisal of the Project	
E	Where the documents provided are in a language other than English, an English translation should be provided.	Not Applicable.
F	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Will be enclosed along with Final EIA /EMP Report.
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.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009 are 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	Noted & agreed.
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.	Not 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.	Surface Plan – Figure No. 2.2. Geological Plan – Figure No 2.9. Working Plan – Figure No 2.9. Closure Plan – Figure No.2.10.

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CHAPTER – 1: INTRODUCTION

1.0 Preamble

Environmental Impact Assessment (EIA) is the management tool to ensure the sustainable development and it is a process, used to identify the environmental, social and economic impacts of a project prior to decision-making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for any project. EIA systematically examines both beneficial and adverse consequences of the project and ensures that these impacts are taken into account during the project designing. It also reduces conflicts by promoting community participation, information, decision makers, and helps in developing the base for environmentally sound project.

Rough Stone and Gravel are the major requirements for construction industry. This EIA report is prepared by considering Cumulative load of all proposed & existing quarries of Pachapalayam Rough Stone and Gravel Cluster Quarries consisting of four (4) Proposed quarries and One (1) nearest proposed quarry and three (2) Existing Quarries and one (1) abandoned quarry with total an extent of Cluster of 13.00.5 Ha in Pachapalayam Village, Suler Taluk, Coimbatore District and 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 for the below proposals in Table 1.1 and the Baseline Monitoring study has been carried out during the period of March 2022-May2022

TABLE 1.1: ToR OBTAINED PROJECTS

CODE	Name of the proponent	Extent (Ha)	Terms of Reference (ToR)
P1	Thiru. L.Thangarasu	1.81.5	Lr.No.SEIAA-TN/F.No.9538/SEAC/ToR-1322/2023 Dated:10.02.2023
P2	Thiru.D.Karthikeyan	1.21.0	Lr.No.SEIAA-TN/F.No.8860/SEAC/ToR-1122/2021 Dated:23.03.2022
P3	Thiru.S.Durairaj	1.47.5	Lr.No.SEIAA-TN/F.No.9172/SEAC/ToR-1186/2022 Dated:06.07.2022
P4	Thiru.N.Thangavelu,	4.62.0	Lr No.SEIAA- /F.No.10099/ToR- 1515/2023 Dated:01.08.2023.

Source: ToR Letter's of the respective project proponents

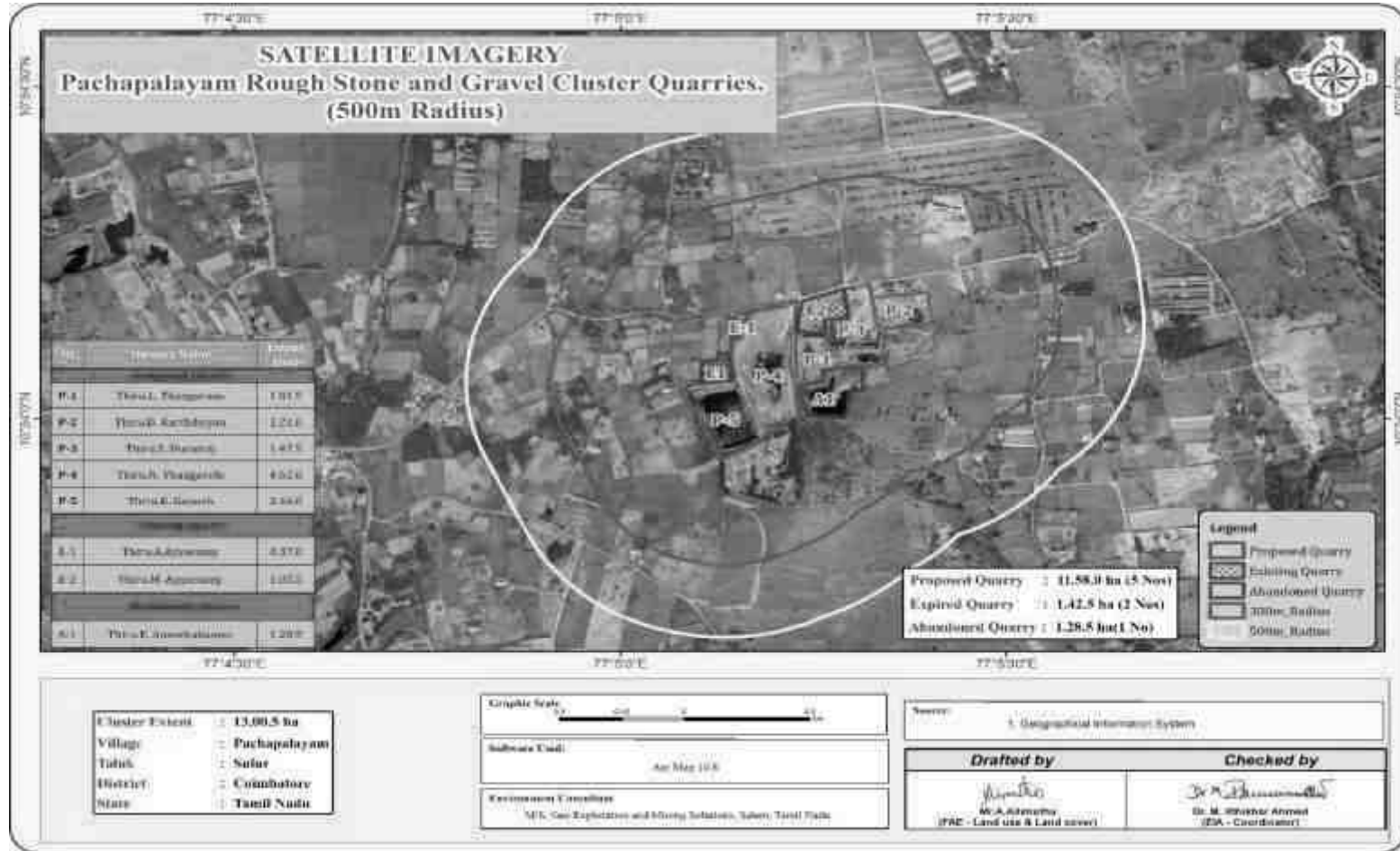
1.1 Purpose of the report

The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14th August 2018, Mining Projects are classified under two categories i.e. A (> 100 Ha) and B (≤ 100 Ha), and Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix – XI.

Now, 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.

The proposed projects are categorized under category “B1” Activity 1(a) (mining lease area in cluster situation) and will be considered at SEIAA – TN after conducting Public Hearing and Submission of EIA/EMP Report for Grant of Environmental Clearance. **“Draft EIA report prepared on the basis of ToR Issued for carrying out public hearing for the grant of Environmental Clearance from SEIAA, Tamil Nadu”**

Figure 1.1 Satellite imagery of Cluster Quarries Map



Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016

Note: As per above notification S.O.2269(E) dated : 01.07.2016 in para (b) in Appendix XI, - (i)(6) A cluster shall be formed when the distance between the peripheries of one lease is less than 500 meters from the periphery of other lease in a homogeneous mineral area which shall be applicable to the mine lease or quarry licenses granted on and after 9th September, 2013

1.2 Identification of Project and Project Proponent**1.2.1 Identification of Project**

The project areas in the cluster are Patta Land, no forest land is involved

TABLE 1.2: PROPOSED PROJECTS IN THE CLUSTER

Description	P1	P2	P3	P4
Name of the Project	Thiru. L. Thangarasu, Rough Stone & Gravel Quarry	Thiru. D. Karthikeyan, Rough stone and Gravel quarry	Thiru.S. Durairaj, Roughstone & Gravel quarry	Thiru.N.Thangavelu, Roughstone & Gravel quarry
S.F. No.	408/2B and 408/2C,	409/1A1(Part), 409/1A2(Part), 409/1B1 and 409/1B2	408/3B and 408/3C,	407/2A & 407/2B
Extent	1.81.5 Ha	1.21.0 Ha	1.47.5 Ha	4.62.0 Ha
Village, Taluk	Pachapalayam Village, Suler Taluk			
District	Coimbatore District			

Source: Approved Mining Plan

1.2.2 Identification of Project Proponent**TABLE 1.3: DETAILS OF PROJECT PROPONENT**

PROPOSAL – P1	
Name of the Company	Thiru. L. Thangarasu, Rough Stone & Gravel Quarry
Address	S/o. R. Lakshmanasamy, residing at No.3/87, West Arasur, Arasur, Suler Taluk Coimbatore District
Mobile	+91 99447 75735
Status	Proprietor
PROPOSAL – P2	
Name of the Company	Thiru. D. Karthikeyan, Rough stone and Gravel quarry
Address	S/o. S. Devaraj, residing at Door No.2/15, Post office Street, Periyakuyilai Post, Chettipalayam Via, Coimbatore District, Tamil Nadu State – 641 201
Mobile	+91 98422 04145
Status	Proprietor
PROPOSAL – P3	
Name of the Company	Thiru.S.Durairaj, Roughstone & Gravel quarry
Address	S/o.Sellappan, Malakkadu Thottam, Periyakuyilai Post, Pachapalayam, Coimbatore District- 641 201
Mobile	+91 98428 84089
Status	Proprietor
PROPOSAL – P4	
Name of the Company	Thiru.N.Thangavelu, Roughstone & Gravel quarry
Address	S/o. Nachimuthu Goundar, residing at No. 153/A, Maraimalai Adigal Street, Palladam Taluk, Tiruppur District – 641 664.
Mobile	98422 62639 & 98421 62639
Status	Proprietor

Source: Approved Mining Plan of the respective projects

1.3 Brief description of the project

1.3.1 Nature and size of the Project

The quarrying operation is proposed to be carried out by Opencast Mechanized Mining method with 5.0m bench height and 5.0m bench width by deploying Jack Hammer Drilling & Slurry Explosive during blasting. Hydraulic Excavator and tippers are used for Loading and transportation. Rock Breakers are deployed to avoid secondary blasting.

TABLE 1.4: SALIENT FEATURES OF THE PROPOSED PROJECTS IN CLUSTER

SALIENT FEATURES OF PROPOSAL "P1"			
Name of the Mine	Thiru. L. Thangarasu,, Rough Stone & Gravel Quarry Project		
Land Type	It is a Patta land. Jointly registered in the name of the Thiru.S. Jagadesh and Tmt. L.Deivamani vide Patta No.1437.		
S.F. Nos	408/2B and 408/2C,		
Extent	1.81.5 Ha		
Existing pit dimensions	110m (L) x 58m (W) x 26m(D) 130m (L) x 37m (W) x 14m(D)		
Ultimate pit dimensions	110m (L) x 58m (W) x 30m(D) 130m (L) x 37m (W) x 25m(D)		
Geological Reserves	Rough Stone	Weathered Rock	Gravel
	1,94,001 m ³	4,530	3,020 m ³
Mineable Reserves	Rough Stone	Weathered Rock	Gravel
	48,572 m ³	1152 m ³	1080 m ³
Proposed production for five years	48,572 m³	1152 m³	1080 m³
Mining Plan Period / Lease Period	5 Years		
Depth of mining	depth of mining is about 30m (2m Gravel +3m Weathered Rock + 25m Rough stone)		
Toposheet No	58 F/01		
Latitude	10°54'02.97"N to 10°54'07.85"N		
Longitude	77°05'13.59"E to 77°05'20.62"E		
Water Level	70-65m		
Highest Elevation	407m AMSL		
Machinery proposed	Jack Hammer	2	
	Compressor	1	
	Excavator with Bucket and Rock Breaker	1	
	Tipplers	1	
Blasting	Usage of Slurry Explosive with MSD detonators		
Manpower Deployment	11 Nos		
Total Project Cost	Project Cost	Rs. 55,18,000/-	
	EMP Cost	Rs. 3,80,000/-	
	Total	Rs. 58,98,000/-	
CER cost	Rs.5,00,000/-		
Nearest Habitation	800m-W		
SALIENT FEATURES OF PROPOSAL "P2"			
Name of the Mine	Thiru. D. Karthikeyan, Roughstone and gravel quarry		
Land Type	It is a Patta land, S.F.Nos. 409/1A1 and 409/1B1 are registered in the name of Tmt. D. Bakiyalakshmi, vide Patta No.1427 and S.F.No. 409/1A2 and 409/1B2 are registered in the name of Tmt. S. Jothilakshmi vide patta No. 1428.		

S.F. No.	409/1A1(Part), 409/1A2(Part), 409/1B1 and 409/1B2	
Extent	1.21.0 Ha	
Previous quarry operation details	<p>Operated by</p> <ul style="list-style-type: none"> ☞ the applied area has been considered quarrying operation earlier. The quarry lease was first granted in favour of Thiru. K. Shanmugam, over an extent of 1.78.0 hectares of Patta land in S.F.No. 409/1 of Pachapalayam village, Suler (formerly Palladam) Taluk, Coimbatore District vide R.C.No. 973/2005/M.M.2, dated: 24.05.2005 for the period of Five years. ☞ Another quarry lease was granted in favour of Tmt. D. Bakkiyalakshmi, over an extent of 0.89.0 hectares of Patta land in S.F.No. 409/1B of Pachapalayam village, Suler Taluk, Coimbatore District vide R.C.No. 190/2011/M.M-2, dated: 28.09.2011 for the period of three years from 28.09.2011 to 31.10.2014. ☞ There is an existing quarry pit. 	
Existing pit dimension	107m (L) x 73m (W) x 8m(D)	
Ultimate pit dimension	121m (L) x 74m (W) x 37m(D)	
Depth of mining	37m (2m Gravel + 35m Rough stone)	
Geological Resources	Rough Stone	Gravel
	4,23,500 m ³	24,200 m ³
Mineable Reserves	Rough Stone	Gravel
	1,03,868 m ³	650 m ³
Proposed production for five years	1,03,868 m ³	650 m ³
Mining Plan Period / Lease Period	5 Years	
Toposheet No	58 - F/01	
Latitude	10°54'08.07"N to 10°54'11.43"N	
Longitude	77°05'19.26"E to 77°05'24.22"E	
Water Level	65-60m	
Highest Elevation	420m AMSL	
Machinery	Jack Hammer	3
	Compressor	1
	Excavator with Bucket and Rock Breaker	1
	Tipplers	2
Blasting	Usage of Slurry Explosive with MSD detonators	
Manpower Deployment	18 Nos	
Total Cost	Project Cost	Rs. 27,86,800/-
	EMP Cost	Rs. 3,80,000/-
	Total	Rs. 31,66,800/-
CER cost	Rs.5,00,000/-	
Nearest Habitation	1km-W	
SALIENT FEATURES OF PROPOSAL "P3"		
Name of the Mine	Thiru.S. Durairaj , Rough stone and Gravel quarry	
Land Type	It is a Patta land, Jointly Registered the Name of Applicant (Durairaj), Ravichandran and Subbulakshmi vide Patta Nos.574 & 471. The applicant has been consent from Joint Pattadhars.	
S.F. No.	408/3B and 408/3C	

Extent	1.47.5 Ha		
Previous quarry details	It is a fresh application; the area has been quarrying earlier.		
Existing pit dimension	123m (L) X 107m (W) X 16m (D)		
Depth restricted as per ToR	30m bgl (2m Gravel + 28m Rough stone)		
Geological Reserves	Rough Stone	Weathered Gravel	
	640584 m ³	30504m ³	
Mineable Reserves	Rough Stone	Weathered Gravel	
	1,12,701 m ³	2220 m ³	
Proposed production for five years	Rough Stone	Gravel	
	1,12,701 m ³	2220 m ³	
Mining Plan Period / Lease Period	5 Years		
Depth of mining	44m Bgl		
Ultimate Pit Dimension	123m (L)	107m (W)	44m BGL (D)
Toposheet No	58-F/01		
Latitude	10°54'06.50"N to 10°54'12.24"N		
Longitude	77°05'15.85"E to 77°05'20.27"E		
Water Level	55 to 60m BGL		
Machinery	Jack Hammer	4	
	Compressor	1	
	Excavator with Bucket and Rock Breaker	1	
	Tippers	1	
Blasting	Usage of Slurry Explosive with MSD detonators		
Manpower Deployment	19 Nos		
Total Project Cost	Project Cost	Rs. 46,87,612/-	
	EMP Cost	Rs. 3,80,000/-	
	Total	Rs. 50,67,612	
CER cost	Rs.5,00,000/-		
Nearest Habitation	380m-E		

Source: Approved Mining Plan of the respective proposals

SALIENT FEATURES OF PROPOSAL "P4"	
Name of the Mine	Thiru.N. Thangavel , Rough stone and Gravel quarry
Land Type	It is a Patta land. Registered in the name of the applicant (Thiru.N.Thangavelu). Refer the Patta 629 copy as Annexure No. IV
S.F. No.	407/2A, &407/2B,
Extent	4.62.0 Ha
Previous quarry details	<p>It is a fresh application; the area has been quarrying earlier. The quarry lease was previously granted in the favour of Thiru.N. Thangavelu, over an extent of 4.62.0 hectares of Patta land in S.F.Nos. 407/2A & 407/2B of Pachapalayam Village, Sulur Taluk, Coimbatore District for the period of five years from 07.10.2017 to 06.10.2022.</p> <p>The lessee has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu vide letter No. SEIAA-TN / F.No. 5486 / 1(a) / EC. No: 3898 / 2016, Dated: 05.06.2017.</p> <p>The applicant has once again applied a quarry lease on</p>

	21.03.2022, over an extent of 4.62.0 hectares of Patta lands in S.F.Nos. 407/2A & 407/2B of Pachapalayam Village, Suler Taluk, Coimbatore District for the period of five years.		
Existing pit dimension	Pit-I 38m (L) X 107m (W) X 8m (D) Pit-II 254m (L) X 104m (W) X 17m (D) Pit-III 92m (L) X 51m (W) X 2m (D)		
Depth of mining	40m (2m Gravel + 38m Rough Stone) below ground level		
Geological Reserves	Rough Stone	Gravel	
	13,04,105m ³	8,856m ³	
Mineable Reserves	Rough Stone	Gravel	
	4,40,285m ³	-	
Proposed production for five years	Rough Stone	Existing Gravel Dump	
	4,40,285m ³	3,372m ³	
Mining Plan Period / Lease Period	5 Years		
Depth of mining	40m Bgl		
Ultimate Pit Dimension	288 (L)	134m (W)	40m BGL (D)
Toposheet No	58-F/01		
Latitude	10°53'58.36"N to 10°54'10.72"N		
Longitude	77°05'08.47"E to 77°05'13.86"E		
Elevation	405m Amsl		
Water Level	70 to 65m BGL		
Machinery	Jack Hammer	11	
	Compressor	3	
	Excavator with Bucket and Rock Breaker	2	
	Tippers	4	
Blasting	Usage of Slurry Explosive with MSD detonators		
Manpower Deployment	43 Nos		
Total Project Cost	Project Cost	Rs. 88,47,000/-	
	EMP Cost	Rs. 3,80,000/-	
	Total	Rs.92,27,000/-	
CER cost	Rs.5,00,000/-		
Nearest Habitation	690m-W		

Source: Approved Mining Plan of the respective proposals

1.3.2 Location of the project

The cluster quarry project falls in Pachapalayam village, Suler taluk, Coimbatore District. The cluster is located about 19.0km Southeastern side of Coimbatore and 14.0km from Southwest side of Suler and 2.0km from Northeast side of Pachapalayam Village.

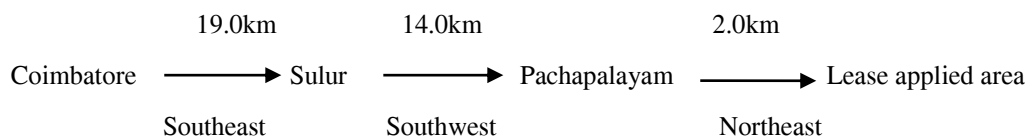


FIG1.1A KEY MAP SHOWING THE LOCATION OF THE PROJECT SITE

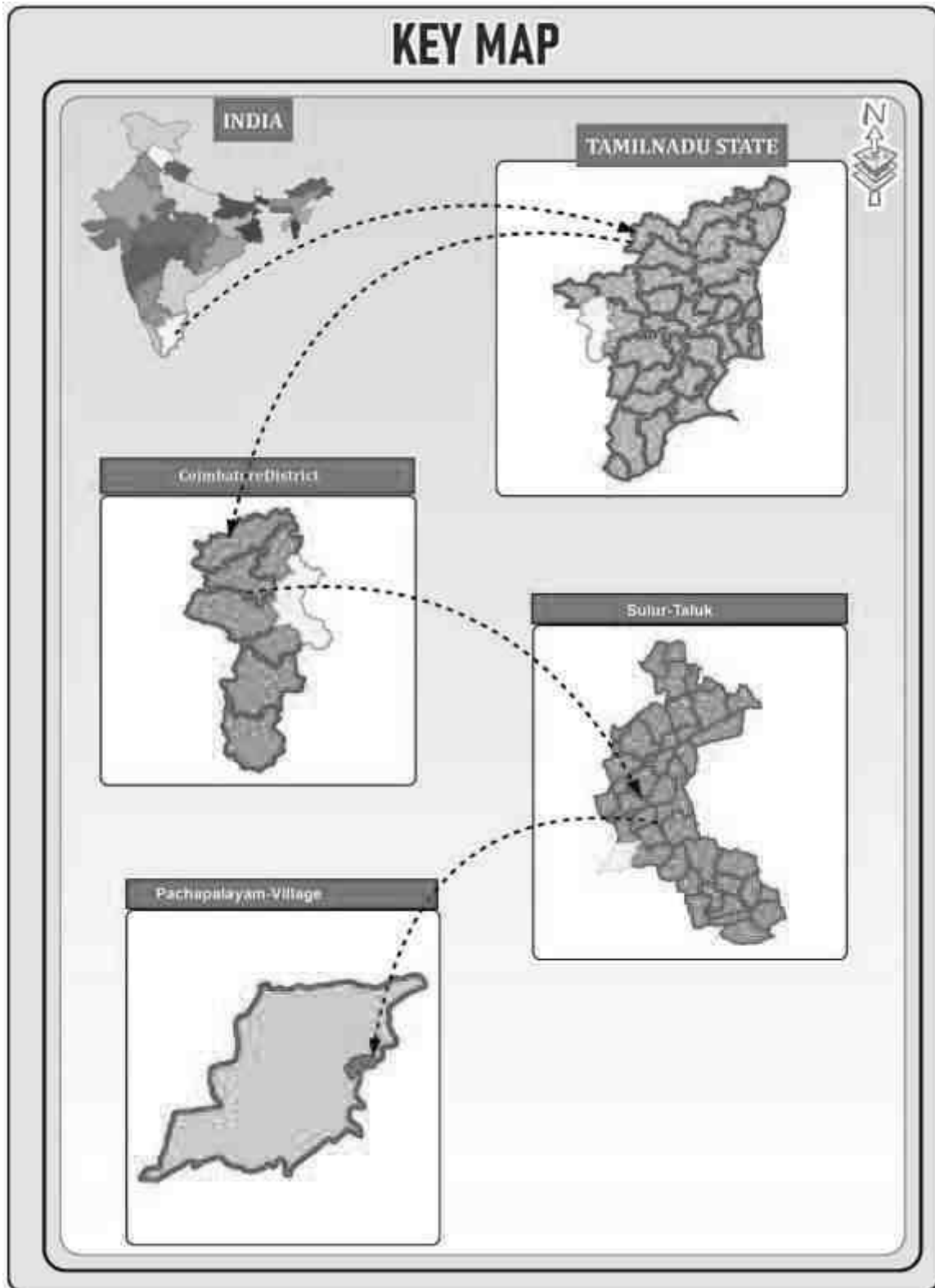


FIGURE 1.2: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 10 KM RADIUS

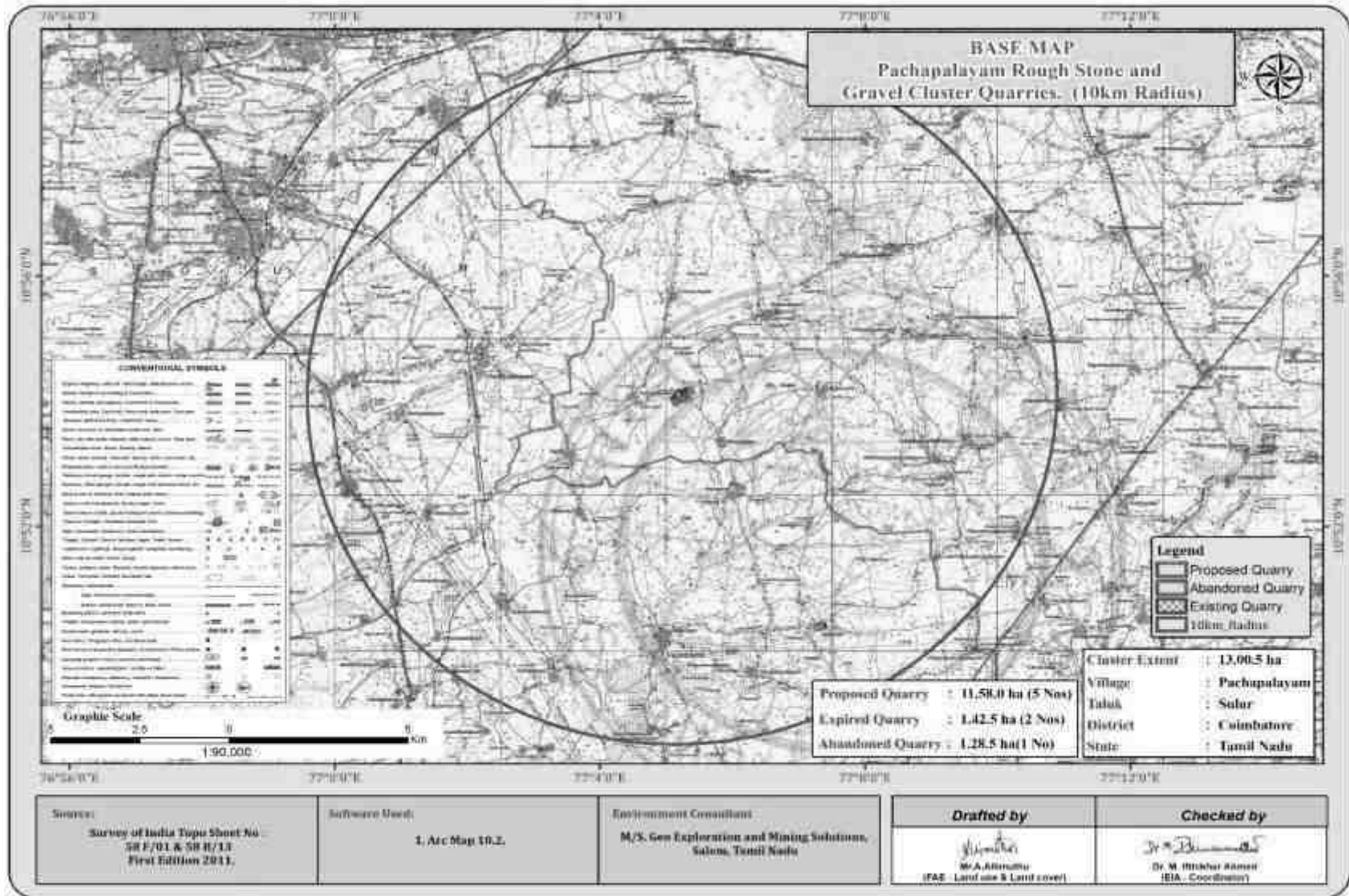
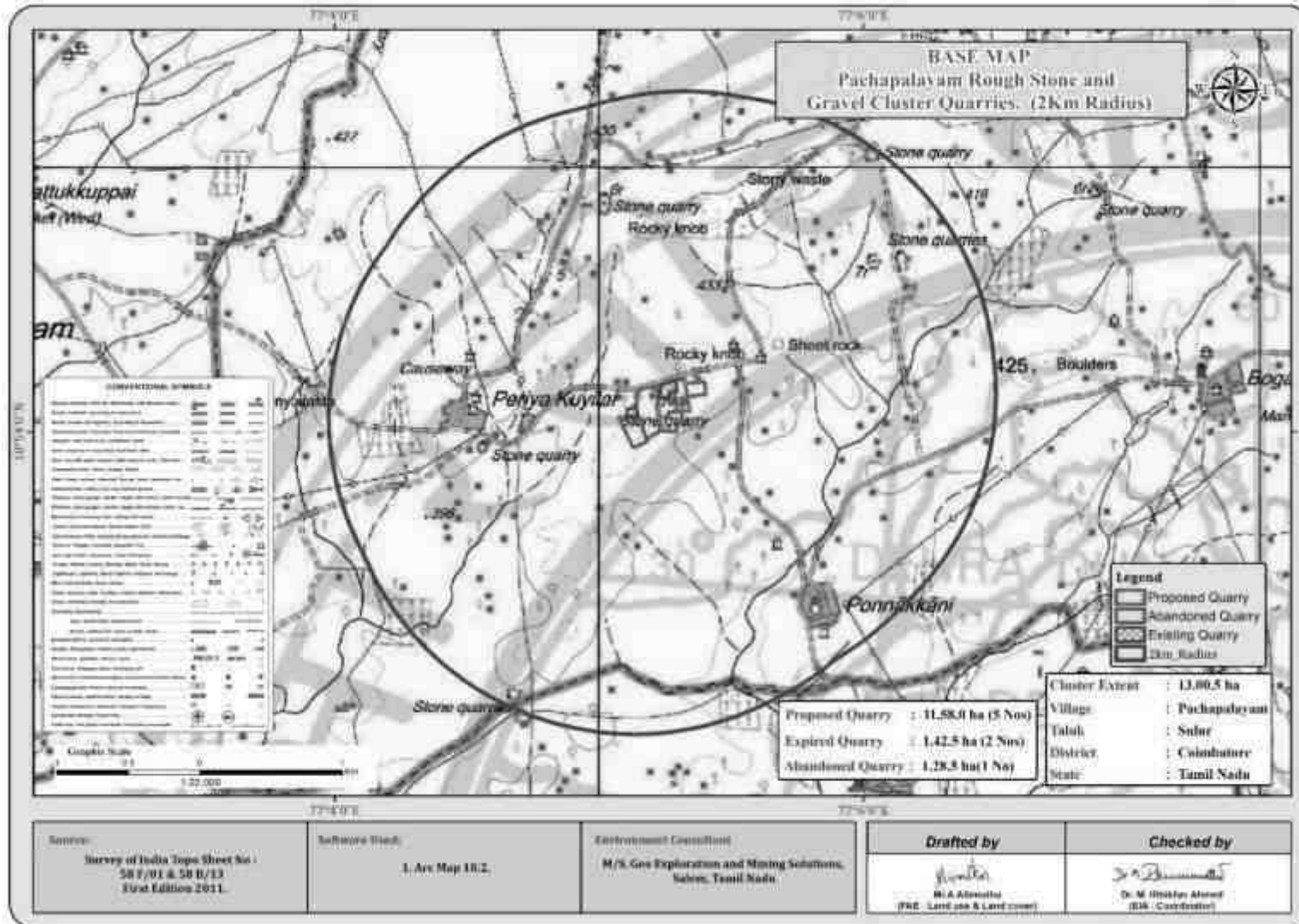


FIGURE 1.3: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 2 KM RADIUS



1.4 Environmental Clearance

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

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

SCREENING –

Project – P1 –

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated: 14.03.2022
- Precise Area Communication Letter was issued by the District Collector, Coimbatore Rc.No. Rc.No. Rc.No.239/Mines/2022, Dated:22.06.2022
- The Mining Plan was prepared by Recognized Qualified Person and approved by Joint Director / Assistant Director (i/c), Department of Geology and Mining, Coimbatore District, vide Rc.No. 239/Mines/2022 Dated: 11.07.2022
- Proponent applied for ToR for Environmental Clearance vides online Proposal No. SIA/TN/MIN/403944/2022, Dated:16.10.2022

Project – P2 –

- The proponent applied for Rough Stone and Gravel Quarry Lease Date from 01.03.2019.
- Precise Area Communication Letter was issued by the District Collector, Coimbatore Rc.No.165/Mines/2019, Dated: 02.11.2019
- The Mining Plan was prepared by Recognized Qualified Person and approved by Joint Director / Assistant Director (i/c), Department of Geology and Mining, vide Rc.No.165/Mines/2019, Dated: 10.12.2019
- Proponent applied for ToR for Environmental Clearance vides online Proposal No. SIA/TN/MIN/68207/2022, Dated:06.10.2021

Project – P3 –

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated: 25.01.2018
- Precise Area Communication Letter was issued by the District Collector, Coimbatore Rc.No. 38/Mines/2018 Dated 24.11.2018
- The Mining Plan was prepared by Qualified Person and approved by Joint Director / Assistant Director (i/c), Department of Geology and Mining, Coimbatore District vide Rc. No. 38/Mines/2018, Dated: 02.01.2019.
- Proponent applied for ToR for Environmental Clearance vide proposal No SIA/TN/MIN/74767/2022, Dated:04.04.2022.

Project – P4 –

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated: 21.03.2022.
- Precise Area Communication Letter was issued by the District Collector, Coimbatore Rc.No. 276/Mines/2022, Dated: 01.07.2022
- The Mining Plan was prepared by Qualified Person and approved by Joint Director / Assistant Director (i/c), Department of Geology and Mining, Coimbatore District vide Rc.No. 276/Mines/2022 Dated: 07.07.2022.
- Proponent applied for ToR for Environmental Clearance vide proposal No SIA/TN/MIN/429152/2023 Dated:13.05.2023.

SCOPING –**Project – P1 –**

- The proposal was placed in 346th SEAC meeting held on 12.01.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 591st SEIAA meeting held on 10.02.2023 and issued ToR vide Lr.No. SEIAA-TN/F.No.9538/SEAC/ToR-1322/2023 Dated:10.02.2023

Project – P2 –

- The proposal was placed in 251st SEAC meeting held on 04.03.2022 and the committee recommended for issue of ToR.
- The proposal was considered in 495th SEIAA meeting held on 23.03.2022 and issued ToR vide Lr.No. SEIAA-TN/F.No.8860/SEAC/ToR-1122/2021 Dated:23.03.2022

Project – P3

- The proposal was placed in 284th SEAC meeting held on 10.06.2022 and the committee recommended for issue of ToR.
- The proposal was considered in 529th SEIAA meeting held on 06.07.2022 and issued ToR vide Lr.No. SEIAA-TN/F.No.9172/SEAC/ToR-1186/2022 Dated:06.07.2022

Project – P4

- The proposal was placed in 393rd SEAC meeting held on 20.07.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 643rd SEIAA meeting held on 01.08.2023 and issued ToR vide Lr No.SEIAA- /F.No.10099/ToR- 1515/2023 Dated: 01.08.2023.

Public Consultation –

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district is submitted along with this Draft EIA/ EMP Report and the outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

Appraisal –

Appraisal is the detailed scrutiny by the State Expert Appraisal Committee (SEAC) of the application and other documents like the final EIA & EMP Report, outcome of the Public Consultations including Public Hearing Proceedings, submitted by the proponent to the regulatory authority concerned for grant of environmental clearance.

The report has been prepared using the following references:

- Guidance Manual of Environmental Impact Assessment for Mining of Minerals, Ministry of Environment and Forests, 2010
- EIA Notification, 14th September, 2006
- ToR Letter No. SEIAA-TN/F.No.9538/SEAC/ToR-1322/2023 Dated:10.02.2023- **Thiru. L.Thangarasu** – P1
- ToR Letter No. SEIAA-TN/F.No.8860/SEAC/ToR-1122/2021 Dated:23.03.2022- **Thiru.D.Karthikeyan** – P2
- ToR Letter No. SEIAA-TN/F.No.9172/SEAC/ToR-1186/2022 Dated:06.07.2022- **Thiru.S.Durairaj** – P3
- ToR Letter No.SEIAA- /F.No.10099/ToR- 1515/2023 Dated: 01.08.2023- **Thiru.N.Thangavelu**, – P4
- Approved Mining of P1 to P4 the Rough stone and Gravel quarry projects

1.5 Post Environment Clearance Monitoring

The Project Proponents in the Cluster will submit a half-yearly compliance report in respect of stipulated Environmental Clearance terms and conditions to MoEF & CC Regional Office & SEIAA after grant of EC on 1st June and 1st December of every year.

1.6 Generic Structure of EIA Document

The overall contents of the EIA report follow the list of contents prescribed in the EIA Notification 2006 and the “Environmental Impact Assessment Guidance Manual for Mining of Minerals” published by MoEF & CC. A brief description of each Chapter is presented in Table No. 1.5.

TABLE 1.5 – STRUCTURE OF THE EIA REPORT

S. No	Chapters	Title	Particulars
1	Chapter 1	Introduction	Presents, an Introduction along with Scope and Objective of this EIA/EMP Studies
2	Chapter 2	Project Description	Presents the Technical Details of the Project
3	Chapter 3	Description of Environment	Presents the Baseline Status for various Environmental Parameters in the Study Area for One Season (3 Months)
4	Chapter 4	Anticipated Environmental Impacts and Mitigation Measures	Presents the Identification, Prediction and Evaluation of overall Environmental Impacts due to the Proposed Projects Activities. Also presents Proposed Mitigation Measures.
5	Chapter 5	Analysis of Alternatives (Technology & Site)	Presents Analysis of alternatives with respect to site
6	Chapter 6	Environment Monitoring Programme	Present details of post project environment monitoring
7	Chapter 7	Additional Studies	Presents Public Consultation, Risk Assessment and Disaster Management Plan
8	Chapter 8	Project Benefits	Presents project benefits as: Improvements in the Physical Infrastructure, Social Infrastructure Employment Potential –Skilled; Semi-Skilled and Unskilled etc.,
9	Chapter 9	Cost Benefit Analysis	Environmental Cost Benefit Analysis has not been recommended at Scoping Stage – thus no analysis carried out separately in this EIA/EMP Report
10	Chapter 10	Environmental Management Plan	Description of the administrative aspects to ensure the Mitigation Measures are implemented and their effectiveness monitored, after approval of the project.
11	Chapter 11	Summary & Conclusion	Summary of the EIA Report
12	Chapter 12	Disclosure of Consultants Engaged	Disclosure of the Consultants

1.7 Scope of the Study

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the summer season (March 2022-May2022) for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

TABLE 1.6 – ENVIRONMENT ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂	24 hourly samples twice a week for three months at 8 locations
2	Meteorology	Wind speed and direction, temperature, relative humidity and rainfall	Near project site continuous for three months with hourly recording and from secondary sources of IMD station, Coimbatore

3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 4 ground water and 2 surface water locations once during study period.
4	Ecology	Existing terrestrial and aquatic flora and fauna within 10 km radius circle.	Limited primary survey and secondary data was collected from the Forest department.
5	Noise levels	Noise levels in dB(A)	At 8 locations data monitored once for 24 hours during EIA study.
6	Soil Characteristics	Physical and Chemical Parameters	Once at 6 locations during study period
7	Land use	Existing land use for different categories	Based on Survey of India topographical sheet and satellite imagery and primary survey.
8	Socio-Economic Aspects	Socio-economic and demographic characteristics, worker characteristics	Based on primary survey and secondary sources data like census of India 2011.
9	Hydrology	Drainage pattern of the area, nature of streams, aquifer characteristics, recharge and discharge areas	Based on data collected from secondary sources as well as hydro-geology study report prepared.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances	Based on the findings of Risk assessment done for the mining associated activities

Source: Field Monitoring Data

The data has been collected as per the requirement of the ToR issued by SEIAA – TN and Standard ToR Published by MoEF & CC.

1.7.1 Regulatory Compliance & Applicable Laws/Regulations

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance
- The Mining Plan of Rough Stone and Gravel quarry has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959
- ToR from SEIAA –
- ToR Letter No. SEIAA-TN/F.No.9538/SEAC/ToR-1322/2023 Dated:10.02.2023- **Thiru. L.Thangarasu** – P1
- ToR Letter No. SEIAA-TN/F.No.8860/SEAC/ToR-1122/2021 Dated:23.03.2022- **Thiru.D.Karthikeyan** – P2
- ToR Letter No. SEIAA-TN/F.No.9172/SEAC/ToR-1186/2022 Dated:06.07.2022- **Thiru.S.Durairaj** – P3
- ToR Letter No.SEIAA- /F.No.10099/ToR- 1515/2023 Dated: 01.08.2023- **Thiru.N.Thangavelu**, – P4
- Approved Mining of P1 to P4 the Rough stone and Gravel quarry projects.

CHAPTER – 2: PROJECT DESCRIPTION

2.0 General

The Proposed Rough Stone and Gravel Quarries requires Environmental Clearance. There are four proposed and one for nearest proposed and two existing quarries forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 13.00.5 ha.

As the extent of cluster are 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.

2.1 Description of the Project

The proposed projects are site specific and there is no additional area required for this project. There is no effluent generation/discharge from the proposed quarries.

Method is mining is common for all the proposed quarries in the cluster. Rough Stone and Gravel are 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 Location of the Project

- The Cluster quarries are located in Pachapalayam Village, Sulur taluk, Coimbatore District, Tamil Nadu State.
- The project falls in Toposheet No: 58 F/01.
- The cluster areas fall in the Latitude between 10°54'02.97"N to 10° 54'12.24" N and Longitude between 77°05'13.59"E to 77°05'24.22" E.
- The projects under the cluster are classified as patta land (Non-Forest Land) & does not fall within 10 km radius of any Eco – sensitive zone, Wild life Sanctuary, National Park, Tiger Reserve, Elephant Corridor and Biosphere Reserves.

TABLE 2.1: SITE CONNECTIVITY TO THE CLUSTER QUARRIES

Nearest Roadway	NH-209 Coimbatore-Dindigul -9.0km-SW SH-163 Palladam – Chocin – 4.5km-NW
Nearest Village	Pachapalayam village – 1.0km-W
Nearest Town	Sulur -14.0km – Northeast
Nearest Railway	Podanur -13.0km – Northwest
Nearest Airport	Coimbatore Airport – 15km – Northwest
Seaport	Kochi- 140 Km-SW

Source: Survey of India Toposheet

The cluster quarries corners co-ordinates are given below.

TABLE 2.2 – BOUNDARY CO-ORDINATES OF PROPOSED PROJECTS

BOUNDARY CO-ORDINATES OF PROJECT – P1- Thiru. L. Thangarasu		
Corner Nos.	Latitude	Longitude
1	10°54'02.97"N	77°05'13.62"E
2	10°54'05.09"N	77°05'13.59"E
3	10°54'07.85"N	77°05'13.60"E
4	10°54'07.60"N	77°05'15.92"E
5	10°54'06.32"N	77°05'16.02"E
6	10°54'06.45"N	77°05'20.25"E
7	10°54'04.83"N	77°05'20.62"E
8	10°54'04.50"N	77°05'15.68"E
9	10°54'03.48"N	77°05'15.80"E
BOUNDARY CO-ORDINATES OF PROJECT – P2- Thiru. D. Karthikeyan		
Corner Nos.	Latitude	Longitude
1	10° 54' 11.43" N	77° 05' 23.90" E
2	10° 54' 08.49" N	77° 05' 24.22" E
3	10° 54' 08.07" N	77° 05' 19.89" E
4	10° 54' 10.85" N	77° 05' 19.26" E
BOUNDARY CO-ORDINATES OF PROJECT – P3- Thiru.S. Durairaj		
Corner Nos.	Latitude	Longitude
1	10° 54' 06.50" N	77° 05' 16.04" E
2	10° 54' 08.19" N	77° 05' 15.94" E
3	10° 54' 08.96" N	77° 05' 15.85" E
4	10° 54' 09.15" N	77° 05' 17.75" E
5	10° 54' 11.79" N	77° 05' 17.37" E
6	10° 54' 12.24" N	77° 05' 19.32" E
7	10° 54' 06.50" N	77° 05' 20.27" E
BOUNDARY CO-ORDINATES OF PROJECT – P4- Thiru.N.Thangavelu,		
Corner Nos.	Latitude	Longitude
1	10° 53' 58.36" N	77° 05' 10.80" E
2	10° 54' 03.83" N	77° 05' 08.75" E
3	10° 54' 05.66" N	77° 05' 08.47" E
4	10° 54' 09.46" N	77° 05' 08.68" E
5	10° 54' 10.09" N	77° 05' 11.21" E
6	10° 54' 10.72" N	77° 05' 13.73" E
7	10° 54' 05.22" N	77° 05' 13.18" E
8	10° 54' 00.25" N	77° 05' 13.86" E

Source: Quarry Lease Plan of the respective proposals

FIGURE 2.1: TOPOGRAPHICAL VIEW OF THE PROJECT SITE



P1– Thiru. L. Thangarasu project Site



P2– Thiru. D. Karthikeyan, project Site

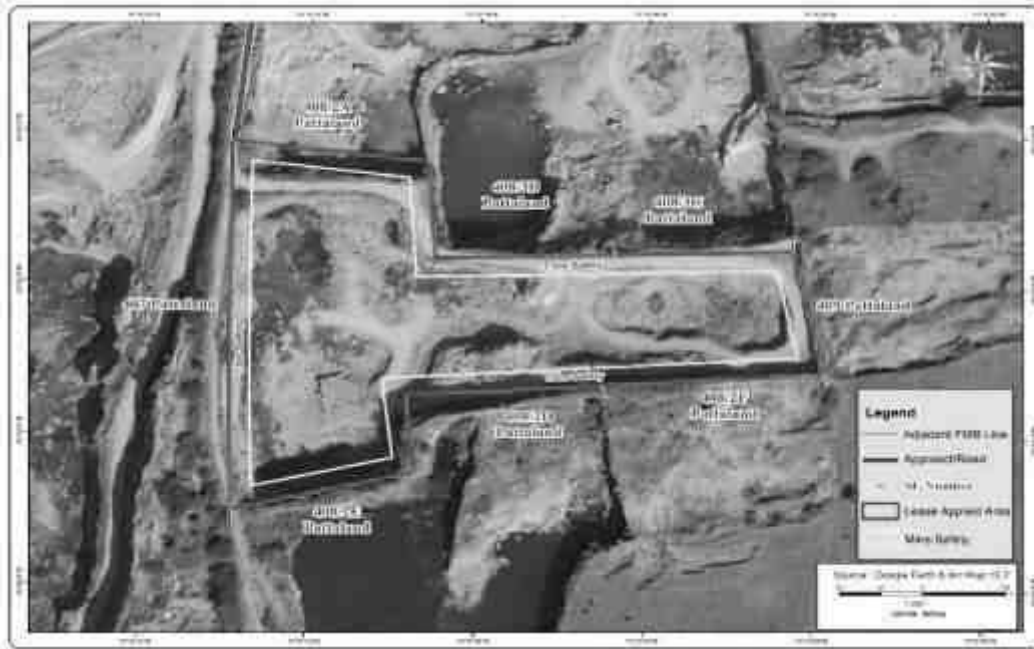


P3– Thiru.S.Durairaj, project Site



P4– Thiru.N.Thangavelu, Project Site

FIGURE 2.2: SHOWING GOOGLE IMAGE ROUGH STONE AND GRAVEL QUARRY PROJECT AREAS



SATELLITE IMAGERY OF P1



SATELLITE IMAGERY OF P2



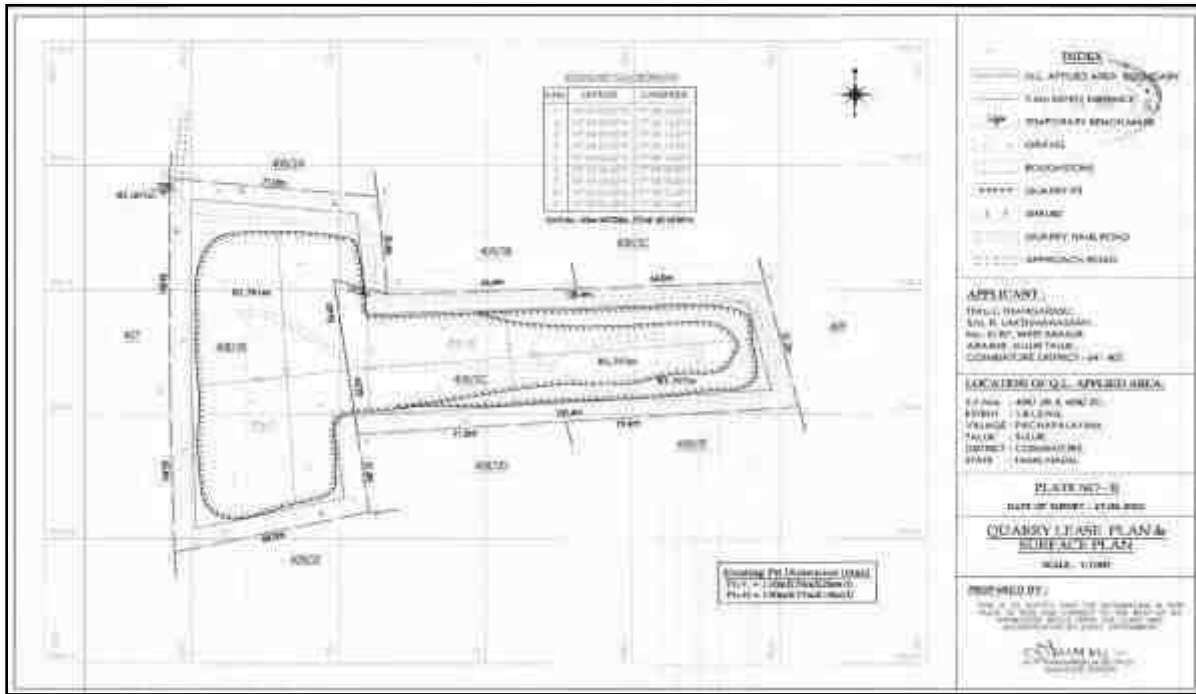
SATELLITE IMAGERY OF P3



SATELLITE IMAGERY OF P4

FIGURE 2.3: QUARRY LEASE PLAN

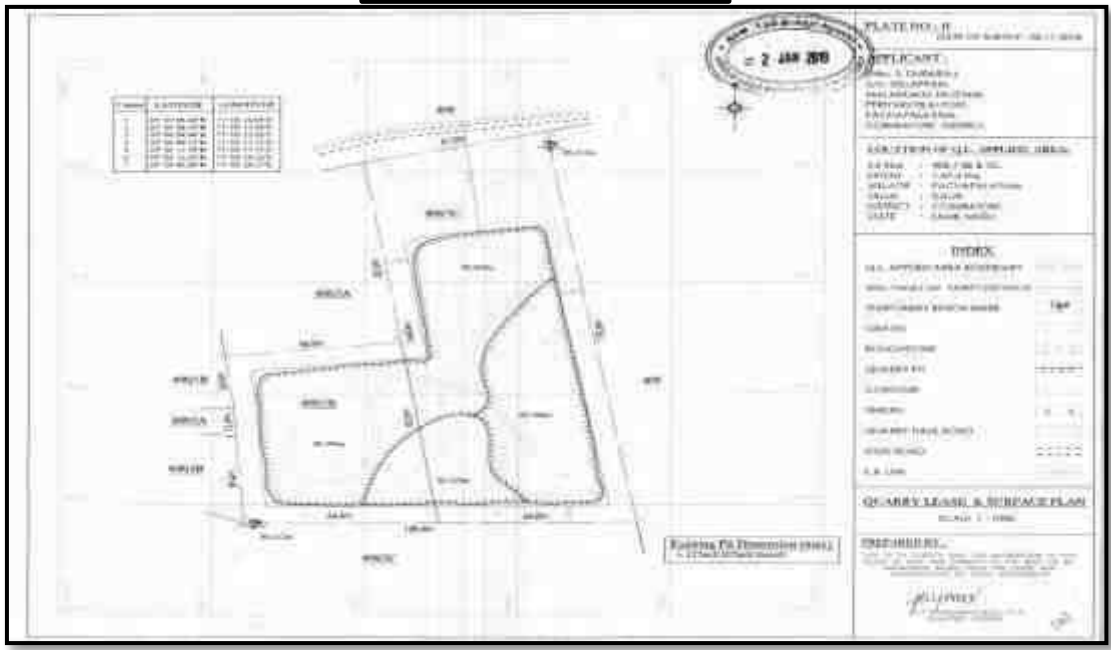
P1 Thiru. L. Thangarasu



P2- Thiru. D. Karthikeyan



P3- Thiru.S.Durairaj



P4- Thiru.N.Thangavelu,



FIGURE 2.4: SATELLITE IMAGERY OF CLUSTER QUARRIES

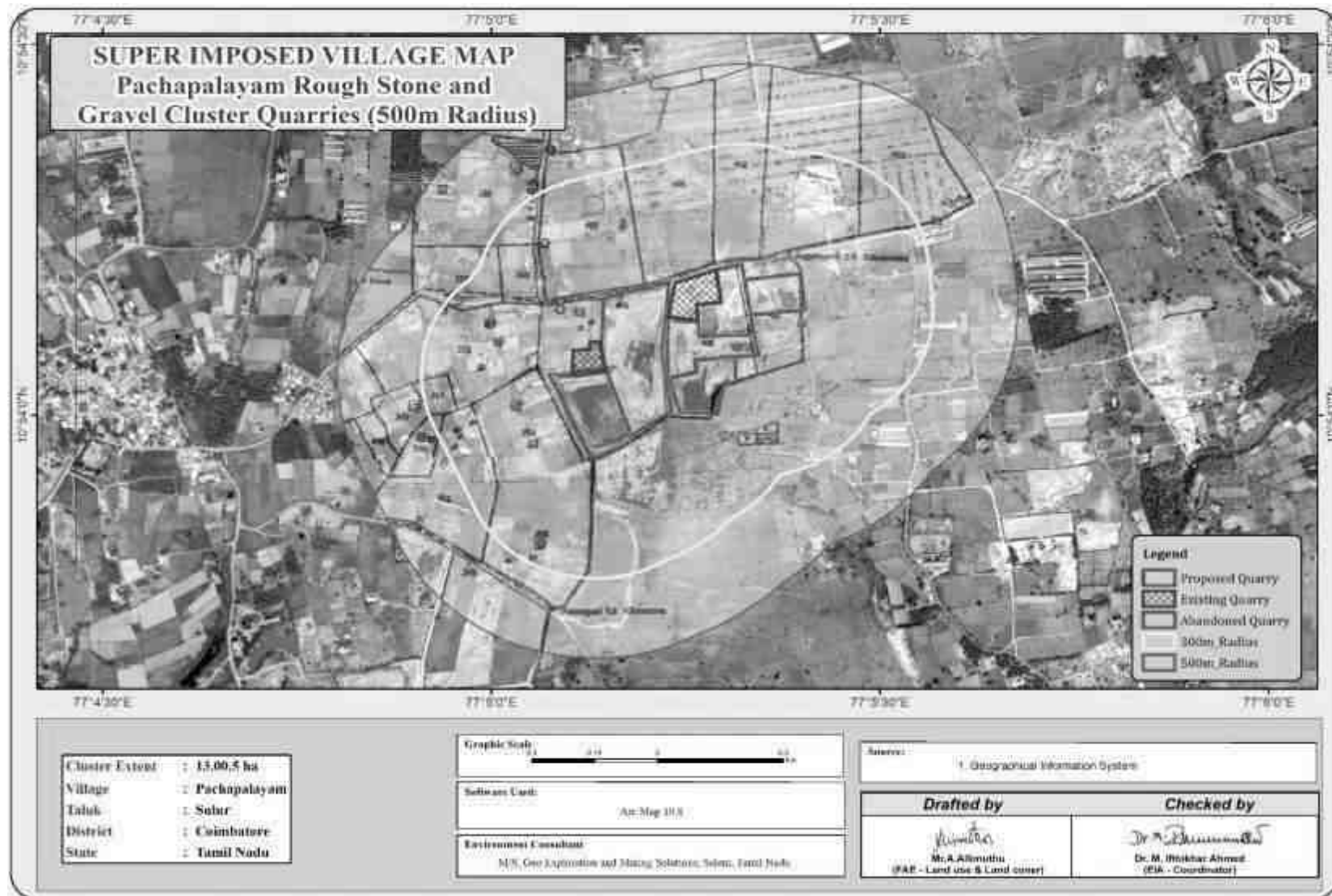


FIGURE 2.5: DIGITIZED MAP OF THE STUDY AREA (10 KM RADIUS FROM PROJECT SITE)

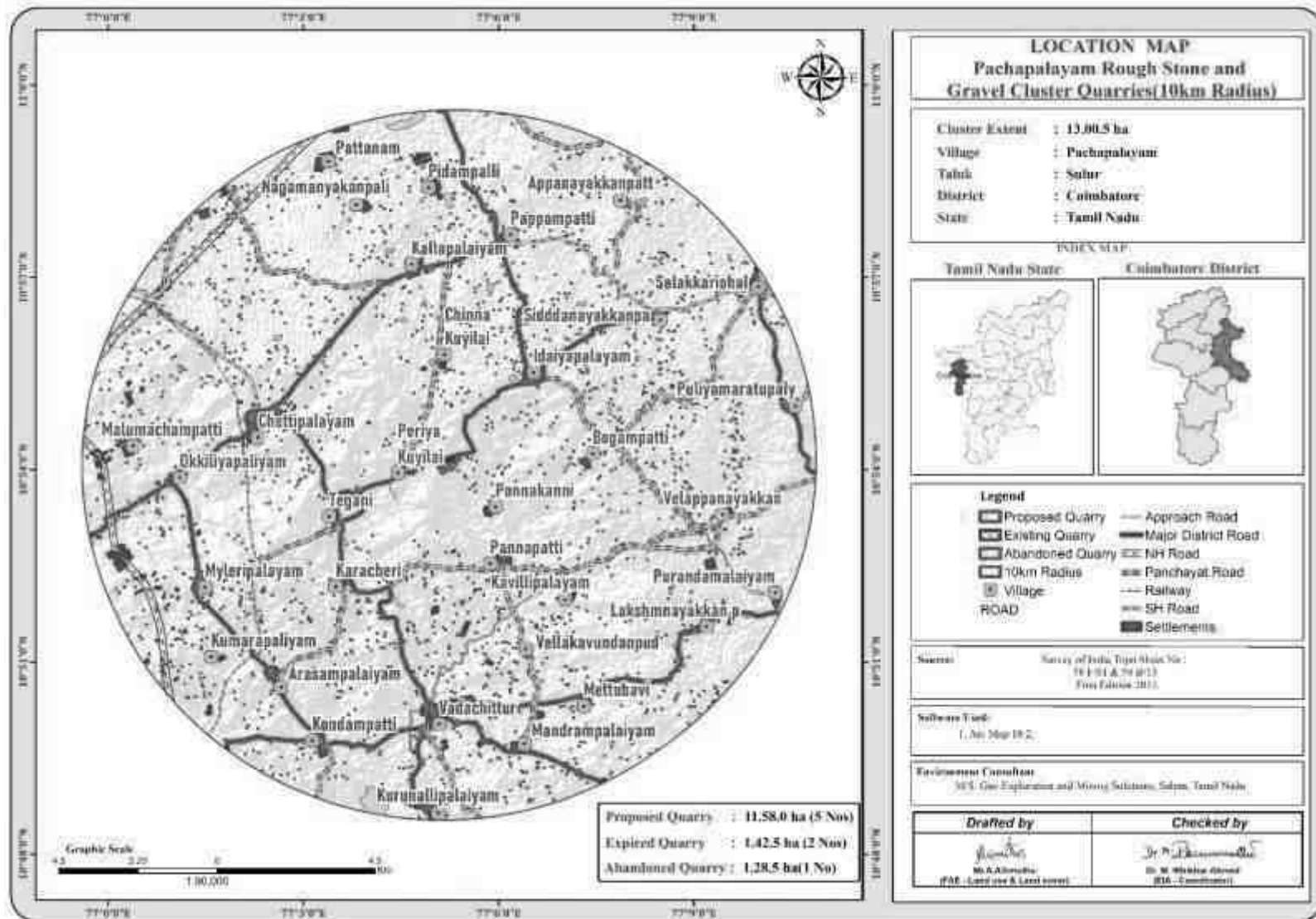


FIGURE 2.6: DIGITIZED MAP OF THE STUDY AREA (5 KM RADIUS FROM PROJECT SITE)

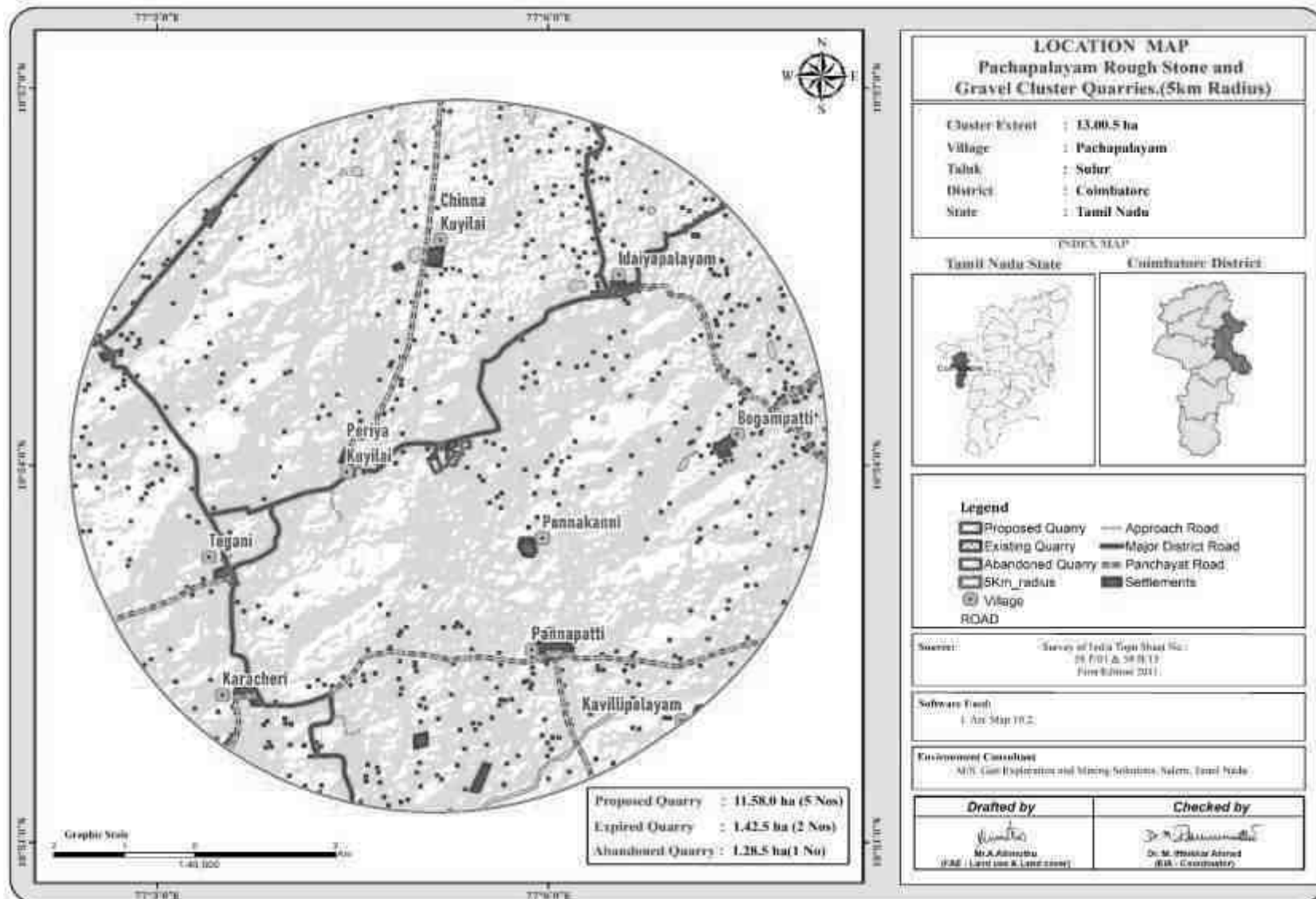
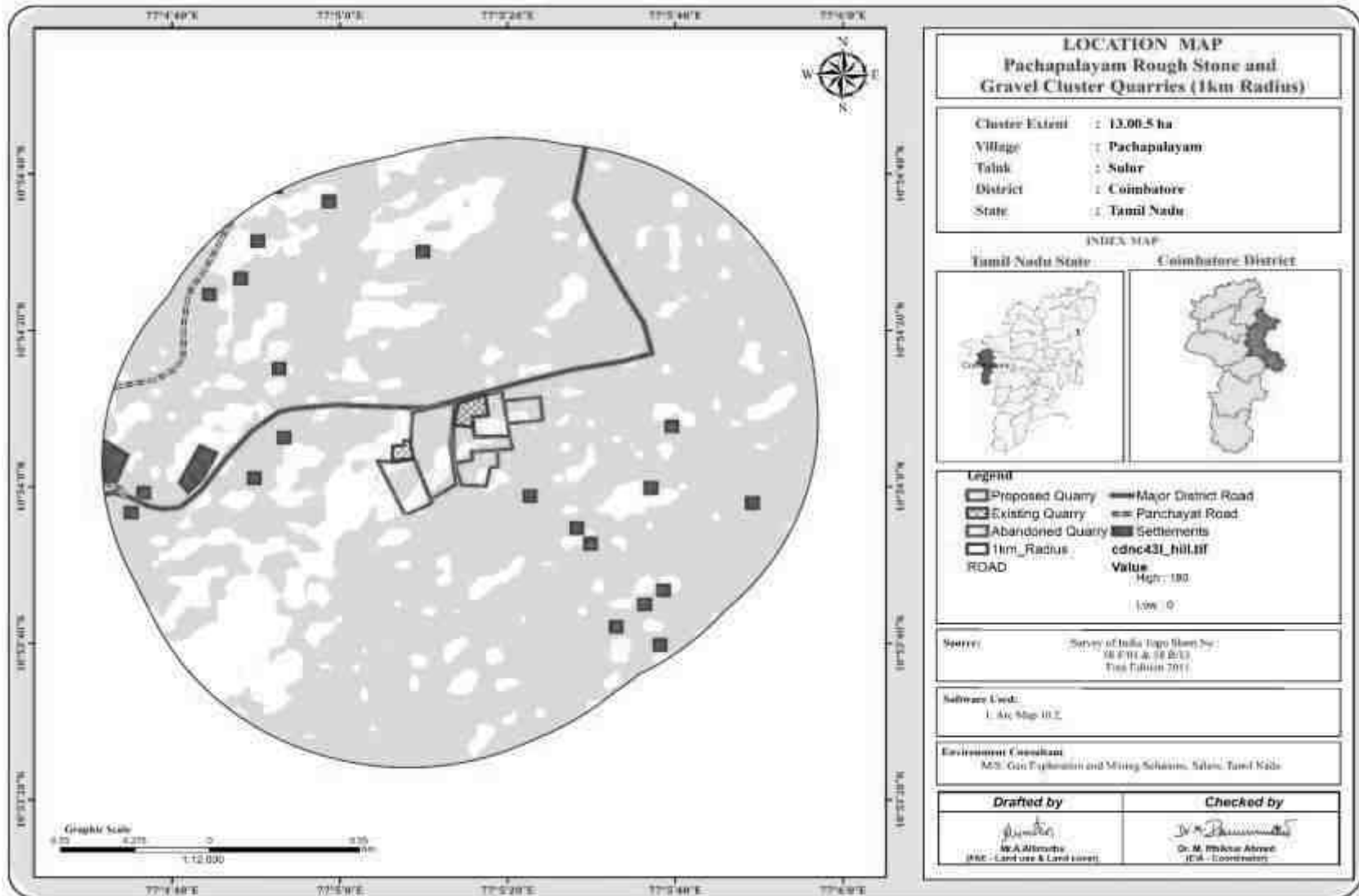


FIGURE 2.7: DIGITIZED MAP OF THE STUDY AREA (1 KM RADIUS FROM PROJECT SITE)



2.2.1 Project Area

- (i) All the projects under cluster are site specific, there is No beneficiation or processing proposed inside the project area.
- (ii) There is no forest land involved in the proposed project area and is devoid of major vegetation and trees.

TABLE 2.3 – LAND USE PATTERN OF THE PROPOSED PROJECTS

LAND USE PATTERN OF PROJECT – P1		
Description	Present area in (ha)	Area at the end of life of quarry (Ha)
Quarrying Pit	1.05.8	1.12.3
Infrastructure	Nil	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.17.0
Un – utilized area	0.73.7	0.49.2
Grand Total	1.81.5	1.81.5
LAND USE PATTERN OF PROJECT – P2		
Description	Present area in (ha)	Area at the end of life of quarry (Ha)
Quarrying Pit	0.64.6	0.88.5
Infrastructure	Nil	0.01.0
Road	0.01.0	0.02.0
Green Belt	Nil	0.18.5
Unutilized area	0.55.4	0.11.0
Grand Total	1.21.0	1.21.0
LAND USE PATTERN OF PROJECT – P3		
Description	Present area in (ha)	Area at the end of life of quarry (Ha)
Quarrying Pit	0.93.0	0.93.0
Infrastructure	0.01.0	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.20.0
Un – utilized area	0.51.5	0.31.5
Grand Total	1.47.5	1.47.5
LAND USE PATTERN OF PROJECT – P4		
Description	Present area in (ha)	Area at the end of this quarry (Ha)
Area under quarrying	3.41.0	3.41.0
Infrastructure	0.04.0	0.04.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.30.0
Unutilized Area	1.15.0	0.85.0
Grand Total	4.62.0	4.62.0

Source: Approved Mining Plan

2.2.2 Size or Magnitude of Operation

TABLE 2.4: OPERATIONAL DETAILS FOR PROPOSED PROJECTS

OPERATIONAL DETAILS FOR PROJECT – P1			
PARTICULARS	DETAILS		
	Rough Stone (m³) (5Year Plan period)	Weathered Rock (m³) (1 Years Plan period)	Gravel (m³) (1 Years Plan per iod)
Geological Resources	1,94,001 m ³	4,530	3,020 m ³
Mineable Reserves	48,572 m ³	1152 m ³	1080 m ³
Production for five-year plan period	48,572 m ³	1152 m ³	1080 m ³
Mining Plan Period / Lease Applied Period	5Years		
Number of Working Days	300 Days		
Production per Year	9,714	1,152	1080

Production per day	32	4	4
No of Lorry loads (6m ³ per load)	5	1 lorry load per week	
Total Depth of Mining	30m (2m Gravel +3m Weathered Rock + 25m Rough stone)		
OPERATIONAL DETAILS FOR PROJECT – P2			
PARTICULARS	DETAILS		
	Rough Stone (m³) (5Year Plan period)	Weathered Rock (m³)	Gravel (m³) (1 Years Plan period)
Geological Resources	4,23,500 m ³	-	24,200 m ³
Mineable Reserves	1,03,868 m ³	-	650
Production for five years Plan	1,03,868 m ³	-	650
Mining Plan Period / Lease Applied Period	5Years		
Number of Working Days	300 Days		
Production per Year	20,774		650
Production per day	69	-	2
No of Lorry loads (6m ³ per load)	12	-	1 lorry load per week
Total Depth of mining	37m (2m Gravel + 35m Rough stone)		
OPERATIONAL DETAILS FOR PROJECT – P3			
PARTICULARS	DETAILS		
	Rough Stone (m³) (5Year Plan period)	Weathered Gravel (m³) (2 Years Plan period)	
Geological Resources	6,40,584 m ³	30,504m ³	
Mineable Reserves	1,12,701 m ³	2,220 m ³	
Production for five-year plan period	1,12,701 m ³	2,220 m ³	
Mining Plan Period / Lease Applied Period	5 Years		
Number of Working Days	300 Days		
Production per Year	24,340	1,110	
Production per day	81	4	
No of Lorry loads (6m ³ per load)	14	1 lorry load per week	
Proposed Depth for Mining Plan Period	30m (2m Gravel + 28m Rough Stone)		
OPERATIONAL DETAILS FOR PROJECT – P4			
PARTICULARS	DETAILS		
	Rough Stone (m³) (5Year Plan period)	Gravel (m³) (3 Years Plan period)	
Geological Resources	13,04,105m ³	8,856m ³	
Mineable Reserves	4,40,285m ³	Gravel was removed in previous quarry operation	
Production for five-year plan period	4,40,285m ³	3,372m ³	
Mining Plan Period / Lease Applied Period	5 Years		
Number of Working Days	300 Days		
Production per Year	88,057	1,124	
Production per day	294	4	
No of Lorry loads (6m ³ per load)	49	1 lorry load per week	
Proposed Depth for Mining Plan Period	40m (2m Gravel + 38m Rough Stone) below ground level		

Source: approved mining plan

* Gravel and weathered formation are proposed to excavate for first year, second year and third years only

2.3 Geology

2.3.1 Regional 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 to S30°W with dipping SE60°.

Stratigraphy of the area –

AGE	-	FORMATION
Recent	-	Quaternary weathered formation (Gravel)
-----Unconformity-----		
Archaean	-	Charnockite

↑

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

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

The fissile homblende gneisses (Peninsular gneiss – younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsite – kyanite quartzites, ferruginous quartzite (Satya Mangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the district especially around Mettupalayam and Northern areas of Coimbatore. The granites are Proterozoic age and occupy the Western end and Eastern Part of the District as separate bodies and are recognized as Maruthamalai Granite and Punjapuliampatti Granites respectively. The quaternary alluvium is seen in the Western areas of Coimbatore town. The alluvium is more than 30m thick in the Chinnathadagam valley northwest of Coimbatore and in the Siruvani valley west of Coimbatore.

Source: District Survey Report for Minor Minerals Coimbatore District – May 2019

2.3.2 Local Geology: -

The study area follows the regional trend and mainly comprises of Hard Rock Formation as a homogeneous formation / Batholith formation of Charnockite. All the project areas are plain terrain, all the project areas is covered with gravel formation of 2m to 3m thickness; Massive Charnockite formation is found after 2 m to 3 m gravel formation which is clearly inferred from the nearby existing quarry pit.

2.3.3 Hydrogeology

Coimbatore District is underlain by crystalline metamorphic complex in the western parts of district and sedimentary tract in eastern side. An area of 4551 Sq.km is covered by crystalline rocks (63%) and 2671 Sq.km is covered by sediments (37%). The general geological sequence of formation is given below:

Quaternary - Laterites, Sands and Clays

Tertiary - Sandstone, Gravels and Clays

Cretaceous - Limestone, Calcareous Sandstone and Clay unconformity.

Archaean - Charnockites, Gneisses, Granites, Dolerites and Pegmatite

- The major part of the area is covered by metamorphic crystalline rocks of charnockite, granitic gneiss of Archaean age intruded by dolerite dykes and pegmatite veins. These rocks are highly metamorphosed and have been subjected to very severe folding, crushing and faulting.
- Ground Water occurs under the phreatic condition and wherever there are deep seated fractures, it occurs under semi-confined to confined conditions.
- Occurrence of Ground Water in hard rock depends upon the intensity and depth of weathering, fractures and fissures present in the rocks.
- Granites and gneisses yield moderately compared to the yield in Charnockites.
- Depth of well in hard rock generally ranges between 8 and 15m below ground level.

- Generally, yield in open wells ranges from 30 to 250m³ /day and in bore well between 260 and 430 m³ /day. The weathered thickness varies from 2.5 m to 42m in general there are 3 to 5 fracture zones within 100 m and 1 to 4 fracture zones between 100 and 200 m.

The Cretaceous formation is represented by Arenaceous Lime stone, Calcareous sand - stone and marl.

The Tertiary formation is argillaceous comprising of Silty clay stones, argillaceous Lime stone.

The Quaternary deposits represented by the river deposits of Ponnaiyar and Varahanadhi spread over as patches in Tiruppur District. The alluvium consists of unconsolidated sands, gravelly sands, clays and clayey sands. The thickness of the sands ranges between 15 and 25 m in the alluvial formation which also form potential aquifers. In some areas, sand stone of tertiary formation are the potential groundwater reservoirs.

Aquifer Systems:

Occurrence and storage of groundwater depend upon three factors viz., Geology, Topography and rainfall in the form of precipitation. Apart from Geology, wide variation in topographic profile and intensity of rainfall constitutes the prime factors of groundwater recharge. Aquifers are part of the more complex hydro geological system and the behaviour of the entire system cannot be interpreted easily. In hard rock terrain the occurrence of Ground Water is limited to top weathered, fissured and fractured zone which extends to maximum 30 m on an average it is about 10-15 m in Coimbatore District.

In Sedimentary formations, the presence of primary inter granular porosity enhances the transmitting capacity of groundwater where the yield will be appreciable. The sedimentary area which occupies the eastern part of the district along the coastal tract is more favourable for groundwater recharge. Ground Water occurs both in semi confined and confined conditions. A brief description of occurrence of groundwater in each formation is furnished below.

Alluvial Formations

In the river alluvium groundwater occurs under water table condition. The maximum thickness is 37 m and the average thickness of the aquifer is approximately 12 m. These formations are porous and permeable which have good water bearing zones.

Tertiary Cuddalore sandstone

Tertiary formations are represented by Cuddalore Sandstone and characterised as fluvial to brackish marine deposits. Predominantly this formation is divided into Lower and Upper Cuddalore formations. In the Upper Cuddalore formations the groundwater occurs in semi confined conditions, whereas in the Lower Cuddalore the groundwater occurs in confined condition with good groundwater potential.

Cretaceous Formations

Groundwater occurring in the lens shape in the sandy clay lenses and fine sand is underlain by white and black clay beds which constitute phreatic aquifer depth which ranges 10m to 15m below ground level. Phreatic aquifer in Limestone is potential due to the presence of Oolitic Limestone.

Hard Rock Formations

Groundwater occurs under water table conditions but the intensity of weathering, joint, fracture and its development is much less in other type of rocks when compared to gneissic formation. The groundwater potential is low, when compared with the gneissic formations

Granitic Gneiss

Groundwater occurs under water table conditions in weathered, jointed and fractural formations. The pore space developed in the weathered mantle acts as shallow granular aquifers and forms the potential water bearing and yielding zones water table is shallow in canal and tank irrigation regions and it is somewhat deeper in other regions.

Charnockite

Groundwater occurs under water table conditions but the intensity of weathering, joint, fracture and its development are much less when compared to gneissic formations. The groundwater potential is low, when compared with the gneissic formations.

Aquifer Parameters

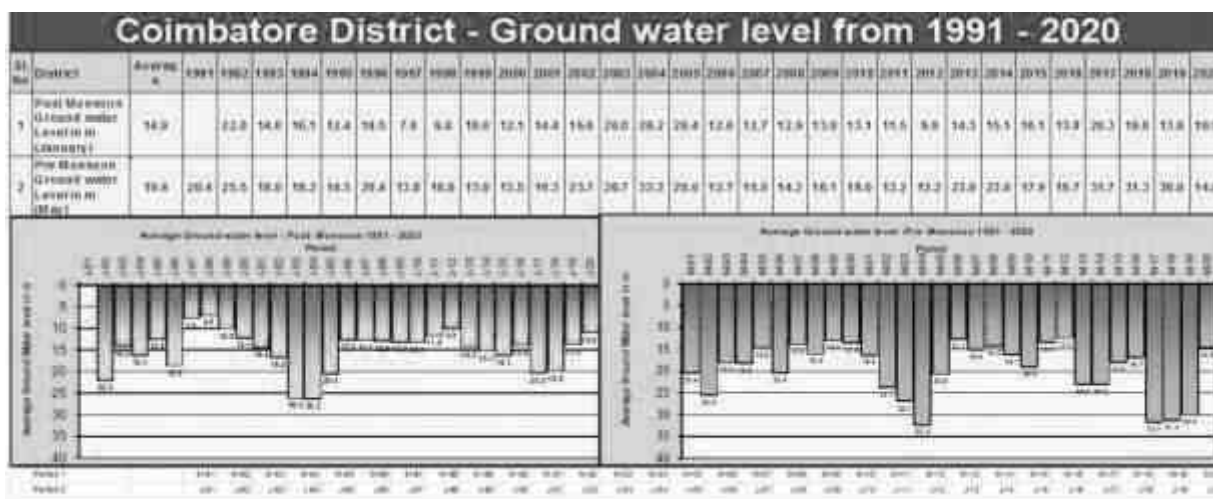
The thickness of aquifer in this district is highly erratic and varies between 15 m to 40 m below ground level. The inter granular Porosity is essentially dependent on the intensity and degree of weathering and fracture development in the bed rock. As discussed earlier deep weathering has developed in Gneissic formations and moderate weathering in charnockite formations. The range of aquifer parameters in hard rock and sedimentary formations are given below:

TABLE 2.5: RANGE OF AQUIFER PARAMETERS

Parameters	Range
Well yield in LPM	50-300 lpm
Transmissivity (T) m ² /day	1.49-164.18 m ² /day
Permeability (K) m/day	0.25-26.75 m/day

Source: <http://nwm.gov.in/sites/default/files/Notes%20on%20Coimbatore%20District.pdf>

FIGURE 2.8: GROUND WATER LEVEL VARIATIONS OF COIMBATORE DISTRICT



Source: <https://www.twadboard.tn.gov.in/content/coimbatore>

TABLE 2.6: GROUND WATER LEVEL VARIATIONS OF COIMBATORE DISTRICT

Jan 2017	May 2017	Jan 2018	May 2018	Jan 2019	May 2019	Jan 2020	May 2020	Jan 2021	May 2021	5 Years Pre-Monsoon Average	5Years Post Monsoon Average
20.4	29.6	19.8	22.3	13.7	17.6	10.9	14.6	9.3	13.0	16.5	12.6

Source: <https://www.twadboard.tn.gov.in/content/coimbatore>

FIGURE 2.9: REGIONAL GEOLOGY MAP

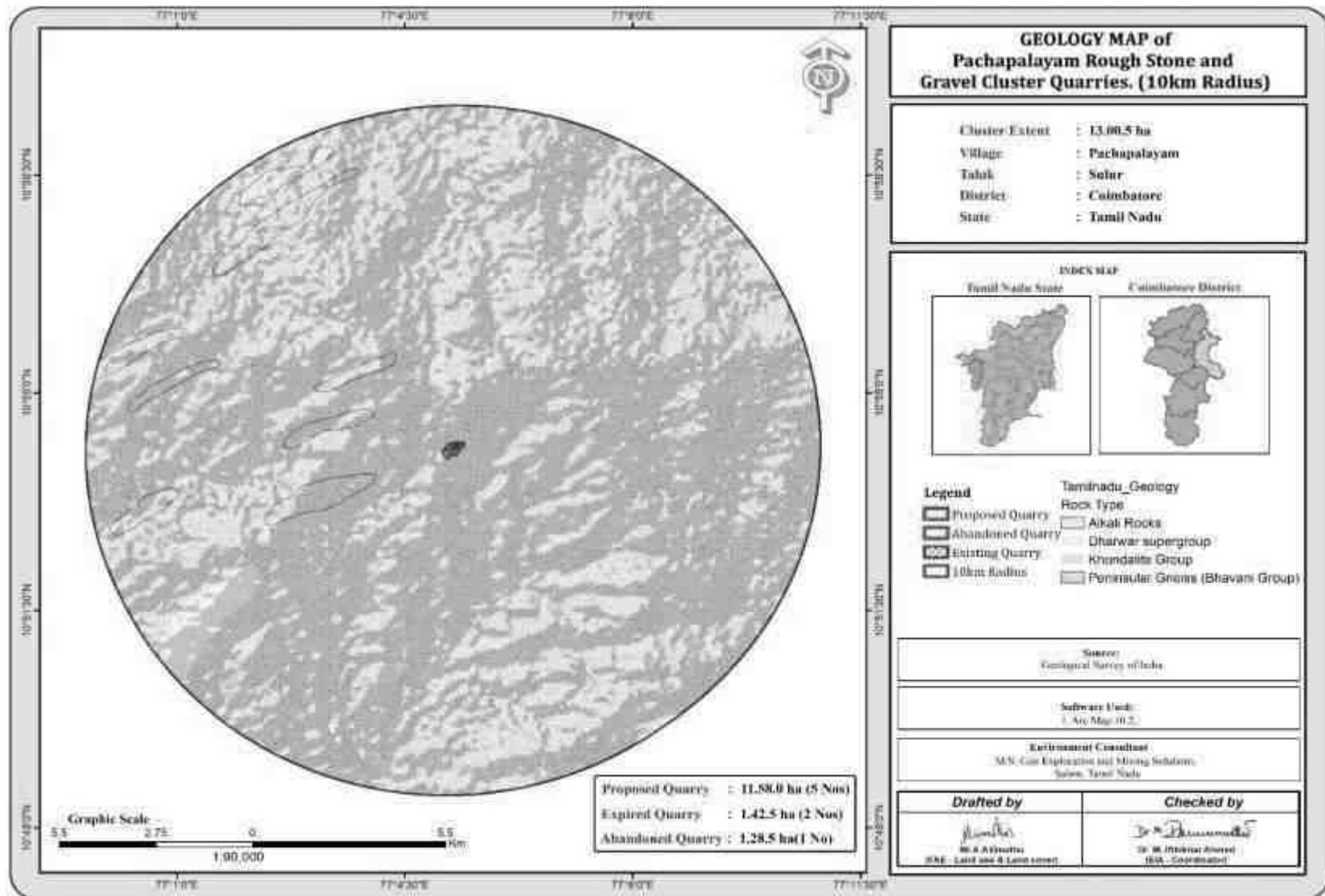


FIGURE 2.10: GEOMORPHOLOGY MAP

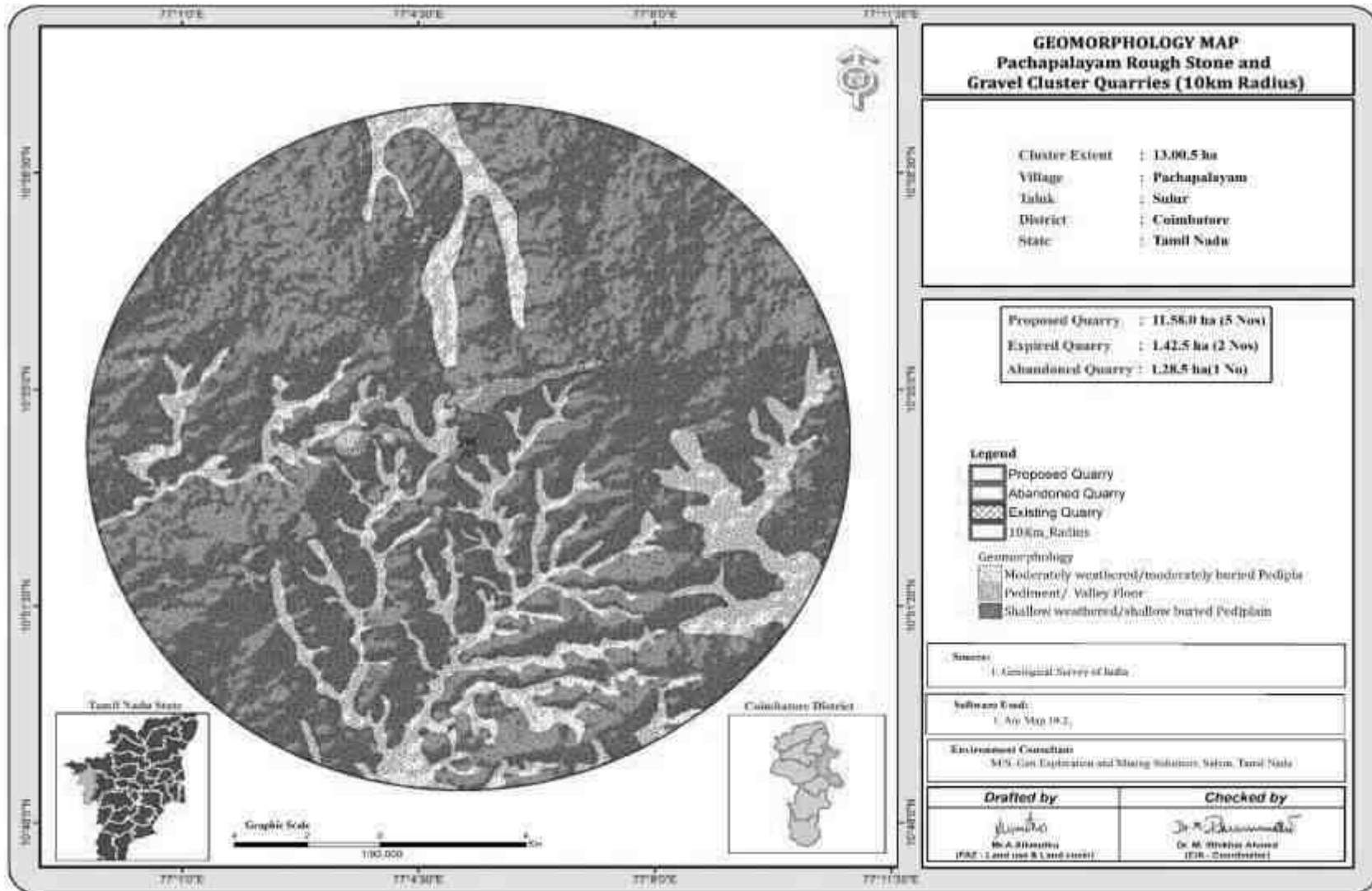
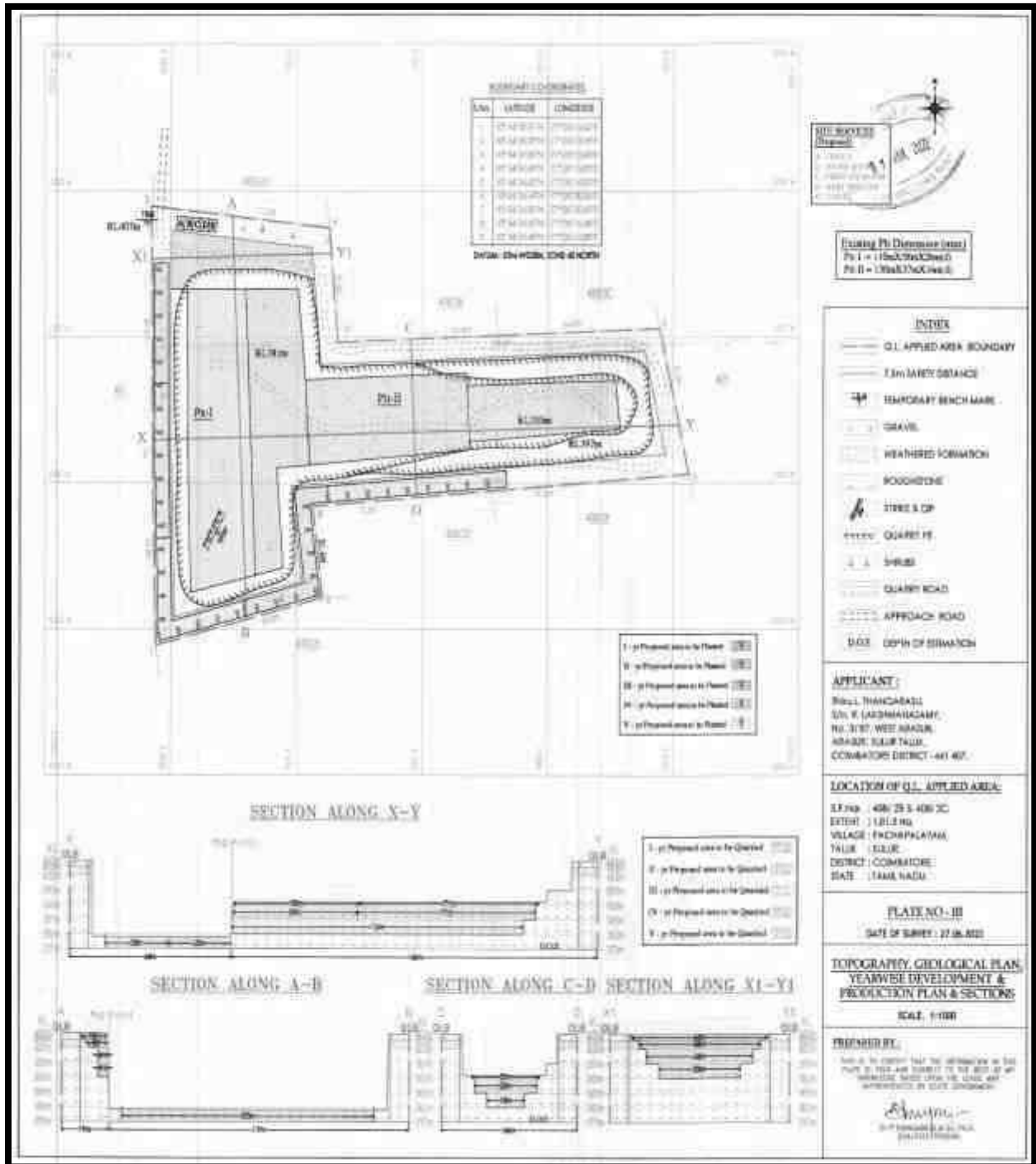
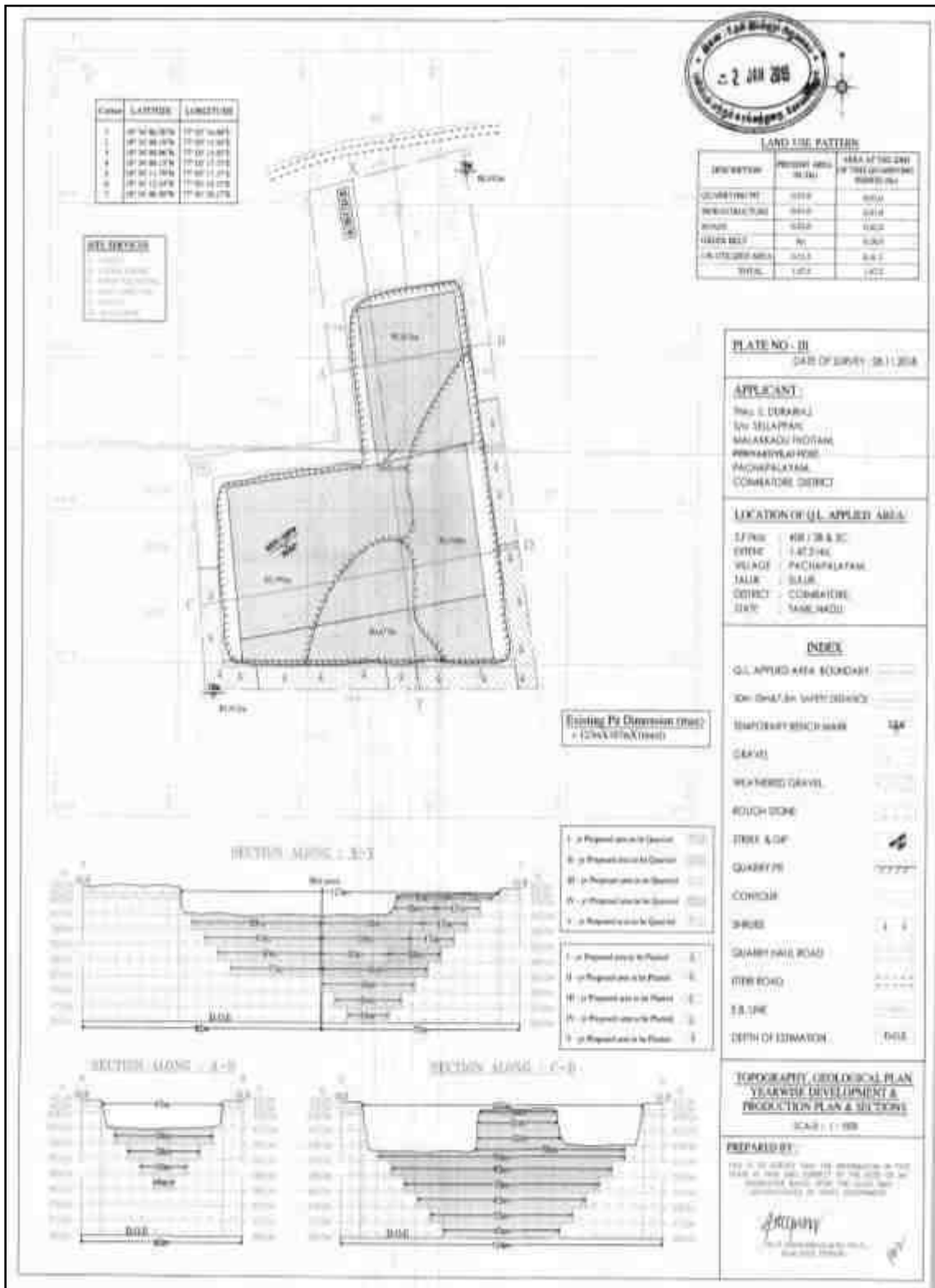


FIGURE 2.11: TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT PRODUCTION PLAN AND SECTION- P1-P4

Thiru. L. Thangarasu,- P1



Thiru.S.Durairaj -P3



Thiru.N.Thangavelu -P4



2.4 Resources and Reserves of the Cluster quarries

The available mineable reserves are calculated after leaving necessary safety distances prescribed in the Precise area communication letter.

TABLE 2.7: ROUGH STONE PRODUCTION FROM THE PROPOSAL-P1

Production for five-year plan period considering safety parameters	YEARWISE Reserves	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 6m ³ per load
48,572	I	9,080	32	5Trips /Day
	II	10,792		
	III	8,700		
	IV	10,000		
	V	10,000		

TABLE 2.8: GRAVEL PRODUCTION FROM THE PROPOSAL-P1

Production for five-year plan period in m ³	YEARWISE Reserves	Per Year Production in m ³	Per Day in m ³	Number of Lorry Load @ 6m ³ per load
1,080	I	1080	4	1 Trips per week
	II	-		
	III	-		
	IV	-		
	V	-		

Source: Approved Mining Plan

TABLE 2.9: ROUGH STONE PRODUCTION FROM THE PROPOSAL-P2

Production for five-year plan period considering safety parameters	YEARWISE Reserves	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 6m ³ per load
1,03,868	I	29,993	69	12 Trips /Day
	II	27,275		
	III	27,200		
	IV	10,625		
	V	8775		

TABLE 2.10: GRAVEL PRODUCTION FROM THE PROPOSAL-P2

Production for five-year plan period in m ³	YEARWISE Reserves	Per Year Production in m ³	Per Day in m ³	Number of Lorry Load @ 6m ³ per load
650	I	650	2	1 Trips per week
	II	-		
	III	-		
	IV	-		
	V	-		

TABLE 2.11: ROUGH STONE PRODUCTION FROM THE PROPOSAL-P3

Production for five-year plan period considering safety parameters	YEARWISE Reserves	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 6m ³ per load
1,12,701	I	22,354	75	13 Trips /Day
	II	21,672		
	III	22,350		
	IV	23,875		
	V	22,450		

TABLE 2.12: WEATHRED GRAVEL PRODUCTION FROM THE PROPOSAL-P3

Production for five-year plan period in m ³	YEARWISE Reserves	Per Year Production in m ³	Per Day in m ³	Number of Lorry Load @ 6m ³ per load
2,220	I	1200	4	1 Trips per week
	II	1020		
	III	-		
	IV	-		
	V	-		

Source: Approved Mining Plan

TABLE 2.13: ROUGH STONE PRODUCTION FROM THE PROPOSAL-P4

Production for five-year plan period considering safety parameters	YEARWISE Reserves	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 6m ³ per load
4,40,285	I	88,708	294	49 Trips /Day
	II	88,685		
	III	88,880		
	IV	89,417		
	V	84,595		

TABLE 2.14: GRAVEL PRODUCTION FROM THE PROPOSAL-P4

Production for five-year plan period in m ³	YEARWISE Reserves	Per Year Production in m ³	Per Day in m ³	Number of Lorry Load @ 6m ³ per load
3,372	I	1480	4	1 Trips per week
	II	1250		
	III	642		
	IV	-		
	V	-		

Source: Approved Mining Plan

Disposal of Waste

In the entire cluster quarries no waste is anticipated, quarried out materials (Rough stone and Gravel) will be utilized (100%).

2.5 Method of Mining

The method of mining is common for all the proposed projects – The method of mining is 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. 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.

The top layer of overburden (Gravel) will be Excavate directly 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.

2.5.1 Drilling

Drilling will be carried out as per parameters given below: -

Spacing – 1.2m, Burden –1.0, Depth of hole - 1.5m

2.5.2 Blasting

Blasting will be done as per details below: -

- Controlled blasting parameter: -

Spacing – 1.2m

Burden – 1.0 m

Depth of hole – 1.5 m

Charge per hole – 0.5Kg

Powder factor – 6.0 tonnes/kg

Dia of hole – 32 mm

Details of blasting design and parameters are discussed in approved mining plan.

No of Holes to be drilled per day: -

Volume of Rough Stone will be excavated from one hole	=	3 Tonnes
Total Volume from 4 proposed quarries	=	7,05,426 m ³
	=	7,05,426 /5
	=	1,41,085 /300
	=	470* 2.6
	=	1,223 Tonnes per day
Therefore, Number of Holes per day	=	1223/3
	=	408 Holes per day (for 4 Quarries)

Type of Explosives to be used –

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

2.5.3 Extent of Mechanization

TABLE 2.15 PROPOSED MACHINERY DEPLOYMENT

Source: Approved Mining Plan of the respective projects.

2.6 General Features

2.6.1 Existing Infrastructures

Infrastructures like Mine office, Temporary Rest shelters for workers, Latrine and Urinal Facilities are available in the Existing quarries and the same infrastructure as per the Mine Rule will be arranged after the grant of quarry lease in the proposed quarries.

2.6.1 Drainage Pattern

The general drainage pattern of the area is dendritic. There are no streams, canals or water bodies crossing within the project area, hence there is no requirement of stream or canals diversion in the near future.

2.6.2 Traffic Density

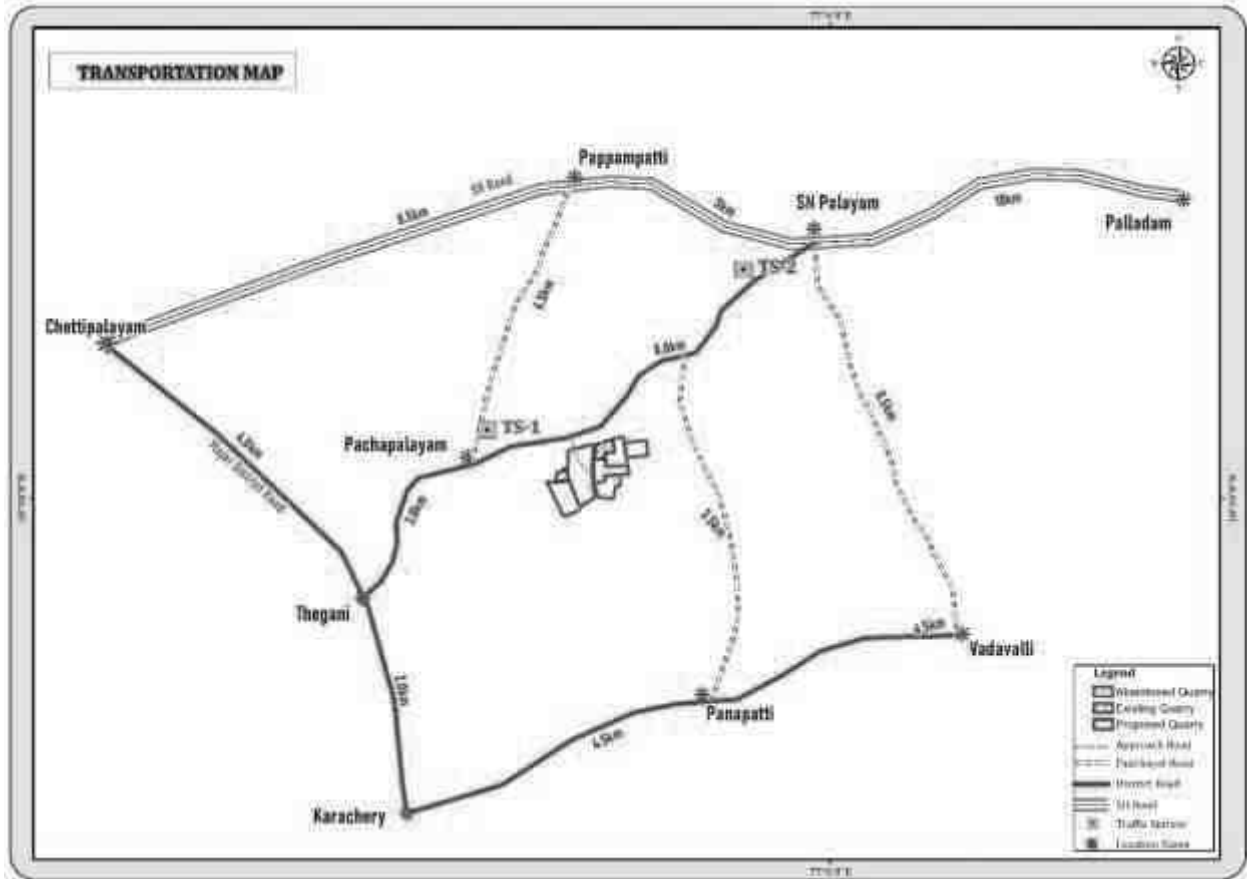
Traffic density measurements were performed as per IRC 1960 Guidelines at three locations based on the transportation route. Traffic density measurement were made continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., heavy motor vehicles, light motor vehicles 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 either direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken.

TABLE 2.16 – TRAFFIC SURVEY LOCATION'S

Station code	Station location	Distance and Direction	Type of Road
TS1	Pappampatti-Pachapalyam	850m- NW	Panchayat Road
TS2	S.N. Palayam-Thegani	6.5 Km-NE	District Road

Source: On-site monitoring by GEMS FAE & TM

FIGURE 2.12: TRAFFIC SURVEY LOCATIONS & TRANSPORTATION ROUTE MAP



(Source: Survey of India Toposheet)

TABLE 2.17 – EXISTING TRAFFIC VOLUME

Station code	HMV (Hourly Average)		LMV hourly average		2/3 Hourly average		Total PCU per hour
	No	PCU	No	PCU	No	PCU	
TS1	45	135	25	25	50	25	185
TS2	150	450	150	150	170	85	685

Source: On-site monitoring by GEMS FAE & TM

- PCU conversion factor for HMV (Trucks and Bus) = 3, LMV (Car, Jeep and Auto) = 1 and 0.5 for Motor Vehicles (2/3 Wheelers)

TABLE 2.18 – ANTICIPATED TRAFFIC DUE TO THIS PROPOSED PROJECT

Transportation of Rough stone per day		
Capacity of trucks	Cumulative Trips	Volume in PCU
10/20 tonnes	231 per day (66 Trips of Rough stone and 10 Trips of Gravel) ie., 8 Tippers per hour	231

Source: Anticipated based on Approved Mining Plan Production

TABLE 2.19 – SUMMARY OF TRAFFIC VOLUME

Route	Existing traffic value in PCU	Incremental traffic from the quarry in PCU	Total traffic volume	Hourly Capacity in PCU as per IRC guidelines
Village road	185	231	416	500
District Road	685	231	916	1200

Source: On-site monitoring analysis summary by GEMS FAE & TM

As per the IRC 1960 this existing road can handle 1,200 PCU in hour and Major district road can handle 1500 PCU in hour hence there will not be any conjunction due to this transportation.

2.6.3 Mineral Beneficiation and Processing

There is no proposal for the mineral processing or ore beneficiation in this project.

2.6.4 Existing Infrastructure

It is a existing proposed quarry, no infrastructural facility available within the project area. The infrastructural facilities to be made after the start of the quarrying operations will be prepared outside limit as per the rules and safe distance to be adopted.

2.6.2 Drainage Pattern

The drainage pattern of the area is dendritic – sub dendritic.

2.7 Project Requirement

2.7.1 Water Source & Requirement

Detail of Total water requirements in KLD as given below:

TABLE 2.20 – WATER REQUIREMENT FOR THE CLUSTER PROJECT -P1-P4

PROPOSAL – P1		
*Purpose	Quantity	Source
Dust Suppression	1.0 KLD	From Existing bore wells from nearby area
Green Belt development	0.4 KLD	From Existing bore wells from nearby area
Drinking and Domestic purpose	0.2KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	1.6 KLD	
PROPOSAL – P2		
*Purpose	Quantity	Source
Dust Suppression	1.8 KLD	From Existing bore wells from nearby area
Green Belt development	0.6 KLD	From Existing bore wells from nearby area
Domestic purpose	0.6 KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	3.0 KLD	
PROPOSAL – P3		
*Purpose	Quantity	Source
Dust Suppression	1.0 KLD	From Existing bore wells from nearby area
Green Belt development	1.5 KLD	From Existing bore wells from nearby area
Domestic purpose	0.5 KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	3.0 KLD	
PROPOSAL – P4		
*Purpose	Quantity	Source
Dust Suppression	0.6 KLD	From Existing bore wells from nearby area
Green Belt development	0.5 KLD	From Existing bore wells from nearby area
Sanitation & Drinking	0.4 KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	1.5 KLD	

Source: Prefeasibility Report

About 50% water will be required for the suspension of the dust, Water shall be obtained from accumulated rainwater/seepage water in quarry pits. Packaged Drinking Water is available from the nearby approved water vendors.

2.7.2 Power and Other Infrastructure Requirement

The project's does not require power supply for the quarry operation. The quarrying activity is proposed during day time only (General Shift 8 AM – 5 PM, Lunch Break 1 PM – 2 PM). Electricity for use in office and

other internal infrastructure will be obtained from TNEB. For the quarrying operation like compressor for drilling Diesel will be utilized.

The temporary infrastructures such as Mine Office, First Aid Room, Rest Shelter etc., will be constructed within the project area before commencing the quarry operation. No workshops are proposed inside the project area hence there will not be any process effluent generation from the project area. Domestic effluent from the mine office will be discharged to septic tank and soak pit. There is no toxic effluent expected to generate in the form of solid, liquid or gaseous form hence there is no requirement of waste treatment.

2.7.3 Fuel Requirement

High speed Diesel (HSD) will be used for mining machineries. Diesel will be brought from nearby Fuel Stations.

Average diesel consumption is around = 500 Liters of HSD / day per project
= Total of 2,000 Liters of HSD per day for four proposed projects

2.7.4 Employment Requirement:

The skilled, competent qualified statutory persons will be engaged for quarrying operation, preference will be given to the local community.

TABLE 2.21: EMPLOYMENT POTENTIAL FOR PROPOSED QUARRIES

Identification code	Employment in Nos
P1	11
P2	18
P3	19
P4	43
Total	91

A total of 91 people will get employment due to these 4 quarries in the cluster quarries.

2.7.5 Project Cost

TABLE 2.22 – PROJECT COST OF PROPOSED PROJECTS

Identification code	Project Cost
P1	Rs. 58,98,000
P2	Rs. 31,66,800
P3	Rs. 50,67,612
P4	Rs.92,27,000/-
Total	Rs. 22,35,9,412

Source: Approved Mining Plan & Prefeasibility Report of the respective projects

2.8 Project Implementation Schedule

The commercial operation will commence after the grant of Environmental Clearance. CTO will be obtained from the Tamil Nadu State Pollution Control Board. The conditions imposed during the Environmental Clearance will be compiled before the start of mining operation.

TABLE 2.23 – EXPECTED TIME SCHEDULE FOR THE PROPOSED QUARRIES

S. No	Particulars lease execution	Time schedule (in month)					Remarks if any
		1 st	2 nd	3 rd	4 th	5 th	

1	Environmental Clearance						
2	Consent to operate						Production start period

Source: Anticipated based on Timelines framed in EIA Notification & CPCB Guidelines

CHAPTER – 3: DESCRIPTION OF ENVIRONMENT

3.0 General

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline status of the project environment is described section wise for better understanding of the broad-spectrum conditions. The baseline environment quality represents the background environmental scenario of various environmental components such as Land, Water, Air, Noise, Biological and Socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering Mar 2022, Apr & May 2022 with CPCB guidelines. Environmental data has been collected with reference to cluster quarries by KGS ENVIRO LABORATORY PVT LTD– Approved by ISO/IEC 17025:2017, for the below attributes-

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

Study Area

An area of 10 km radius (aerial distance) from the periphery of the cluster is considered for EIA study. The data collection has been used to understand the existing environment scenario around the cluster quarries against which the potential impacts of the project can be assessed. The study area has been divided into two zones viz **core zone** and **buffer zone** where core zone is considered as cluster and buffer zone taken as 10km radius from the periphery of the Cluster. Both Core zone and Buffer zone is taken as the study area.

Study Period

The baseline study was conducted during the summer season i.e., March 2022 – May 2022.

Study Methodology

Baseline data was generated for various environmental parameters including Land, Soil, Water (surface and groundwater), Air, Noise, Ecology & Biodiversity and Socio-economic status to determine the quality of the prevailing environmental settings. A MoEF accredited Laboratory was used for generating the baseline data.

1. The project area (Core zone) was surveyed in detail with the help of Total Station survey instrument and the boundary pillars were picked up with the help of handheld GPS. The boundary coordinates were superimposed on the satellite imagery to understand the relief of the area, besides Land use pattern of the area was studied through the Bhuvan (ISRO).
2. Soil samples were collected and analysed for relevant physico-chemical characteristics, exchangeable cations, nutrients & micro nutrients etc., in order to assess the impact of mining activities and proposed greenbelt development
3. Ground water samples were collected during the study period from the open wells and bore wells, while surface water was collected from river and lake in the buffer zone. The samples were analysed for parameters necessary to determine water quality (based on IS: 10500:2012 criteria) and those which are relevant from the point of view of environmental impact of the proposed quarries.
4. A meteorological station was setup in pachapalayam village. Wind speed, Wind direction, Dry and wet bulb temperature, Relative humidity, Rainfall with cloud cover and general weather conditions were recorded throughout the study period.

5. In order to assess the Ambient Air Quality (AAQ), samples of Ambient Air were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM₁₀ and SO₂, NO_x with gaseous attachments & Fine Dust Samplers (FDS) for PM_{2.5} and other parameters as per NAAQ norms and analysed for primary air pollutants to work out the existing status of air quality
6. The noise level measurements were also made at various locations in different intervals of time with the help of sound level meter to establish the baseline noise levels in the impact zone
7. Baseline biological studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern of the area
8. Socio-Economic survey was conducted at village and household level in the study area to understand the present socio-economic conditions and assess the extent of impact due to the proposed mining project

The sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of samples analysis, etc., are given below Table 3.1.

TABLE 3.1 – ENVIRONMENTAL MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data's from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio-Chemical Characteristics	Once during the study period	6 (2 core & 4 buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (2surface water & 4ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM ₁₀ PM _{2.5} SO ₂ NO _x Fugitive Dust	24 hourly twice a week (Mar – May 2022)	8 (2 core & 6 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	8 (2core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & Transect Study Secondary Data – Forest Working Plan

Socio Economic Aspects	Socio-Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.
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Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd in association with GEMS

* All monitoring and testing are been carried out as per the Guidelines of CPCB and MoEF & CC.

3.1 LAND ENVIRONMENT

The main objective of this section is to provide a baseline status of the study area covering 10km radius around the proposed mine site so that temporal changes due to the mining activities on the surroundings can be assessed in future.

3.1.1 LAND USE/ LAND COVER

To study the land use pattern of the core as well as a buffer zone, land use/land cover details have been identified/ maps have been prepared in accordance with the **Standard ToR point no. 4 & 10 Stating:** Point No. 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).

Point No. 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.

3.1.2 OBJECTIVE

The objectives of the LULC study are as follow:

- ☞ Preparation of land use and land cover map using the extent of the project and study area.
- ☞ Identification and marking of important basic features according to primary and secondary data.
- ☞ Evaluation of the impact on existing land use of the project area.
- ☞ Mitigative measures for conservation and sustainable use of land

Technical specification of Satellite imagery Data Used:

- ☞ Satellite Image - Resourcesat1-LISSIII, 23.5m Resolution
- ☞ Satellite Data Source - NRSC, Hyderabad
- ☞ Satellite Vintage - 14st July 2020, Swath 141km wide.
- ☞ SOI Toposheet No - 58 F/01
- ☞ Software Used - ArcGIS 10.8

The satellite image (FCC color 3,2,1) of the buffer zone is given in 3.1

The spatial resolution and the spectral bands in which the sensor collects the remotely sensed data are two important parameters for any land use survey. Resourcesat1-LISSIII, 23m Resolution of 23.5m and a 141 km wide swath of the earth in 23.5m resolution covering wide areas the data is collected in 4 visible bands namely band number and Resolution.

TABLE 3.2: Resourcesat1-LISSIII SENSOR characteristics

Band Number	Description	Wavelength	Resolution
Band 1	Green	0.52-0.59 μm	23.5 meters
Band 2	Red	0.62-0.68 μm	23.5meters
Band 3	NIR	0.77-0.86 μm	23.5meters

Band 4	SWIR	1.55-1.70 μm	70meters
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Source: Bhuvan, NRSC.

3.1.3 METHODOLOGY

- ☞ Preliminary/primary data collection of the study area
- ☞ Satellite data procurement from USGS-Earth Explorer
- ☞ Secondary data collection from authorized bodies
- ☞ Survey of India Toposheet (SOI)
- ☞ Mine Layout
- ☞ Cadastral / Khasra map
- ☞ GPS Coordinates of Lease Boundary
- ☞ Processing of satellite data using ArcGIS 10.8 and preparing the Land Use & Land cover maps (e.g. Plant/Mine area, Existing Quarries, Settlements, Agriculture land, Non agriculture land, water bodies, etc.) by Digital Image Processing (DIP) technique.
- ☞ Geo-Referencing of the Survey of India Toposheet
- ☞ Geo-Referencing of satellite Imagery with the help of Geo-Referenced Toposheets
- ☞ Enhancement of the Satellite Imagery
- ☞ Base Map layer creation (Roads, Railway, Village Names, and other Secondary data, etc.)
- ☞ Data analysis and Classification using Digital interpretation techniques.
- ☞ Ground truth studies or field Verification.
- ☞ Error fixing / Reclassification
- ☞ Final Map Generation.

The land use/Land cover Map of the buffer zone is given in 3.4(b).

Land Use Pattern of the Buffer Zone (Study area)

Details of the same are given in Table - 3.3 and the map is shown in Figure - 3.2

TABLE: 3.3 LAND USE / LAND COVER DETAILS OF STUDY AREA

S.No	CLASSIFICATION	AREA_HA	AREA_ %
BUILTUP			
1	URBAN	306.41	0.93
2	RURAL	1075.35	3.25
3	MINING	529.41	1.60
AGRICULTURAL LAND			
4	CROP LAND	26524.92	80.10
5	PLANTATION	3501.37	10.57
BARREN/WASTE LANDS			
6	SCRUB LAND	1069.05	3.23
WETLANDS/ WATER BODIES			
7	WATER BODIES/LAKE	108.10	0.33
TOTAL		33114.61	100.00

Source: Bhuvan, NRSC.

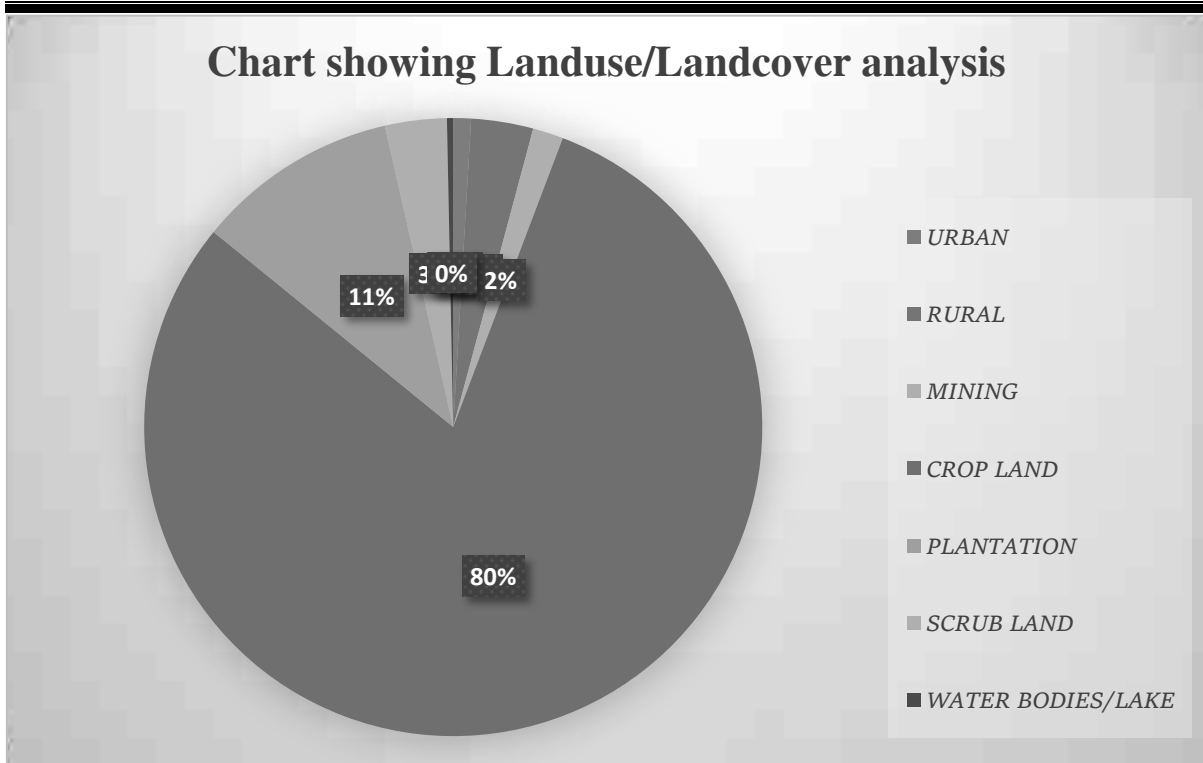


FIGURE 3.1: CHART SHOWING LANDUSE/LANDCOVER ANALYSIS

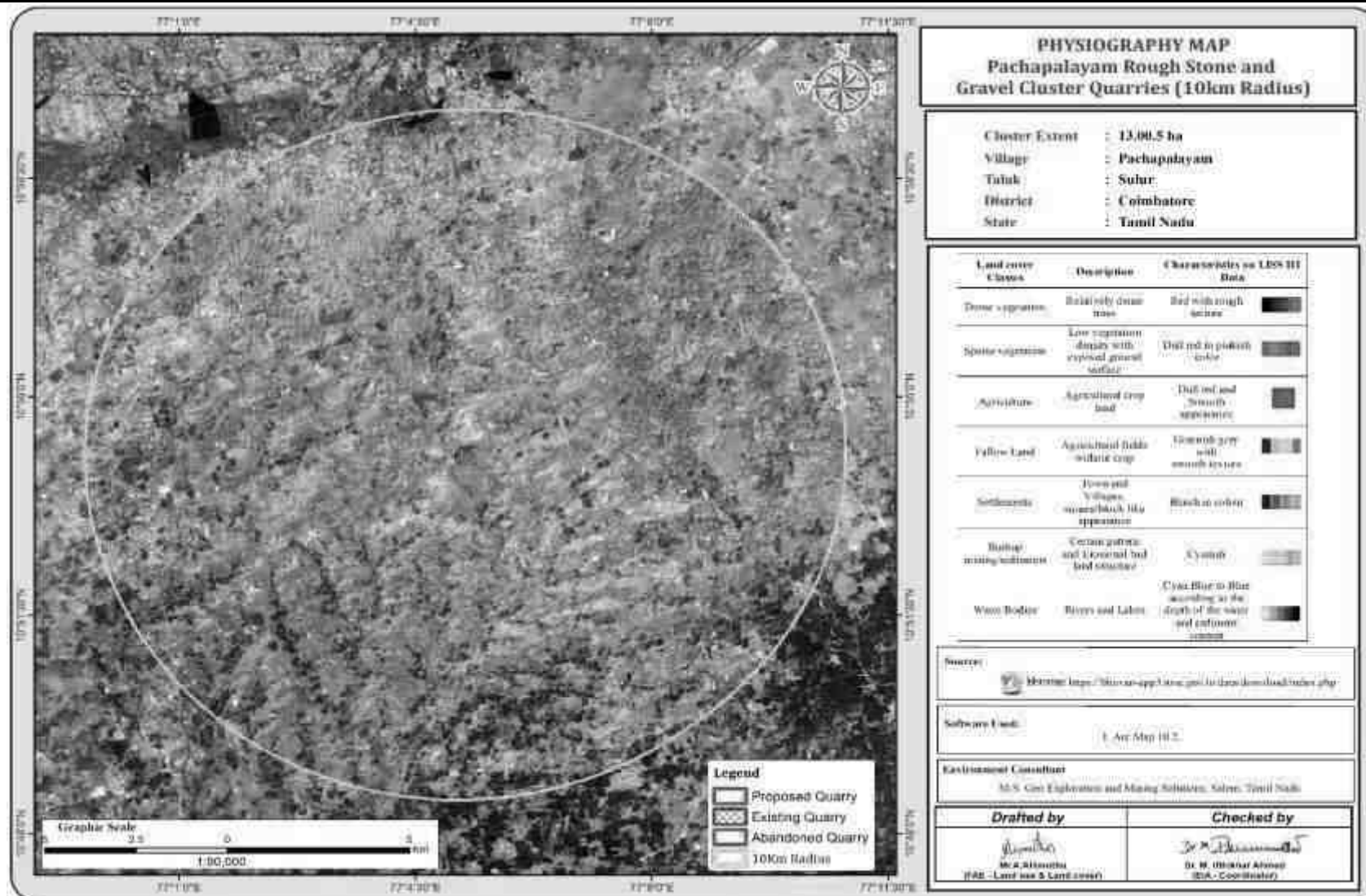


FIGURE 3.2: MAP SHOWING NATURAL COLOUR COMPOSITE (3,2,1) SATELLITE IMAGERY OF THE STUDY AREA

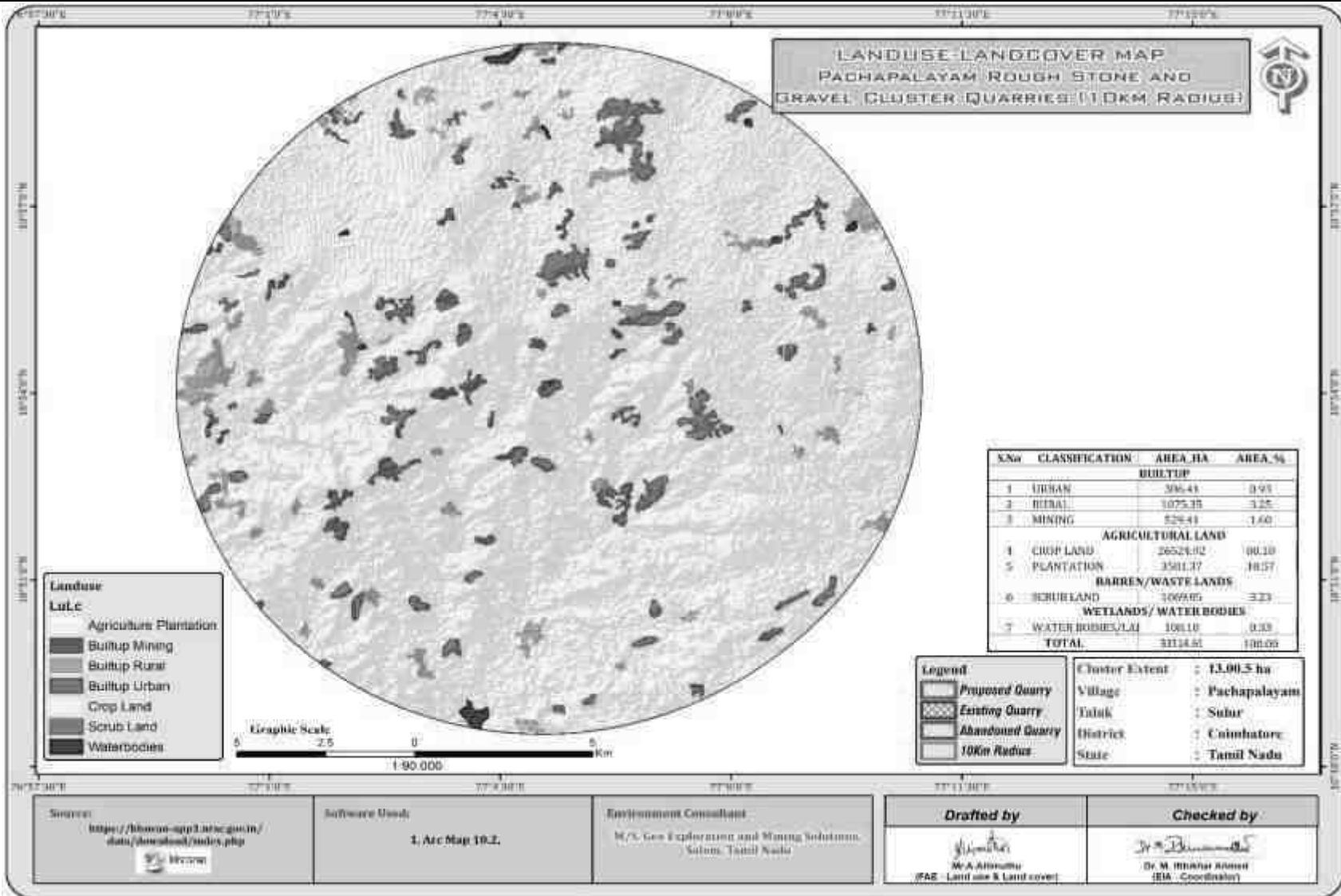


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS

3.1.4 Interpretation

- ☞ The 10 km radius study area mainly comprises of crop land & Agriculture Plantation land accounting of 80.10% & 10.57% of the total study area. The study area also consists of fallow land of 10.11%.
- ☞ The buffer zone studied has no ecological sensitive area (National Park, Wildlife Sanctuary, Biosphere Reserve/ etc.).
- ☞ Water Bodies such as ponds/ lakes comprises of 0.33% of the total buffer area. Kothavadi Lake 9.8km in S and Pallipalayam Lake at 9.5km in N direction of the total study area.
- ☞ The Scrub land accounts of 3.23%. As per the primary survey, it was observed the scrub land is mainly occupied by the stony waste and left-over domestic waste generated by the nearby areas.
- ☞ 1.60% of the total study area has occupied by the mine industries. The area occupied by Mainly Roughstone and gravel of the total buffer area. As also observed within the primary survey, the 10 km buffer area is also occupied by the medium scaled granite and small Brick kiln industries also located in the study area.
- ☞ 4.18% of the area is covered under the Builtup Land. The nearest village within the 3 km radius from the project site boundary is observed to be villages like Panapatti, Pachapalayam, Edayapalayam Village etc.,

3.1.5 Interpretation and Conclusion

- ☞ Pachapalayam village Roughstone and gravel quarries has proposed Project. It is a patta land.
- ☞ Total project area is 33114 ha around 10km radius.
- ☞ As new Proposed mine is coming in the area, percentage of human settlement will be increased in surrounding of project site and Infrastructure facilities also will be developed on the basis of requirement.
- ☞ The 10 km study area mostly covers of crop land 80%. As per current study area is occupied by scrub land 3.23%, Waterbodies 0.33% in 10 km radius from the study area land use into quarrie purpose for this proposed project.
- ☞ The project site falls under the Roughstone and gravel region. Therefore, the area is appropriate for developing Road development and building etc., it shows that the region has good prospects in the future. Due to proposed Roughstone in this region, economic condition of locals is expected to be improved directly & indirectly. Hence project will prove to be the best economic proposal for the coming times.

3.1.6 Topography

The project area is almost plain terrain with gentle gradient towards Northwestern – Southeastern side, maximum elevation of the area is 400-420 m above Mean Sea level There are no hilly regions in and around the area.

3.1.7 Drainage Pattern of the Area

There are no developed surface drainage channels in the study area. Noyyal, a non-perennial pass 10.0km-North from the project site. The area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The area is mostly dry in all seasons except rainy seasons.

The general drainage pattern of the area is of sub dendritic and dendritic pattern. No prominent water course or nallah is inferred. During rainy season the surface runoff flows in W to E direction. The drainage pattern of the study area is given in Fig. 3.5. The quarrying activity will not hinder the natural flow of rainwater.

3.1.8 Environmental Features in the Study Area

There is no Wildlife Sanctuaries, National Park and Archaeological monuments within the study area. No Protected and Reserved Forest area is involved in the project area. Therefore, there will be no need to acquisition/diversion of forest land. The details related to the environment sensitivity around the mine lease area i.e. 10 km radius of the mine lease area, are given in the below Table 3.3.

3.1.9 Seismic Sensitivity

The proposed project site falls in the seismic Zone II, low damage risk zone as per BMTPC, Vulnerability Atlas of Seismic zone of India IS: 1893 – 2002. The project area falls in the hard rock terrain on the peninsular shield of south India which is highly stable.

TABLE 3.4 – DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE PROJECT AREA

Sl. No	Sensitive Ecological Features	Name	Arial Distance in km from Mine Lease Boundary
1	National Park / Wild life Sanctuaries	Indira Gandhi (Anamalai) Wildlife Sanctuary	43km-South
2	Reserve Forest	Boluvampatti R.F	15km-West
3	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10Km Radius
4	Critically Polluted Areas	None	Nil within 10Km Radius
5	Mangroves	None	Nil within 10Km Radius
6	Mountains/Hills	None	Nil within 10Km Radius
7	Notified Archaeological Sites	None	Nil within 10Km Radius
8	Defence Installation	None	Nil within 10Km Radius

Source: Survey of India Toposheet, Village Cadastral Map & Google Earth/Maps

TABLE 3.5 – WATER BODIES WITHIN THE CLUSTER FROM PROPOSED QUARRIES

P1- Thiru. L.Thangarasu			
S.No	LABEL	DISTANCE & DIRECTION	Habitation
1	Kuttai	500m NW	800m -W
2	Odai	1km SE	
3	Kothavadi Lake	9.8km South	
4	Pallapalayam Lake	9.5km North	
P2- Thiru.D.Karthikeyan			
S.No	LABEL	DISTANCE & DIRECTION	Habitation
1	Kuttai	550m NW	1km -SW
2	Odai	980m SE	
3	Kothavadi Lake	9.8km South	
4	Pallapalayam Lake	9.5km North	
P3- Thiru.S.Durairaj			
S.No	LABEL	DISTANCE & DIRECTION	Habitation
1	Kuttai	500m NW	860m - S.West
2	Odai	1km SE	
3	Kothavadi Lake	9.8km South	
4	Pallapalayam Lake	9.5km North	
P4- Thiru.N.Thangavel			
S.No	LABEL	DISTANCE & DIRECTION	Habitation
1	Kuttai	350m NW	630m West
2	Odai	1.2km SE	
3	Kothavadi Lake	9.5km South	
4	Pallapalayam Lake	9.5km North	

Source: Village Cadastral Map and Field Survey, PFR Report

3.1.10 Soil Environment

Soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and analysed for different parameters. The locations of the monitoring sites are detailed in Table 3.6 and Figure 3.4.

TABLE 3.6 – SOIL SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Core Zone	Project Area	10°54'11.77"N 77° 5'18.51"E
2	S-2	Core Zone	Project Area	10°54'7.73"N 77° 5'9.42"E
3	S-3	Pachapalayam	1km SW	10°53'52.68"N 77° 4'40.16"E
4	S-4	Kallapalayam	5.2Km North	10°56'58.23"N 77° 4'48.84"E
5	S-5	Karachery	4.2km SW	10°52'18.10"N 77° 3'44.90"E
6	S-6	Bogampatti	4.2km East	10°54'24.50"N 77° 7'45.13"E

Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd in association with GEMS

FIGURE 3.4: SITE PHOTOGRAPHS OF SOIL SAMPLING LOCATIONS



P1- Thiru. LThangarasu



P2- Thiru.D.Karthikeyan

**P3- Thiru.S.Durairaj****P4- Thiru.N.Thangavelu****The objective of the soil sampling is -**

1. To determine the baseline soil characteristics of the study area;
2. To determine the impact of proposed activity on soil characteristics and;

To determine the impact on soil more importantly agriculture production point of view.

Methodology –

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the proposed quarry site representing various land use conditions. The samples were collected by auger boring into the soil up to 90-cm depth. eight (6) locations were selected for soil sampling on the basis of soil types, vegetative cover, industrial & residential activities including infrastructure facilities, which would accord an overall idea of the soil characteristics. The samples were analysed for physical and chemical characteristics. The sealed samples were sent to laboratory for analysis. The samples were filled in Polythene bags, coded and sent to laboratory for analysis and the details of methodology in respect are given in below Table 3.5.

TABLE 3.7 – METHODOLOGY OF SAMPLING COLLECTION

Particulars	Details
Frequency	One grab sample from each station-once during the study period
Methodology	Composite grab samples of the topsoil were collected from 3 depths, and mixed to provide a representative sample for analysis. They were stored in airtight Polythene bags and analysed at the laboratory.

Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd .

Soil Testing Result –

The samples were analysed as per the standard methods prescribed in “Soil Chemical Analysis (M.L. Jackson, 1967) & Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India”. The important properties analysed for soil are bulk density, porosity, infiltration rate, pH and Organic matter, kjeldahi Nitrogen, Phosphorous and Potassium. The standard classification of soil and physico-chemical characteristics of the soils are presented below in Table 3.7 & Test Results in Table 3.7.

FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

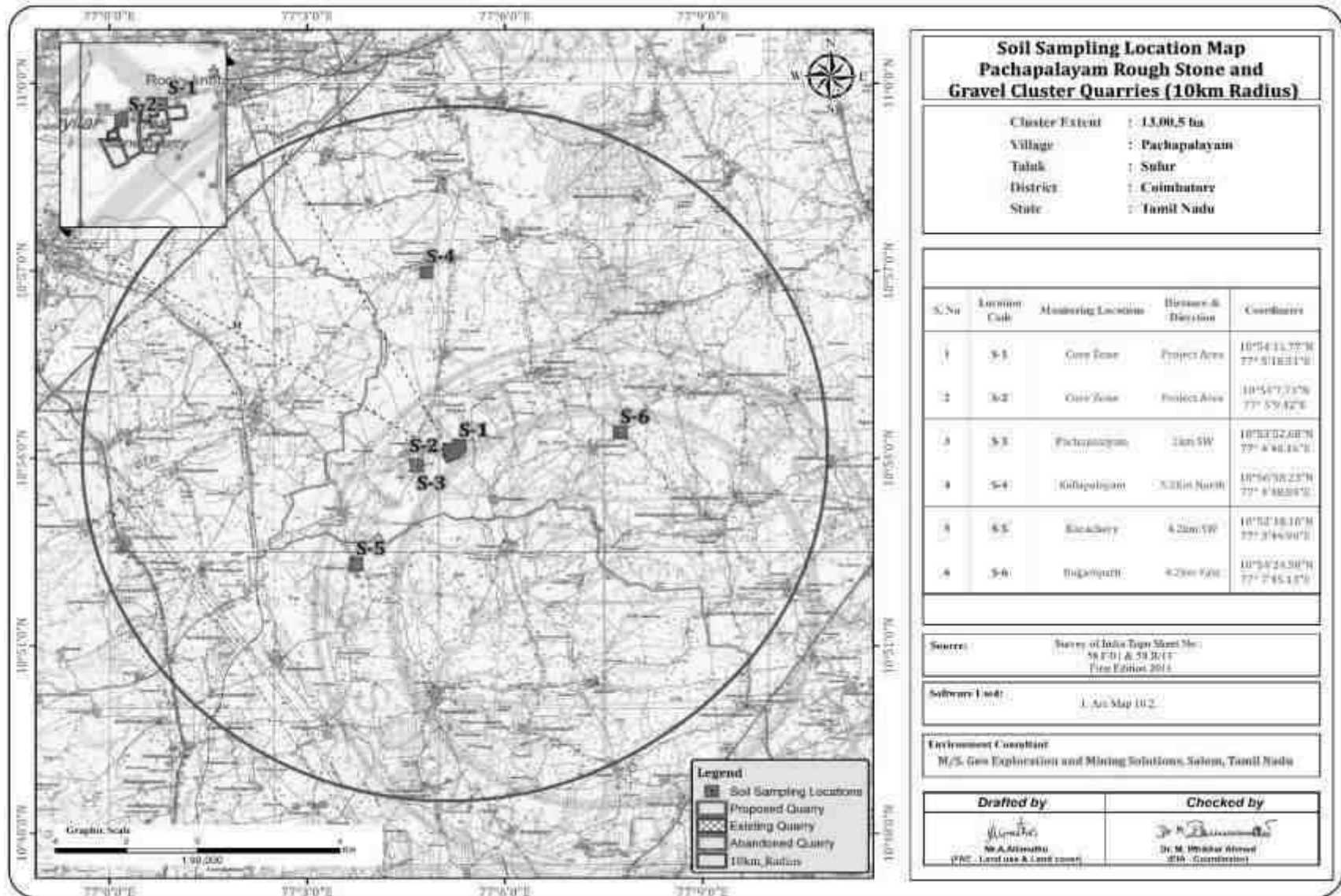


FIGURE 3.6: SOIL MAP

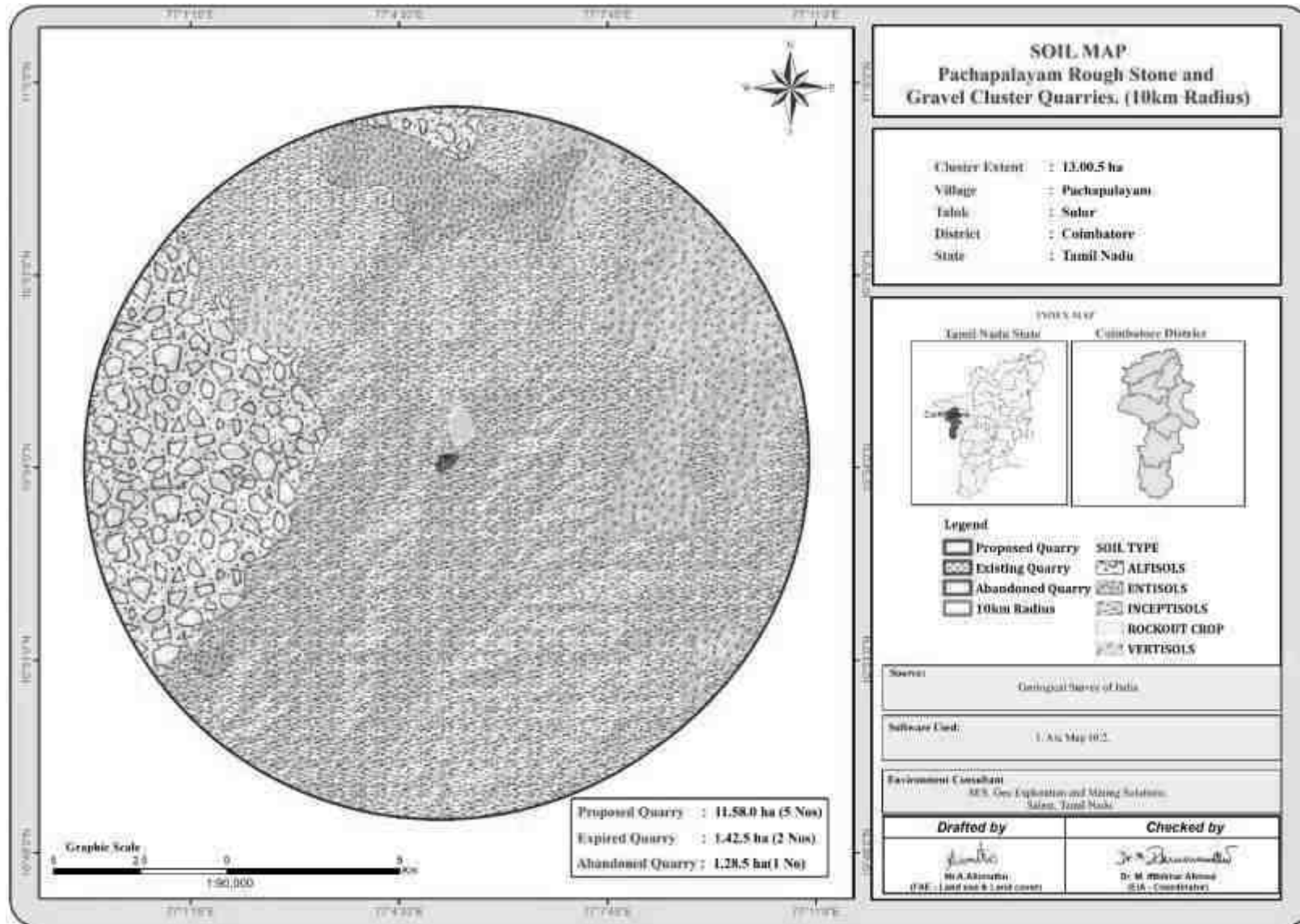


TABLE 3.8 – SOIL QUALITY MONITORING DATA

Sno	Test Parameters	Protocols	S-1 Core Zone	S-2 Core Zone	S-3 Pachapalayam	S-4 Kallapalayam	S-5 Karachery	S-6 Bogampatti
1	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	7.87	8.55	7.93	7.71	8.68	7.28
2	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	398	450	610	657	710	297
3	Texture :		Sandy Loam	Sandy Clay Loam	Clay Loam	Sandy Loam	Clay	Clay Loam
	Sand	Gravimetric Method	63.9	58.4	40.9	72.1	36.1	42.6
	Slit		20.5	15.6	24.7	12.6	13.5	20.6
	Clay		15.6	26.0	34.4	15.3	50.4	36.8
4	Water Holding Capacity	By Gravimetric Method	35.7	40.6	42.8	34.2	47.2	35.5
5	Bulk Density	By Cylindrical Method	0.97	0.93	1.09	1.02	1.05	0.97
6	Porosity	By Gravimetric Method	23.9	29.3	27.2	26.4	35.7	32.6
7	Calcium as Ca	USEPA 3050 B – 1996 &	140	164.7	149	155.8	183.5	122
8	Magnesium as Mg	USEPA 6010 C - 2000	23.3	25.5	30.5	24.7	38.5	21.6
9	Manganese as Mn		25.1	29.1	33.8	30.4	40.7	20.5
10	Zinc as Zn		0.55	0.59	1.04	0.68	1.37	0.78
11	Boron as B		0.58	0.62	0.79	0.67	0.91	0.57
12	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	129	138.5	139	154	178	135.4
13	Total Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	113	121.7	138	127	165.5	122
14	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	32.5	34.2	41.5	32.2	59.4	31.5
15	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	0.76	0.97	0.88	0.42	1.08	0.35
16	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	158	200.5	253.6	250	310.1	183
17	Cadmium as Cd	USEPA 3050 B – 1996 &	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr	USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
20	Lead as Pb		0.55	0.64	1.05	1.06	1.14	0.56
21	Iron as Fe		2.54	1.9	1.61	1.47	2.01	16.9
22	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.96	1.67	2.17	2.72	3.62	1.99
23	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.56	0.97	1.26	1.58	2.10	1.16
24	Cation Exchange Capacity	USEPA 9080 – 1986	32.8	39.1	44.7	46.2	41.0	40.0

Source: Sampling Results by KGS Enviro Laboratory Pvt Ltd .

Interpretation & Conclusion**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 to Sandy Clay Loam Soil and Bulk Density of Soils in the study area varied between 0.93– 1.09 g/cc. The Water Holding Capacity 34.2 -47.2 and Porosity of the soil samples is found to be medium i.e., ranging from 23.9 – 35.7%.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline in nature with pH range 7.28 to 8.68
- The available Nitrogen content range between 158 to 310.1 mg/kg
- The available Phosphorus content range between 0.35 to 1.08 mg/kg
- The available Potassium range between 31.5 to 59.4 mg/kg

Whereas, the micronutrient as zinc (Zn), iron (Fe) and copper (Cu) were found in the range of 0.55 to 1.37 mg/kg; 1.47 to 16.9 mg/kg and ND

Wilting co efficient in significant level would mean that the soil would support the vegetation. The soil properties in the buffer zone reveal that the soil can sustain vegetation. If amended suitability the core area can also withstand plantation.

3.2 Water Environment

The water resources, both surface and groundwater play a significant role in the development of the area. The purpose of this study is to assess the water quality characteristics for critical parameters and evaluate the impacts on agricultural productivity, domestic community usage, recreational resources and aesthetics in the vicinity. The water samples were collected and transported as per the norms in pre-treated sampling cans to laboratory for analysis.

3.2.1 Surface Water Resources:

Noyyal river lies at 10km North from the project cluster. The area is studded with few tanks that serve as the source for agriculture and also their surplus feeds adjoining tanks. The rainfall over the area is moderate, the rainwater storage in open wells, trenches is in practice over the area and the stored water acts as source of freshwater for couple of months after rainy season.

3.2.2 Ground Water Resources:

The terrain is underlain by hard rock formations, Fissured and fractured crystalline rocks constitute the important aquifer systems in the Coimbatore region. Ground water occurs under phreatic to semi-confined conditions in these formations and is being developed by means of dug wells and filter points. Proterozoic formation is the basement rocks which consist of quartzite, crystalline limestone, calc-granulite, hornblende – biotite gneiss, charnockite or pyroxene granulite, granite and pegmatite. Weathered, a fissured crack, shear zones and joints in the basement rock act as a good groundwater potential zone in the study area.

The study area falls in the Sular block which is categorized as over-exploited zone as per G.O (MS) No 113 dated 09.06.2016.

3.2.3 Methodology

Reconnaissance survey was undertaken to collect the sampling and locations were finalized based on;

1. Drainage pattern;
2. Location of residential areas representing different activities/likely impact areas; and
3. Likely areas, which can represent baseline conditions

Two (2) surface water and four (4) ground water samples were collected in the study area and physico-chemical, heavy metals and bacteriological parameters were analysed. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012 and 'Standard methods for the Examination of Water and Waste water' published by American Public Health Association (APHA). The water sampling locations are given in Table 3.8 and shown as Figure 3.5.

TABLE 3.9 – WATER SAMPLING LOCATIONS

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	SW-1	Core Zone PitWater	Project Area	10°54'7.13"N 77° 5'16.95"E
2	SW-2	Pallapalayam Lake	9.5km NW	10°59'21.00"N 77° 4'18.85"E
3	WW-1	Core Zone	430m West	10°54'0.57"N 77° 4'54.63"E
4	WW-2	Edayapalayam	3.5km NE	10°55'27.12"N 77° 6'57.20"E
5	BW-1	Core Zone	200m SE	10°54'0.49"N 77° 5'25.60"E
6	BW-2	Karachery	4.2km SW	10°52'15.29"N 77° 3'47.20"E

Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd

Note: SW- Surface water, WW – Well Water, BW – Bore well

FIGURE 3.7: SITE PHOTOGRAPHS OF WATER SAMPLING LOCATIONS



Sample Collection in Bore well

FIGURE 3.8: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS

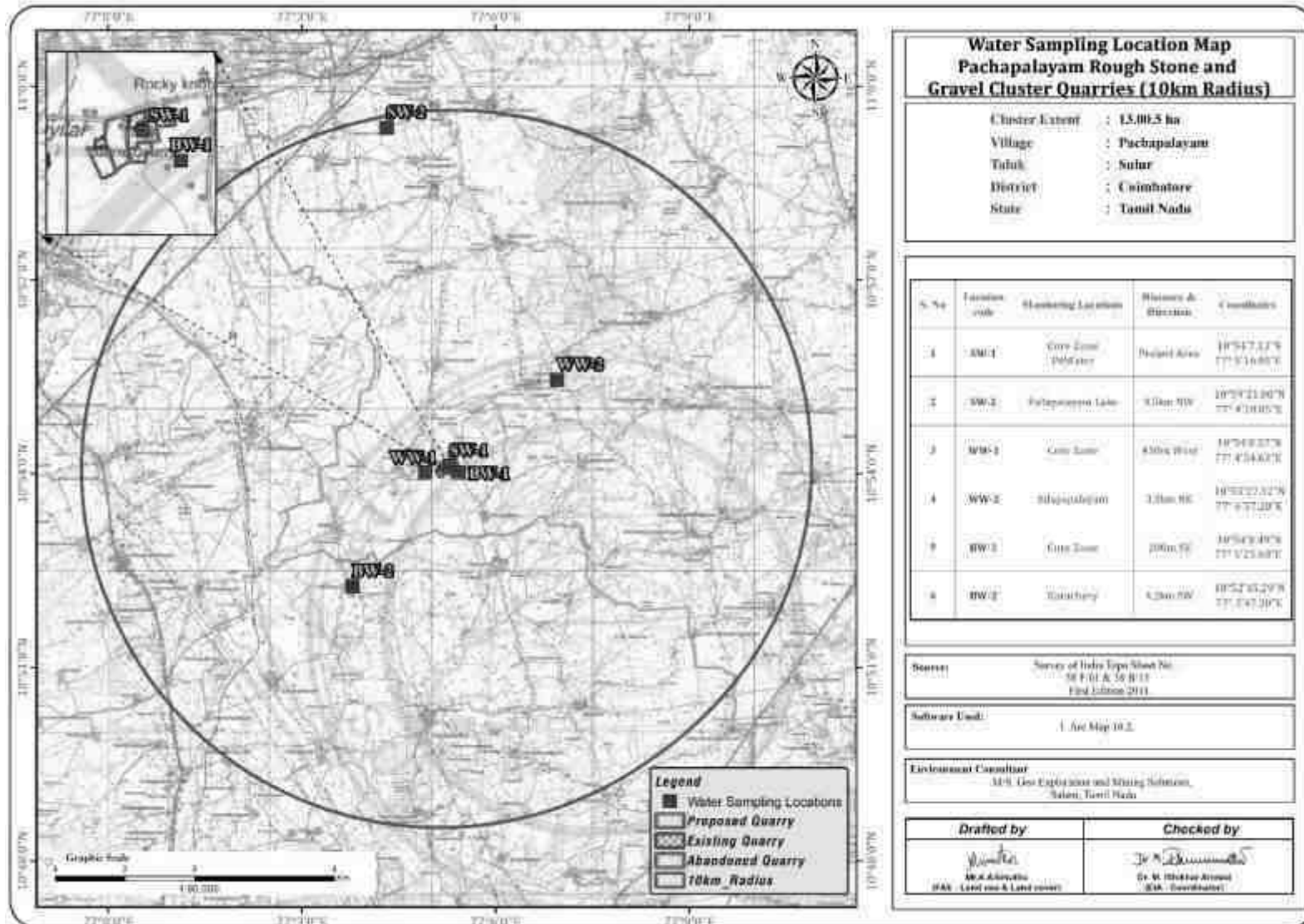


TABLE 3.10 – SURFACE WATER ANALYSIS RESULTS

SNO	TEST	PROTOCOL	Surface Water (SW-1) -Core Zone	Surface Water (SW-2) – Pallapalayam Lake
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5	10
2	Odour	IS 3025 Part 5:2018	Agreeable	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.29	7.24
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	588	559
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	12.8	7.9
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	347	330
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	192.4	141.44
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	36.1	26.7
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	24.9	18.2
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	137.5	140
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	74.2	62.4
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	25.8	20.1
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.29	0.33
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL(DL: 2.0)	BDL(DL: 2.0)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.25	0.28
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	9.7	11.0
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39:1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43:1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27:1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	5.9	7.8
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	28	36
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.6	5.2
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34:1988 (Reaff. 2019)	2.5	2.1
36	Sulphide as H ₂ S	IS 3025 Part 29:1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	20.2	15.5
40	Total Coliform	APHA 23rd Edn. 2017:9221B	present	present
41	<i>Escherichia coli</i>	APHA 23rd Edn. 2017:9221F	present	present

Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number

TABLE 3.11 – GROUND WATER ANALYSIS RESULTS

Sno	Test	Protocol	Ground Water (WW-1) –Core Zone	WW2- Edayapalayam	BW1-Core Zone	BW2- Karachery
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	< 5	< 5	< 5	< 5
2	Odour	IS 3025 Part 5:2018	Agreeable	Agreeable	Agreeable	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.36	7.10	7.37	7.55
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	625	557	679	618
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	< 1	< 1	< 1	< 1
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	369	328	400	364
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	174.5	127.2	246.6	191.3
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	34.2	27.6	41.5	35.5
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	21.7	14.2	34.8	25
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	126.7	120	155	142.7
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	78.8	75	86	89.3
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	26.8	30.1	32.1	34.8
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	BDL(DL:0.1)	BDL(DL:0.1)	0.33	0.19
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL(DL: 2.0)	BDL(DL: 2.0)	BDL(DL: 2.0)	BDL(DL: 2.0)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F.D	0.24	0.59	0.41	0.28
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	9.5	8.0	7.5	9.4
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Barium as Ba	IS 3025 Part 27-1986 (Reaff. 2019)	BDL(DL:0.05 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	Ammonia (as total ammonia-N)	IS 3025 Part 44:1993 (Reaff:2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
32	Sulphide as H ₂ S	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
33	Molybdenum as Mo	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
34	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
35	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)
36	Total Coliform	APHA 23 rd Edn. 2017:9221B	< 2	< 2	< 2	< 2
37	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 2	< 2	< 2	< 2

Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number

* IS: 10500:2012-Drinking Water Standards; # within the permissible limit as per the WHO Standard. The water can be used for drinking purpose in the absence of alternate sources. Note: SW- Surface water, GW – Ground water.

Source: Sampling Results by KGS Enviro Laboratory Pvt Ltd

3.2.4 Interpretation & Conclusion

Surface Water

The pH of surface 7.24-7.29 while turbidity found within the standards. Total Dissolved Solids 330-347mg/l and Chloride 62.4-74.2 mg/l. Nitrates 9.7 -11.0 mg/l, while sulphates 20.1-25.8 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.10 to 7.55 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. on Turbidity, the water samples meet the requirement. The Total Dissolved Solids were found in the range of 328-400 mg/l in all samples. The Total hardness varied between 127.2 – 246.6 mg/l for all samples.

On Microbiological parameters, the water samples from all the locations meet the requirement. The parameters thus analysed were compared with IS 10500:2012 and are well within the prescribed limits.

3.2.5 Hydrology and Hydrogeological studies

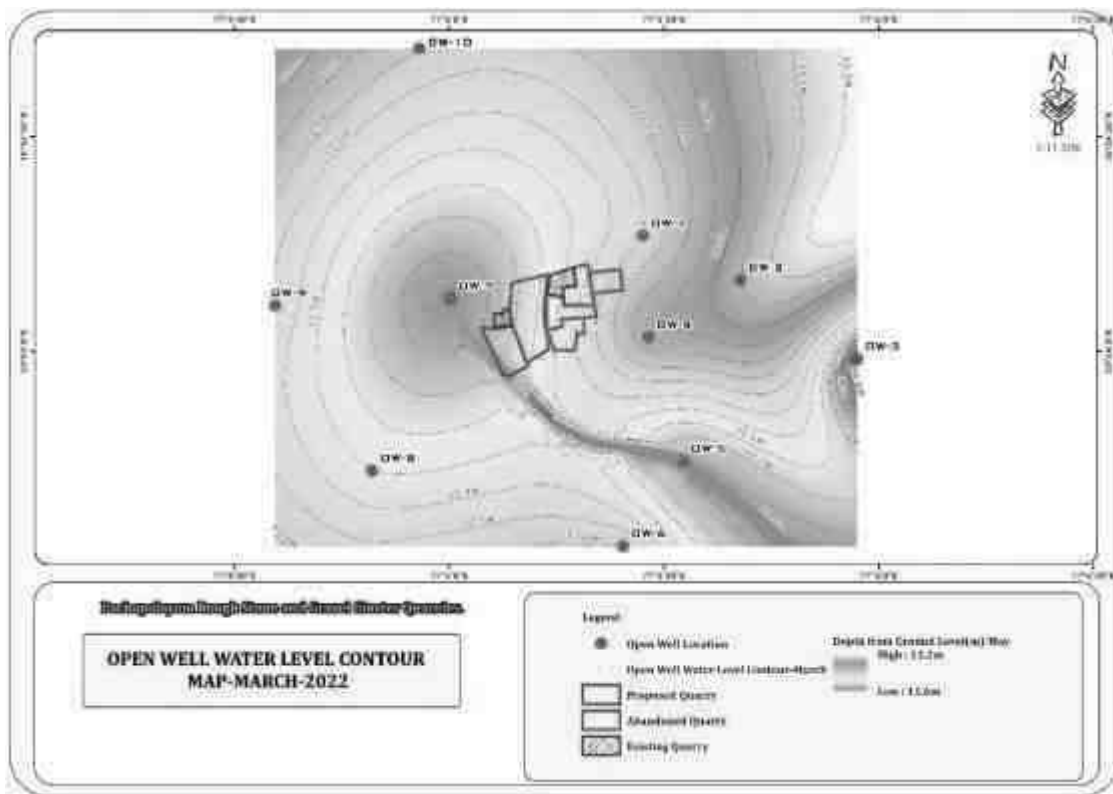
The district is underlain by hard rock formation Fissured and Fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 70-65m. the quarrying operations is restricted upto 44m hence there is 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 upcoming project.

During the rainy season there is a possibility of collection of seepage water from the subsurface levels this is due to the high intensity of fracture and weathered portion upto a depth of 10m thus the collected seepage water will be stored in the mine sump pits and will be used for dust suppression and greenbelt development and during the end of the life of the mine this collected water will be as a temporary reservoir in that area.

TABLE 3.12: POST MONSOON WATER LEVEL OF OPEN WELLS 1 KM RADIUS

S.No	LABEL	LONGITUDE	LATITUDE	March 2022	April 2022	May 2022
1	OW1	77° 05' 27.07"E	10° 54' 16.15"N	12.5	13.1	13.7
2	OW2	77° 05' 40.66"E	10° 54' 09.94"N	13	13.6	14.2
3	OW3	77° 05' 56.98"E	10° 53' 58.88"N	11.6	12.2	12.8
4	OW4	77° 05' 27.88"E	10° 54' 01.93"N	12.8	13.4	14
5	OW5	77° 05' 32.65"E	10° 53' 44.68"N	12	12.6	13.2
6	OW6	77° 05' 24.28"E	10° 53' 32.80"N	12.6	13.2	13.8
7	OW7	77° 05' 00.19"E	10° 54' 07.36"N	11.9	12.5	13.1
8	OW8	77° 04' 49.24"E	10° 53' 43.33"N	12.3	12.9	13.5
9	OW9	77° 04' 35.66"E	10° 54' 06.40"N	12.5	13.1	13.7
10	OW10	77° 04' 55.87"E	10° 54' 42.23"N	12.6	13.2	13.8

FIGURE 3.9: CONTOUR MAP OF OPEN WELL WATER LEVEL



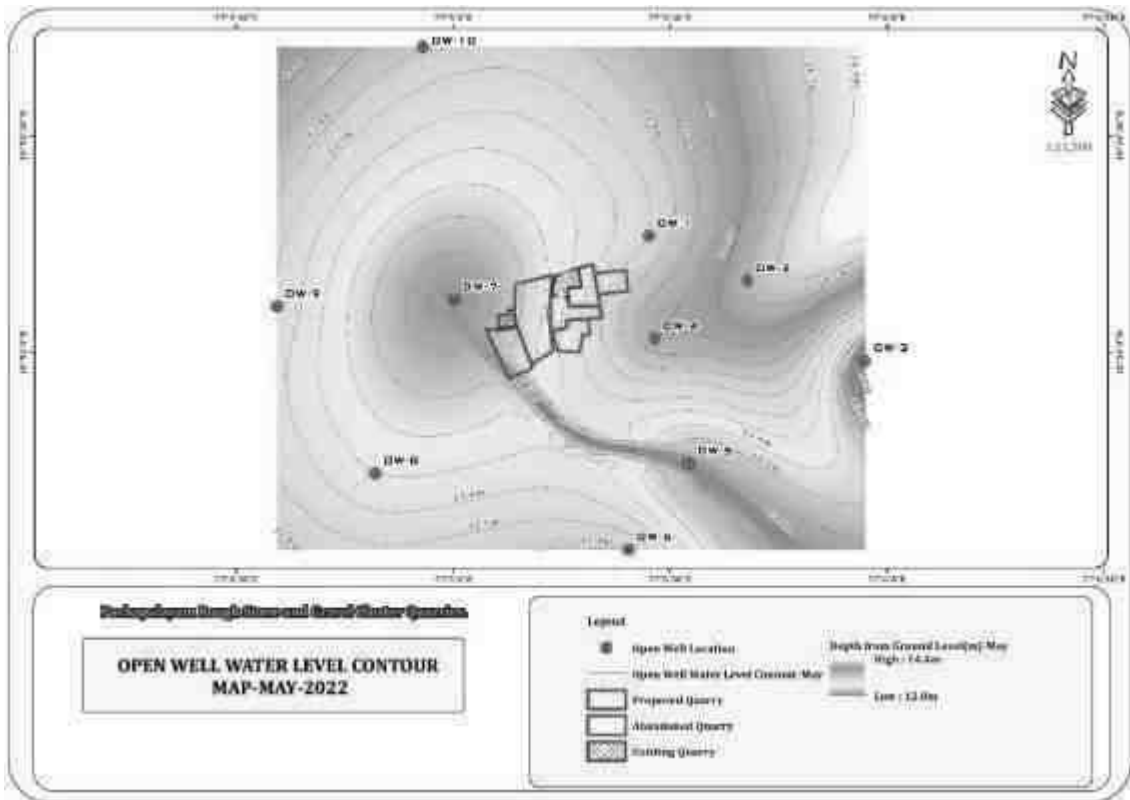
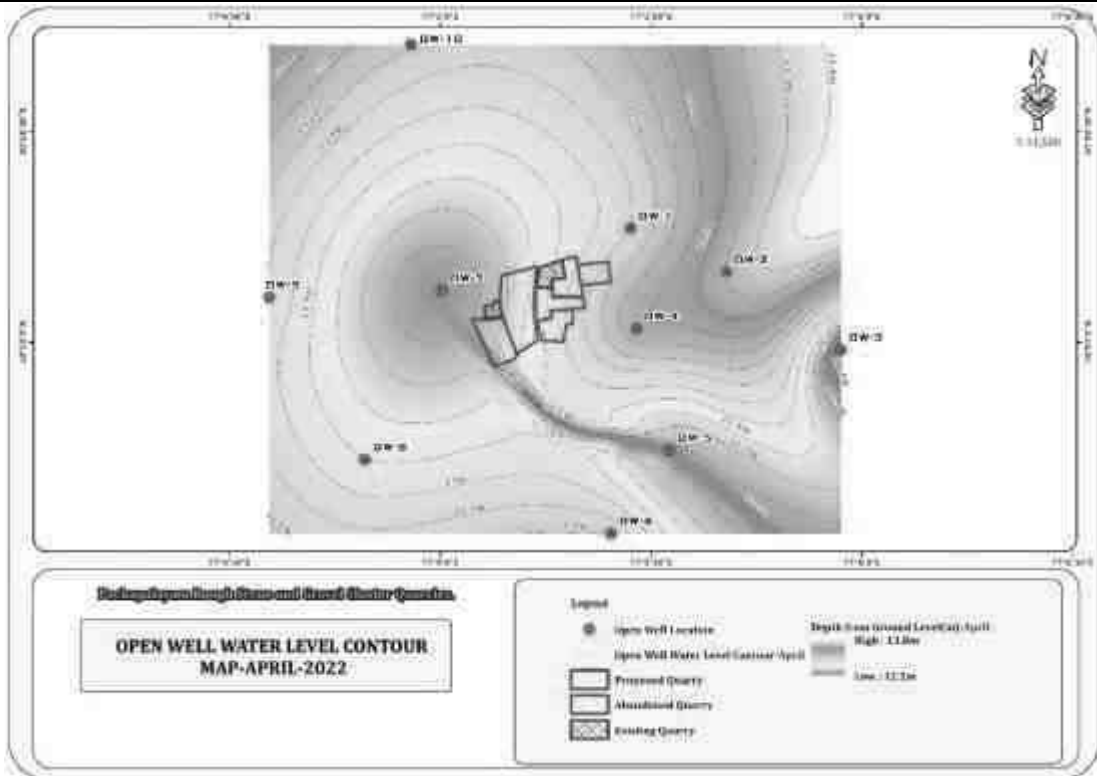
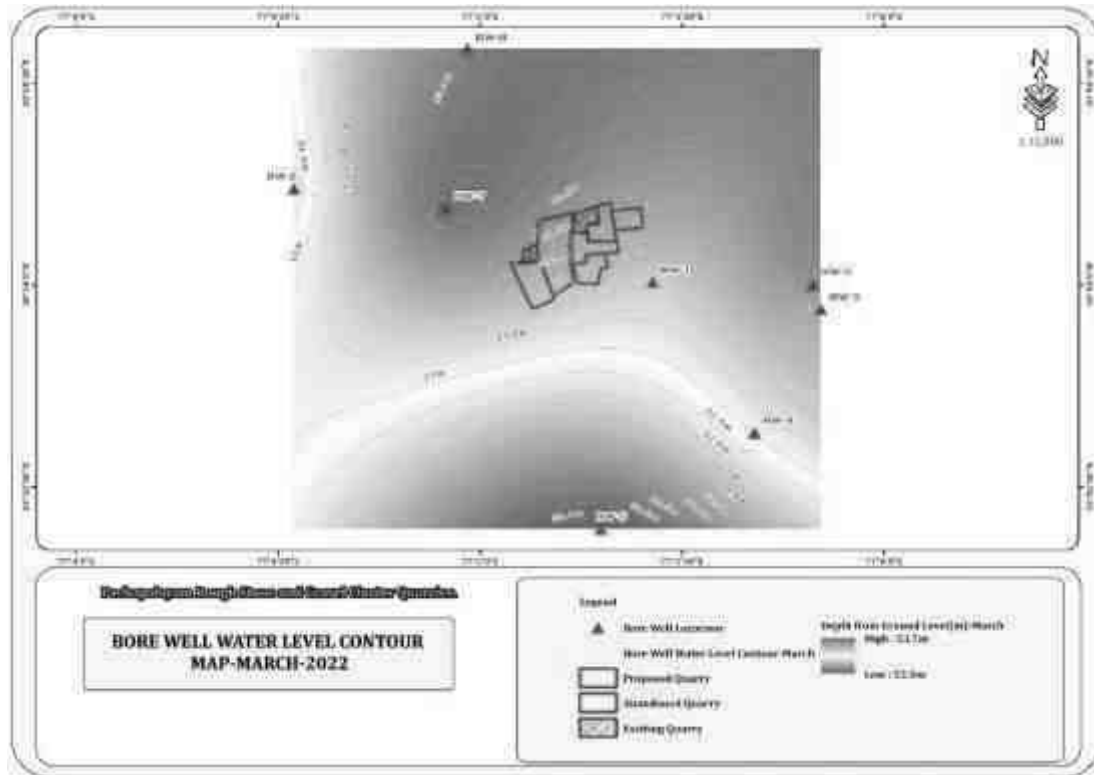


TABLE 3.13: POST MONSOON WATER LEVEL OF BOREWELLS 1 KM RADIUS

S.No	LABEL	LONGITUDE	LATITUDE	March 2022	April 2022	May 2022
1	BW1	77° 05' 25.60"E	10° 54' 00.41"N	53.2	53.8	54.4
2	BW2	77° 05' 49.42"E	10° 54' 00.07"N	53.6	54.2	54.8
3	BW3	77° 05' 50.66"E	10° 53' 56.35"N	53.4	54	54.6
4	BW4	77° 05' 40.79"E	10° 53' 38.01"N	53	53.6	54.2
5	BW5	77° 05' 17.92"E	10° 53' 23.74"N	52	52.6	53.2
6	BW6	77° 04' 32.30"E	10° 54' 14.25"N	52.8	53.4	54
7	BW7	77° 04' 54.87"E	10° 54' 11.31"N	53.8	54.4	55
8	BW8	77° 04' 58.09"E	10° 54' 35.14"N	53.7	54.3	54.9

FIGURE 3.10: CONTOUR MAP OF BORE WELL WATER LEVEL



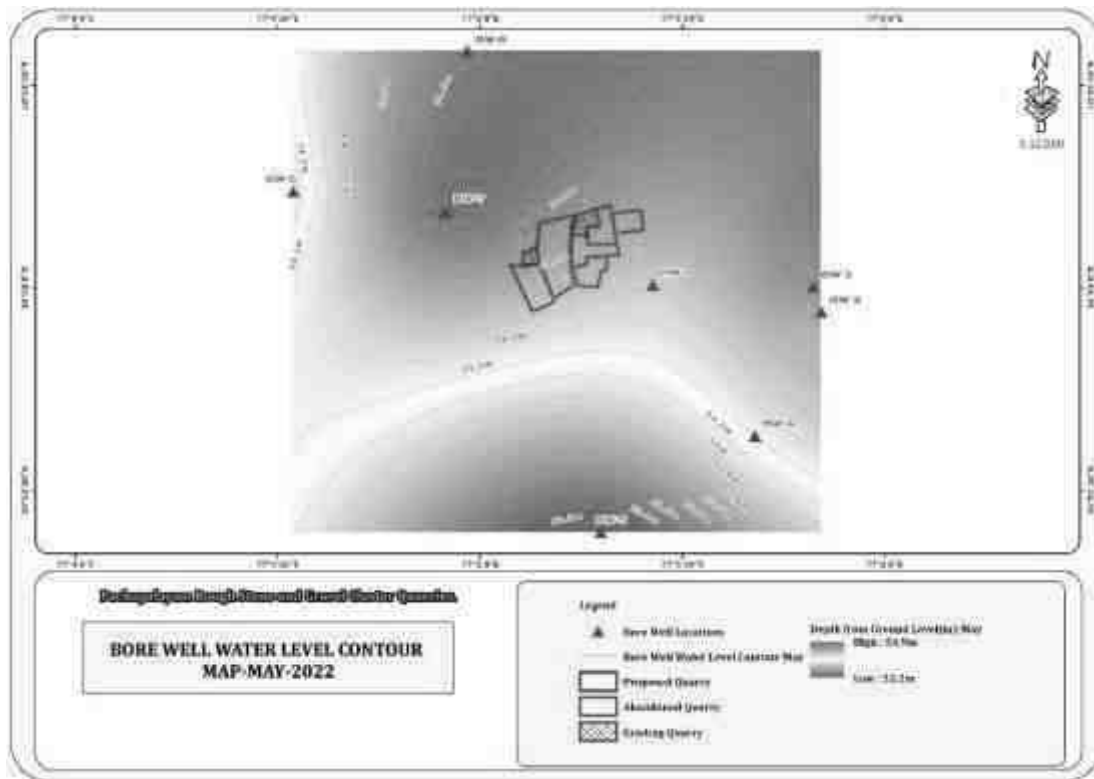
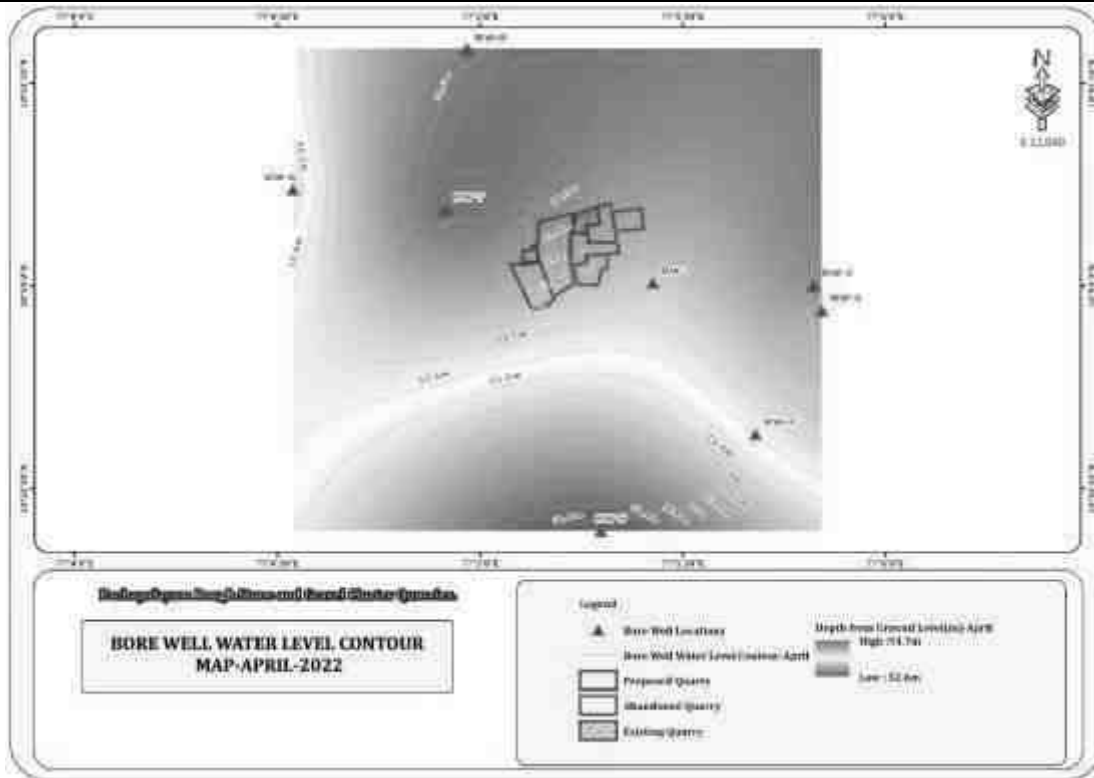
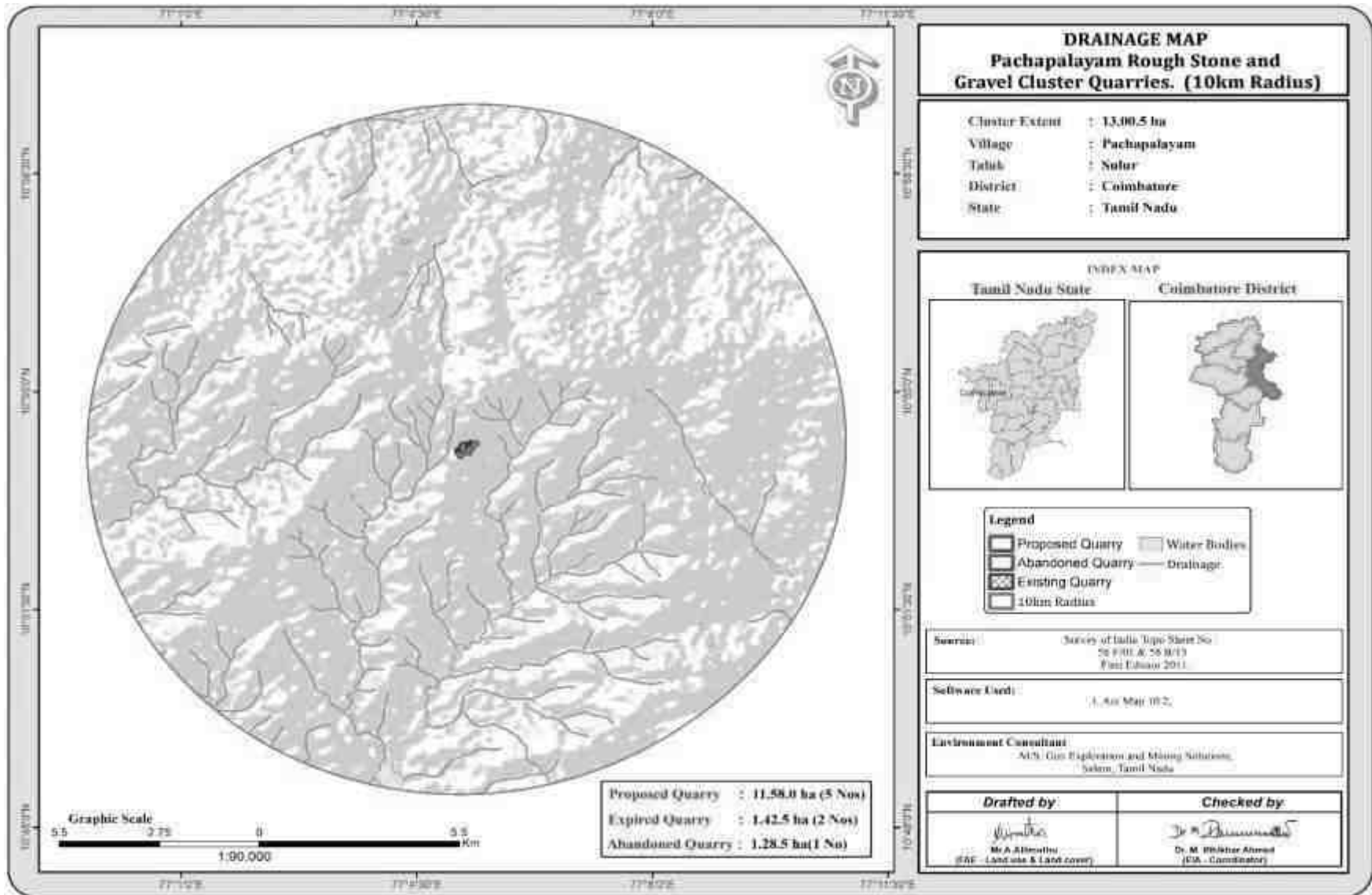


FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE



3.2.5.1 Methodology and Data Acquisition

Electric Resistivity Method is well established for delineating lateral as well vertical discontinuities in the resistive structure of the Earth's subsurface. The present study makes use of vertical electric sounding (VES) to delineate the Vertical Resistivity structure at depth. Schlumberger electrode set up was employed for making sounding measurements. Since it is least influenced by lateral inhomogeneities and is capable of providing higher depth of investigation. This is 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 form 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 inhomogeneities 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,

$$\rho_r = F \rho_w = a \emptyset^m \rho_w$$

ρ_r = Resistivity of Rocks

ρ_w = Resistivity of water in pores of rock

F = Formation Factor

\emptyset = Fractional pore volume

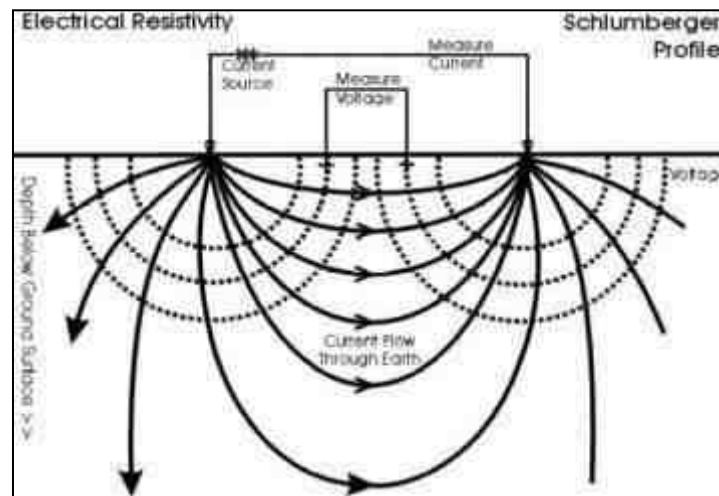
A = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

The layout for a resistivity survey depends on the choice of the current and potential electrode arrangement, which is called electrode array. Here the present study is considered with Schlumberger 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 – AT. 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 noise ration can be enhanced by \sqrt{N} where N is the number of stacked readings. This SSR meter in which running averages of measurements $[1, (1+2)/2, (1+2+3)/3 \dots (1+2\dots+16/16)]$ 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.

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.

3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth between 70-65m. The maximum depth proposed out of proposed projects is 30-44 m BGL. Hence there is 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.

3.2.5.4 Geophysical Data Interpretation

The geophysical data was obtained to study the lateral variations, vertical in homogeneities in the sub – surface with respect to the availability of groundwater. From the interpreted data, it has inferred that the area has moderate groundwater potential in the investigated area. This small quarrying operation will not have any significant impact on the natural water bodies.

3.3 Air Environment

The ambient air quality with respect to the study area of 10 km radius including the cluster quarries forms the baseline information. The prime objective of baseline air quality monitoring is to assess existing air quality of the area. This will also be useful in assessing the conformity to standards of the ambient air quality during the operations

The existing ambient air quality of the area is important for evaluating the impact of mining activities on the ambient air quality. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of Existing and proposed quarries within the radius of 500m.

The sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic & agricultural activities. This section describes the identification of sampling locations, methodology adopted during the monitoring period and sampling frequency.

The baseline status of the ambient air quality has been assessed through scientifically designed ambient air quality network. The design of monitoring network in the air quality surveillance program has been based on the following considerations:

- Meteorological conditions.
- Topography of the study area.
- Likely impact area.

3.3.1 Meteorology & Climate

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

A temporary meteorological station was installed at project site. The station was installed at a height of 4 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis.

Climate –

- The climatic conditions in this region are characterized by a tropical climate. During the winter season, there is a significant decrease in precipitation levels within Coimbatore as compared to the summer months. Köppen and Geiger classify this climate as Aw. The average annual temperature in Coimbatore is 25.4 °C | 77.8 °F. Approximately 952 mm | 37.5 inch of rainfall occurs on a yearly basis.
- The region of Coimbatore is characterized by a temperate climate, and the summer season presents some challenges in terms of precise categorization. The most favored period for a visit is during the months of March, April, May.
- During January, the amount of precipitation is at its lowest, with only 13 mm | 0.5 inch recorded. The month of October experiences the highest amount of precipitation, with an average value of 181 mm | 7.1 inch.
- The month of maximum warmth in a year is April. The average temperature during this period reaches up to 28.9 °C | 84.1 °F, making it the hottest time of the year. The month of December is characterized by the lowest temperatures, which have an average reading of 23.2 °C | 73.7 °F.

<https://en.climate-data.org/asia/india/tamil-nadu/coimbatore-2788/>

Rainfall –

The average annual rainfall and the 5 years rainfall is as follows:

TABLE 3.14 – RAINFALL DATA

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	1213.2
873.4	1302	1272.4	1585.3	2119.1	

Source: <https://www.twadboard.tn.gov.in/content/coimbatore>

TABLE 3.15 – METEOROLOGICAL DATA RECORDED AT SITE

S.No	Parameters		Mar – 2022	April – 2022	May– 2022
1	Temperature (°C)	Max	24.26	23.27	23.11
		Min	22.34	21.05	20.68
		Avg	23.3	22.16	21.895
2	Relative Humidity (%)	Avg	83.75	84.345	83.595
3	Wind Speed (m/s)	Max	3.2	3.61	4.38
		Min	1.04	0.95	1.46
		Avg	2.12	2.28	2.92
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		WSW,W	ENE,E	ENE,NE

Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd in association with GEMS

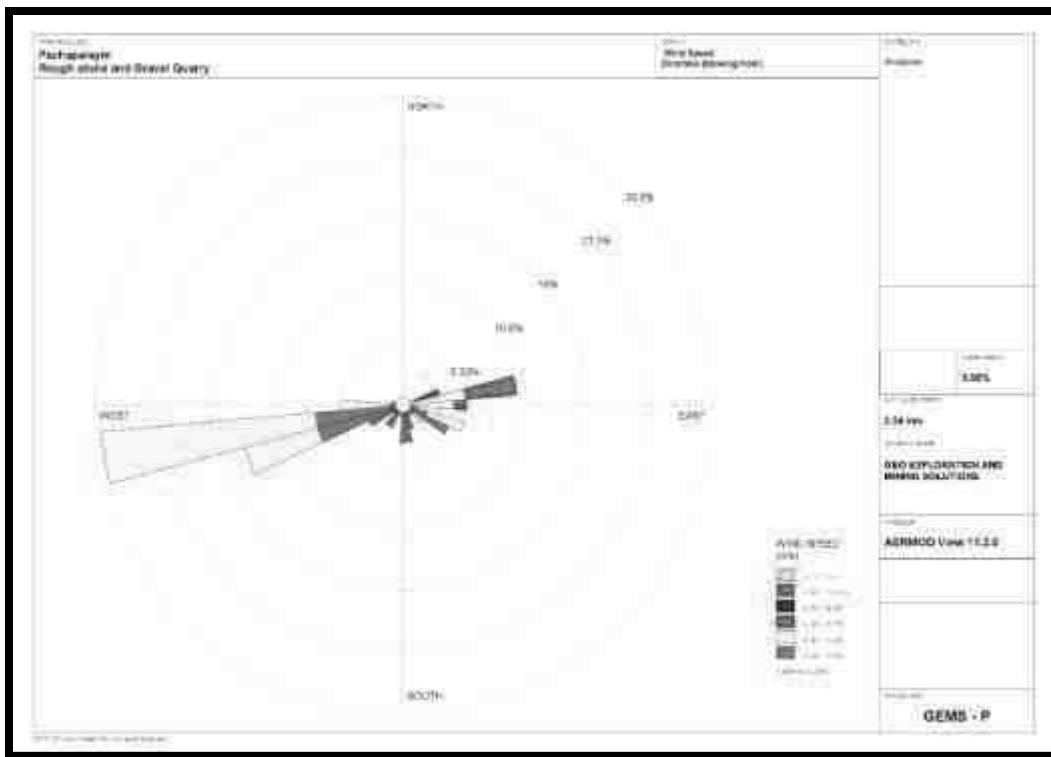
Correlation between Secondary and Primary Data

The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Coimbatore. A comparison of site data generated during the three months with that of IMD, Coimbatore Agro reveals the following:

- The average maximum and minimum temperatures of IMD, Coimbatore agro showed a higher in respect of on-site data i.e. in Pachapalayam village.
- The relative humidity levels were lesser at site as compared to IMD, Coimbatore agro.
- The wind speed and direction at site shows similar trend that of IMD, Coimbatore agro.

Windrose diagram of the study site is depicted in Figure. 3.8. Predominant downwind direction of the area during study season is South West and East.

FIGURE 3.13: WINDROSE DIAGRAM



Environmental In the abstract of collected data wind rose were drawn on presented in figure No.3.14 during the monitoring period in the study area

1. Predominant winds were from WSW, W, ENE, E E, ENE, NE
2. Wind velocity readings were recorded between 0.50 to 5.70km / hour
3. Calm conditions prevail of about 0.00% of the monitoring period
4. Temperature readings ranging from 20.68⁰ to 24.26⁰C
5. Relative humidity ranging from 83.59 to 84.34%
6. The monitoring was carried out continuously for three months

3.3.2 Methodology and Objective

The prime objective of the ambient air quality study is to assess the existing air quality of study area and its conformity to NAAQS. The observed sources of air pollution in the study area are industrial, traffic and domestic activities. The baseline status of the ambient air quality has been established through a scientifically designed ambient air quality monitoring network considering the followings:

- Meteorological condition on synoptic scale;
- Topography of the study area;
- Representatives of regional background air quality for obtaining baseline status;
- Location of residential areas representing different activities;
- Accessibility and power availability; etc

3.3.3 Sampling and Analytical Techniques

TABLE 3.16 – METHODOLOGY AND INSTRUMENT USED FOR AIR QUALITY ANALYSIS

Parameter	Method	Instrument
PM _{2.5}	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM ₁₀	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO ₂	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hochheiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by KGS Enviro Laboratory Pvt Ltd & CPCB Notification

TABLE 3.17 – NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl. No.	Pollutant	Time Weighted Average	Concentration in ambient air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	Sulphur Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg.* 24 hours**	50.0	20.0
			80.0	80.0
2	Nitrogen Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0	30.0
			80.0	80.0
3	Particulate matter (size less than 10 μm) PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	60.0	60.0
			100.0	100.0
4	Particulate matter (size less than 2.5 μm) PM _{2.5} ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0	40.0
			60.0	60.0

Source: NAAQS CPCB Notification No. B-29016/20/90/PCI-I Dated: 18th Nov 2009

*Annual Arithmetic mean of minimum 104 measurements in a year taken twice a Week 24 hourly at uniform interval,

** 24 hourly / 8 hourly or 1 hourly monitored value as applicable shall be complied with 98 % of the time in a year. However, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

3.3.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at Eight (8) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period March - May 2022. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂).

3.3.5 Ambient Air Quality Monitoring Stations

Eight (8) monitoring stations were set up in the study area as depicted in Figure 3.6.1 for assessment of the existing ambient air quality. Details of the sampling locations are as per given below.

TABLE 3.18 – AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ-1	Core Zone	Project Area	10°54'10.68"N 77° 5'19.87"E
2	AAQ-2	Core Zone	Project Area	10°54'8.28"N 77° 5'9.85"E
3	AAQ-3	Pachapalayam	1km SW	10°53'56.05"N 77° 4'38.75"E
4	AAQ-4	Panapatti	3.0km SE	10°52'41.95"N 77° 6'14.55"E
5	AAQ-5	Edayapalayam	3.5km NE	10°55'24.84"N 77° 6'56.03"E
6	AAQ-6	Kallapalayam	5.2Km North	10°57'3.23"N 77° 4'47.83"E
7	AAQ-7	Karachery	4.2km SW	10°52'17.79"N 77° 3'44.34"E
8	AAQ-8	Bogampatti	4.2km East	10°54'24.79"N 77° 7'44.23"E

Source: On-site monitoring/sampling by **KGS Enviro Laboratory Pvt Ltd** in association with GEMS

FIGURE 3.17: SITE PHOTOGRAPHS OF AMBIENT AIR MONITORING



Source: Monitoring photographs from the FAE and Team Members

FIGURE 3.18 AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

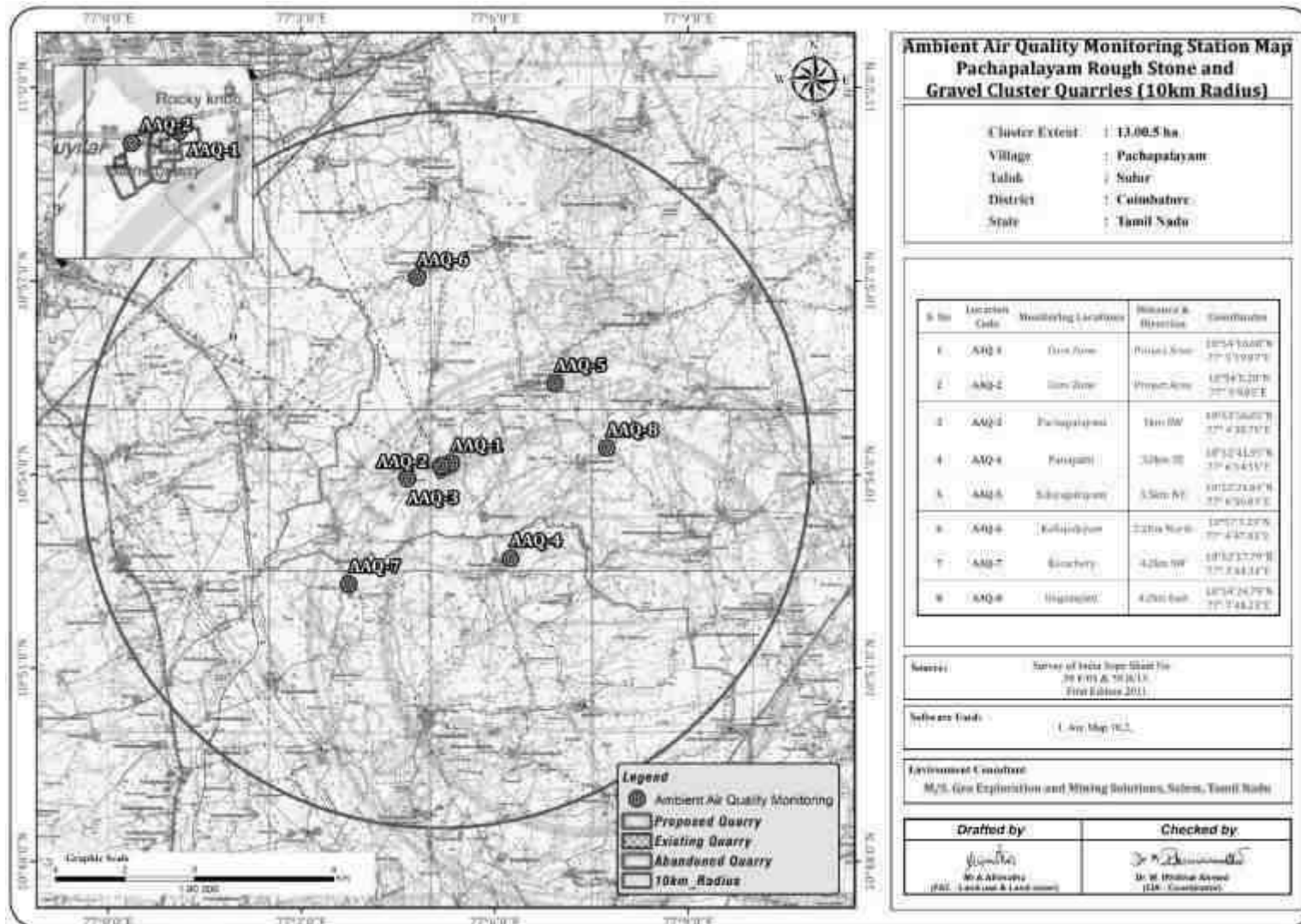


TABLE 3.19 – AAQ1- CORE ZONE

Period: Mar – Apr 2022

Location: AAQ1- Core Zone

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM _{2.5}	PM ₁₀	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
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)
01.03.2022	07.00-07.00	66.3	25.3	47.7	9.9	27.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	07.15-07.15	65.4	25.7	46.9	9.3	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	07.00-07.00	66.8	23.9	43.6	6.1	27.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.03.2022	07.15-07.15	66.8	25.4	41.7	8.9	26.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	07.00-07.00	63.4	24.7	47.9	8.5	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.03.2022	07.15-07.15	67.2	24.5	45.9	8.9	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	07.00-07.00	67.9	23.4	42.7	9.6	28.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.03.2022	07.15-07.15	62.7	22.8	42.7	9.7	26.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	07.00-07.00	63.6	22.6	41.9	9.5	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.04.2022	07.15-07.15	62.8	23.5	45.4	9.4	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	07.00-07.00	64.4	25.8	44.9	9.3	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.04.2022	07.15-07.15	65.5	24.7	44.6	9.4	28.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	07.00-07.00	63.9	24.7	43.8	9.1	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.04.2022	07.15-07.15	64.5	22.1	44.3	8.6	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	07.00-07.00	66.1	25.8	46.6	8.4	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.04.2022	07.15-07.15	62.8	25.6	46.5	8.8	27.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	07.00-07.00	63.4	24.7	44.2	8.4	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.05.2022	07.15-07.15	64.7	23.6	43.7	8.1	27.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	07.00-07.00	65.5	26.8	42.9	9.7	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.05.2022	07.15-07.15	63.9	24.2	44.3	8.4	26.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	07.00-07.00	66.4	25.3	45.5	10.7	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.05.2022	07.15-07.15	66.8	24.8	44.7	9.1	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	07.00-07.00	63.5	22.4	42.3	9.8	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.05.2022	07.15-07.15	64.9	23.6	43.9	10.6	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	07.00-07.00	65.5	24.8	44.1	10.2	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.05.2022	07.15-07.15	63.8	24.3	43.2	10.1	26.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.20 – AAQ2 - CORE ZONE

Period: Mar – Apr 2022

Location: AAQ2- Core Zone

Time: 24-hourly

Monitoring		Particulates, µg/m ³			Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase), µg/m ³				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , ng/m ³	BaP, ng/m ³
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)
01.03.2022	07.00-07.00	65.9	23.7	42.7	7.6	27.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	07.15-07.15	66.2	21.9	44.3	7.1	27.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	07.00-07.00	65.3	22.5	43.4	9.2	28.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.03.2022	07.15-07.15	67.9	24.3	42.7	9.7	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	07.00-07.00	63.6	22.5	41.9	9.1	26.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.03.2022	07.15-07.15	61.2	24.3	43.6	7.3	28.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	07.00-07.00	62.7	22.9	42.5	7.7	27.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.03.2022	07.15-07.15	66.4	23.8	41.8	8.1	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	07.00-07.00	62.9	22.5	43.3	8.6	26.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.04.2022	07.15-07.15	66.3	22.1	42.7	9.2	29.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	07.00-07.00	65.2	23.6	42.5	9.8	27.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.04.2022	07.15-07.15	63.2	25.7	43.5	8.5	28.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	07.00-07.00	64.5	24.3	43.6	7.2	28.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.04.2022	07.15-07.15	62.9	23.8	41.8	7.1	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	07.00-07.00	64.8	22.5	44.6	8.6	28.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.04.2022	07.15-07.15	65.7	24.6	42.7	8.6	29.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	07.00-07.00	62.1	23.7	41.3	9.1	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.05.2022	07.15-07.15	63.2	22.9	42.8	9.7	27.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	07.00-07.00	62.7	25.5	44.7	8.6	27.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.05.2022	07.15-07.15	65.4	24.7	42.3	8.4	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	07.00-07.00	65.9	23.2	43.5	8.1	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.05.2022	07.15-07.15	64.4	25.6	41.9	8.7	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	07.00-07.00	65.9	23.5	42.5	7.8	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.05.2022	07.15-07.15	64.7	25.8	44.3	8.1	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	07.00-07.00	63.8	24.5	43.8	9.6	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.05.2022	07.15-07.15	63.2	25.0	43.3	9.7	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.21 – AAQ3 – PACHAPALAYAM

Period: Mar – Apr 2022
hourly

: AAQ3- Pachapalayam

Sampling Time: 24-

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
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)
01.03.2022	07.00-07.00	62.2	22.3	41.4	7.0	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	07.15-07.15	64.4	21.2	42.7	7.7	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	07.00-07.00	60.8	20.5	41.3	7.2	26.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.03.2022	07.15-07.15	61.2	22.8	41.8	7.6	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	07.00-07.00	64.5	22.5	41.9	8.8	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.03.2022	07.15-07.15	65.3	21.9	42.7	8.3	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	07.00-07.00	61.7	23.5	41.5	7.6	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.03.2022	07.15-07.15	60.2	22.4	41.6	8.2	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	07.00-07.00	66.8	20.6	40.7	7.1	27.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.04.2022	07.15-07.15	66.9	20.5	41.5	6.4	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	07.00-07.00	61.7	21.7	40.6	7.5	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.04.2022	07.15-07.15	61.9	22.3	42.5	7.1	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	07.00-07.00	61.5	21.8	44.2	6.3	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.04.2022	07.15-07.15	60.4	20.9	41.6	8.4	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	07.00-07.00	60.3	20.4	40.3	8.5	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.04.2022	07.15-07.15	59.6	20.3	41.7	6.9	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	07.00-07.00	59.8	20.7	41.9	9.6	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.05.2022	07.15-07.15	59.1	21.3	40.8	8.4	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	07.00-07.00	59.3	22.6	42.2	5.2	28.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.05.2022	07.15-07.15	59.7	24.7	41.6	5.9	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	07.00-07.00	60.8	23.3	43.7	7.3	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.05.2022	07.15-07.15	60.7	22.9	41.2	7.1	26.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	07.00-07.00	60.2	20.7	40.5	7.8	27.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.05.2022	07.15-07.15	60.4	22.4	42.8	7.2	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	07.00-07.00	61.1	21.3	40.6	7.3	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.05.2022	07.15-07.15	61.9	21.7	40.7	7.2	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.22– AAQ4 – PANAPATTI

Period: Mar – Apr 2022

Location: AAQ4 - Panapatti

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
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)
01.03.2022	07.00-07.00	59.5	23.2	41.3	8.0	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	07.15-07.15	58.2	24.4	40.9	7.3	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	07.00-07.00	59.2	22.8	40.2	9.6	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.03.2022	07.15-07.15	58.4	23.1	40.5	8.5	26.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	07.00-07.00	59.6	23.5	41.6	8.4	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.03.2022	07.15-07.15	59.8	21.6	40.3	7.3	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	07.00-07.00	58.6	21.5	40.8	9.5	26.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.03.2022	07.15-07.15	57.9	20.7	40.5	8.5	26.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	07.00-07.00	58.3	21.5	41.9	7.6	27.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.04.2022	07.15-07.15	58.9	21.2	40.3	7.5	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	07.00-07.00	58.2	21.7	41.3	8.5	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.04.2022	07.15-07.15	57.4	22.7	41.6	9.3	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	07.00-07.00	58.6	22.9	40.5	8.4	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.04.2022	07.15-07.15	57.6	23.6	41.7	9.6	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	07.00-07.00	58.7	22.8	40.8	6.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.04.2022	07.15-07.15	58.3	23.4	41.5	8.4	26.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	07.00-07.00	58.6	22.7	41.9	7.5	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.05.2022	07.15-07.15	57.6	21.9	40.7	6.7	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	07.00-07.00	57.8	23.4	41.5	5.6	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.05.2022	07.15-07.15	57.1	21.7	41.6	6.3	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	07.00-07.00	57.9	20.9	40.5	8.7	28.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.05.2022	07.15-07.15	58.6	21.6	41.4	5.4	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	07.00-07.00	58.7	20.4	41.7	6.8	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.05.2022	07.15-07.15	58.1	21.5	40.3	7.4	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	07.00-07.00	58.3	20.3	40.1	7.4	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.05.2022	07.15-07.15	58.7	20.1	40.5	7.1	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.23 – AAQ5 – EDAYAPALAYAM

Period: Mar – Apr 2022

AAQ5- Edayapalayam

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
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)
01.03.2022	07.00-07.00	59.8	19.9	39.9	6.9	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	07.15-07.15	59.4	19.6	39.7	7.3	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	07.00-07.00	59.1	19.7	40.2	5.9	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.03.2022	07.15-07.15	59.6	19.4	40.5	6.8	26.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	07.00-07.00	58.6	19.6	40.6	7.7	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.03.2022	07.15-07.15	58.6	19.2	40.7	7.2	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	07.00-07.00	57.6	19.4	40.9	5.9	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.03.2022	07.15-07.15	58.6	19.3	39.9	6.2	27.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	07.00-07.00	58.3	18.6	39.8	5.4	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.04.2022	07.15-07.15	59.4	18.9	39.8	6.8	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	07.00-07.00	59.1	20.3	39.2	7.9	28.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.04.2022	07.15-07.15	59.3	20.5	39.2	6.8	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	07.00-07.00	59.3	20.4	39.4	7.9	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.04.2022	07.15-07.15	58.4	20.9	38.5	8.9	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	07.00-07.00	57.3	21.4	38.6	7.3	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.04.2022	07.15-07.15	57.8	18.9	38.3	7.1	28.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	07.00-07.00	57.1	19.5	41.1	6.5	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.05.2022	07.15-07.15	57.4	19.4	41.3	5.4	26.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	07.00-07.00	58.3	19.3	41.5	6.3	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.05.2022	07.15-07.15	58.6	20.1	40.4	8.9	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	07.00-07.00	58.7	20.5	40.7	5.9	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.05.2022	07.15-07.15	58.2	20.3	40.3	7.3	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	07.00-07.00	58.3	20.1	40.7	7.9	27.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.05.2022	07.15-07.15	59.4	20.4	40.2	6.6	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	07.00-07.00	57.8	20.5	41.5	6.5	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.05.2022	07.15-07.15	57.2	21.4	41.1	6.8	24.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.24 – AAQ6 - KALLAPALAYAM

Period: Mar – Apr 2022

Location: AAQ6 – Kallapalayam

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SP/m	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
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)
01.03.2022	07.00-07.00	60.8	22.6	39.8	7.3	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	07.15-07.15	60.4	21.6	39.8	8.2	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	07.00-07.00	60.9	22.3	39.1	6.5	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.03.2022	07.15-07.15	60.5	23.7	39.4	7.8	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	07.00-07.00	60.6	22.4	39.2	8.3	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.03.2022	07.15-07.15	61.2	23.4	40.2	5.9	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	07.00-07.00	61.8	21.9	40.5	6.4	26.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.03.2022	07.15-07.15	61.4	22.8	40.8	7.9	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	07.00-07.00	59.2	24.4	40.4	8.9	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.04.2022	07.15-07.15	59.7	23.9	39.6	7.1	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	07.00-07.00	59.2	22.7	39.4	8.2	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.04.2022	07.15-07.15	59.6	23.5	39.1	8.9	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	07.00-07.00	59.0	21.7	39.8	7.4	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.04.2022	07.15-07.15	59.1	23.9	40.2	7.9	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	07.00-07.00	60.4	23.5	40.6	9.6	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.04.2022	07.15-07.15	60.9	22.9	40.4	8.5	26.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	07.00-07.00	61.1	23.5	40.9	5.9	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.05.2022	07.15-07.15	61.7	24.8	41.6	5.6	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	07.00-07.00	61.3	23.6	41.6	6.3	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.05.2022	07.15-07.15	61.8	24.7	42.5	8.7	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	07.00-07.00	61.5	23.3	41.3	5.5	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.05.2022	07.15-07.15	60.2	25.9	41.8	7.2	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	07.00-07.00	60.3	24.3	41.2	6.3	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.05.2022	07.15-07.15	60.8	23.1	40.5	7.9	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	07.00-07.00	61.4	22.9	41.6	7.1	22.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.05.2022	07.15-07.15	61.4	22.7	40.9	7.3	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.25 – AAQ7 - KARACHERY

Period: Mar – Apr 2022

Location: AAQ7– Karachery

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m ³			Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase) , µg/m ³				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , ng/m ³	BaP, ng/m ³
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)
01.03.2022	07.00-07.00	62.8	23.3	44.8	8.7	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	07.15-07.15	62.3	21.9	43.2	6.3	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	07.00-07.00	62.7	22.7	42.5	5.9	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.03.2022	07.15-07.15	62.8	23.4	43.9	5.4	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	07.00-07.00	62.1	22.9	41.5	7.8	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.03.2022	07.15-07.15	59.9	23.7	42.8	5.9	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	07.00-07.00	59.8	22.3	43.3	5.1	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.03.2022	07.15-07.15	59.2	25.9	44.5	5.1	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	07.00-07.00	59.8	24.4	42.7	7.3	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.04.2022	07.15-07.15	61.2	23.9	43.4	6.3	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	07.00-07.00	61.5	25.7	42.9	5.0	26.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.04.2022	07.15-07.15	61.3	24.5	44.6	7.9	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	07.00-07.00	61.5	23.9	42.6	6.3	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.04.2022	07.15-07.15	61.9	25.7	44.7	8.1	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	07.00-07.00	62.4	24.4	43.3	5.9	26.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.04.2022	07.15-07.15	62.5	23.3	42.5	6.9	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	07.00-07.00	62.6	25.8	41.8	8.7	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.05.2022	07.15-07.15	61.8	26.6	42.7	5.3	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	07.00-07.00	61.8	25.8	42.5	6.9	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.05.2022	07.15-07.15	61.5	24.3	43.6	5.8	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	07.00-07.00	60.3	25.9	42.5	6.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.05.2022	07.15-07.15	61.8	24.4	44.9	5.9	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	07.00-07.00	60.6	23.9	44.1	7.4	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.05.2022	07.15-07.15	60.3	22.3	43.2	5.2	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	07.00-07.00	60.8	21.6	42.6	7.6	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.05.2022	07.15-07.15	61.8	21.1	42.8	7.8	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.26 – AAQ8 - BOGAMPATTI

Period: Mar – Apr 2022

Location: AAQ98– Bogampatti

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase) , $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
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)
01.03.2022	07.00-07.00	62.7	22.8	41.9	8.7	27.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	07.15-07.15	62.4	24.4	42.3	9.1	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	07.00-07.00	62.3	22.3	41.7	5.3	26.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.03.2022	07.15-07.15	62.6	23.9	41.8	6.7	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	07.00-07.00	62.7	21.5	40.5	5.8	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.03.2022	07.15-07.15	62.3	23.9	40.6	6.2	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	07.00-07.00	62.1	25.7	41.2	8.4	26.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.03.2022	07.15-07.15	61.8	23.5	43.9	5.3	25.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	07.00-07.00	61.5	21.4	40.8	9.3	26.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.04.2022	07.15-07.15	61.5	22.5	42.5	6.6	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	07.00-07.00	61.2	23.3	40.6	5.7	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.04.2022	07.15-07.15	62.9	23.7	41.5	5.3	27.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	07.00-07.00	62.3	21.5	41.4	8.4	25.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.04.2022	07.15-07.15	62.9	22.6	42.7	6.7	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	07.00-07.00	62.5	23.4	40.3	8.5	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.04.2022	07.15-07.15	62.4	21.9	40.9	6.3	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	07.00-07.00	62.0	23.6	41.7	9.5	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.05.2022	07.15-07.15	62.8	21.5	41.2	5.3	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	07.00-07.00	62.3	23.9	40.9	5.6	26.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.05.2022	07.15-07.15	61.8	24.9	40.9	5.2	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	07.00-07.00	62.7	21.5	42.5	5.7	26.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.05.2022	07.15-07.15	63.5	23.3	42.9	6.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	07.00-07.00	63.1	21.4	42.5	9.9	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.05.2022	07.15-07.15	63.7	22.4	41.3	8.1	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	07.00-07.00	61.2	21.3	40.3	7.6	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.05.2022	07.15-07.15	61.5	21.6	40.8	7.3	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.27 – ABSTRACT OF AMBIENT AIR QUALITY DATA

1	Parameter	PM10	PM2.5	SO ₂	NO ₂
2	No. of Observations	260	260	260	260
3	10 th Percentile Value	40.1	20.3	5.7	24.3
4	20 th Percentile Value	40.5	21.3	6.3	24.9
5	30 th Percentile Value	40.8	21.7	6.8	25.3
6	40 th Percentile Value	41.3	22.4	7.3	25.5
7	50 th Percentile Value	41.6	22.8	7.6	25.8
8	60 th Percentile Value	41.9	23.3	7.9	26.3
9	70 th Percentile Value	42.7	23.6	8.4	26.4
10	80 th Percentile Value	43.3	24.3	8.7	26.8
11	90 th Percentile Value	44.2	25.0	9.5	27.5
12	95 th Percentile Value	44.7	25.8	9.7	28.4
13	98 th Percentile Value	45.5	25.9	10.2	28.9
14	Arithmetic Mean	42.4	23.3	8.0	26.4
15	Geometric Mean	42.4	23.2	7.9	26.3
16	Standard Deviation	1.8	1.8	1.4	1.4
17	Minimum	40.1	20.3	5.7	24.3
18	Maximum	45.5	25.9	10.2	28.9
19	NAAQ Norms*	100.0	60.0	80.0	80.0
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

Legend:PM_{2.5}-Particulate Matter size less than 2.5 µm; PM₁₀-Respirable Particulate Matter size less than 10 µm; SO₂-Sulphur dioxide; NO₂-Nitrogen Dioxide; CO-Carbon monoxide; O₃-Ozone; NH₃-Ammonia; Pb-Particulate Lead; As-Particulate Arsenic; Ni-Particulate Nickel; C₆H₆-Benzene & BaP- Benzo (a) pyrene in particulate phase levels were monitored below their respective detectable limits.

* NAAQ Norms-National Ambient Air Quality Norms-Revised as per GSR 826(E) dated 16.11.2009 for Industrial, Residential, Rural and other Area.

TABLE 3.27 A– SUMMARY OF AMBIENT AIR QUALITY DATA

PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	44.5	43.0	41.7	41.0	40.2	40.2	43.2	41.5
Minimum	41.7	41.3	40.3	40.1	38.3	39.1	41.5	40.3
Maximum	47.9	44.7	44.2	41.9	41.5	42.5	44.9	43.9
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	24.4	23.8	21.8	22.1	40.2	40.5	24.0	22.8
Minimum	22.1	21.9	20.3	20.1	18.6	21.6	21.1	21.3
Maximum	26.8	25.8	24.7	24.4	21.4	25.9	26.6	25.7
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0

SO₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	9.2	8.5	7.4	7.8	6.9	7.4	6.6	7.0
Minimum	6.1	7.1	5.2	5.4	5.4	5.5	5.0	5.2
Maximum	10.7	9.8	9.6	9.6	8.9	9.6	8.7	9.9
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

NO₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	26.2	27.0	26.2	25.9	25.8	24.9	25.4	25.9
Minimum	24.1	24.7	24.9	24.3	22.6	22.3	23.7	23.6
Maximum	28.7	29.6	28.3	28.4	28.9	26.9	26.9	27.6
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

FIGURE 3.16 : SUMMARY OF AMBIENT AIR QUALITY DATA

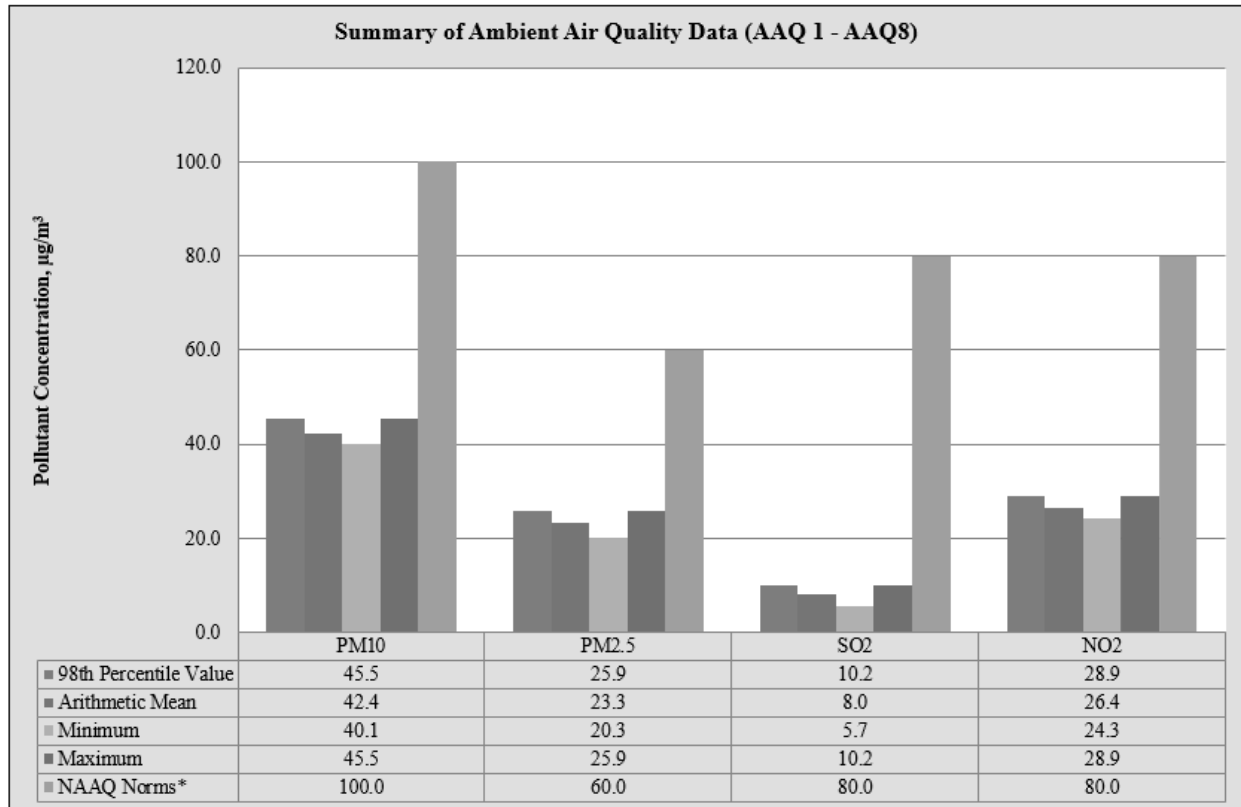


FIGURE 3.16 : BAR DIAGRAM OF PARTICULATE MATTER (PM₁₀)

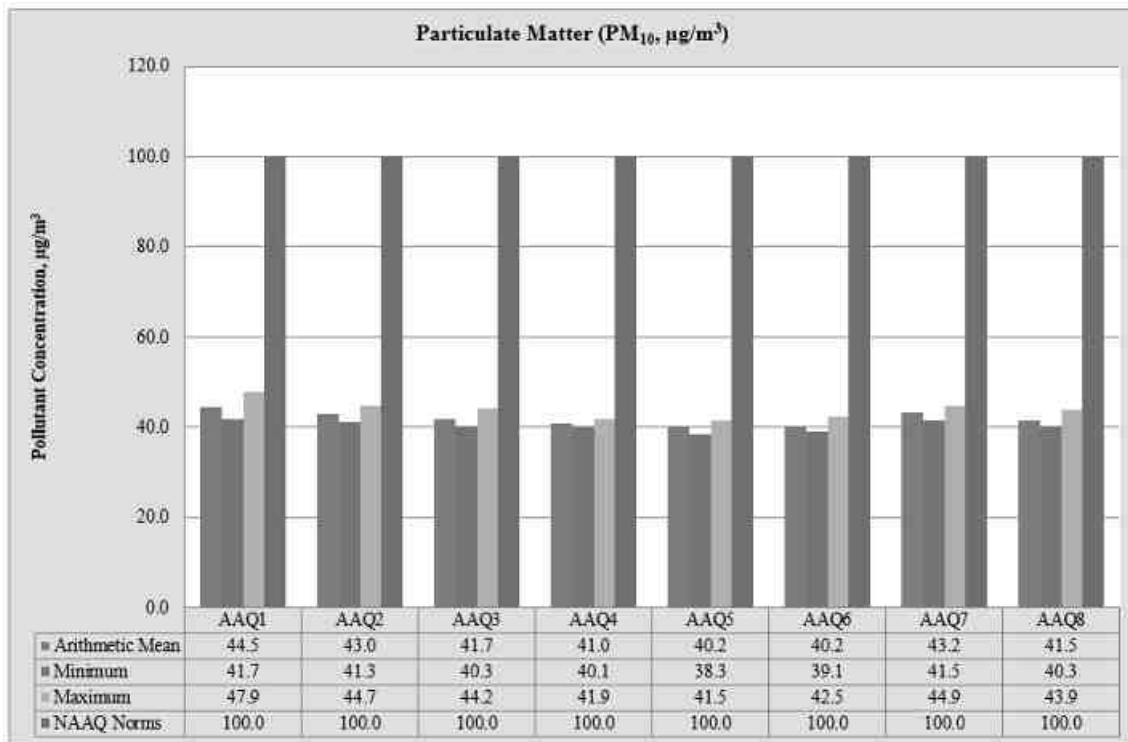


FIGURE 3.16 A : BAR DIAGRAM OF PARTICULATE MATTER (PM_{2.5})

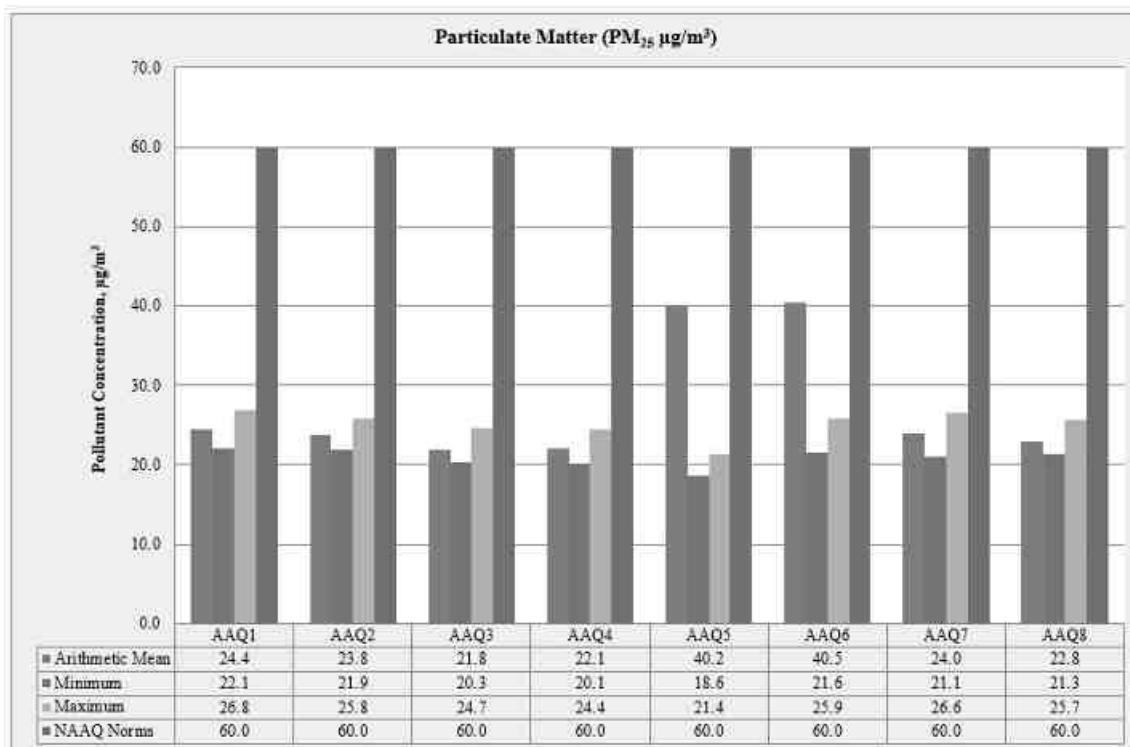


FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER (SO₂)

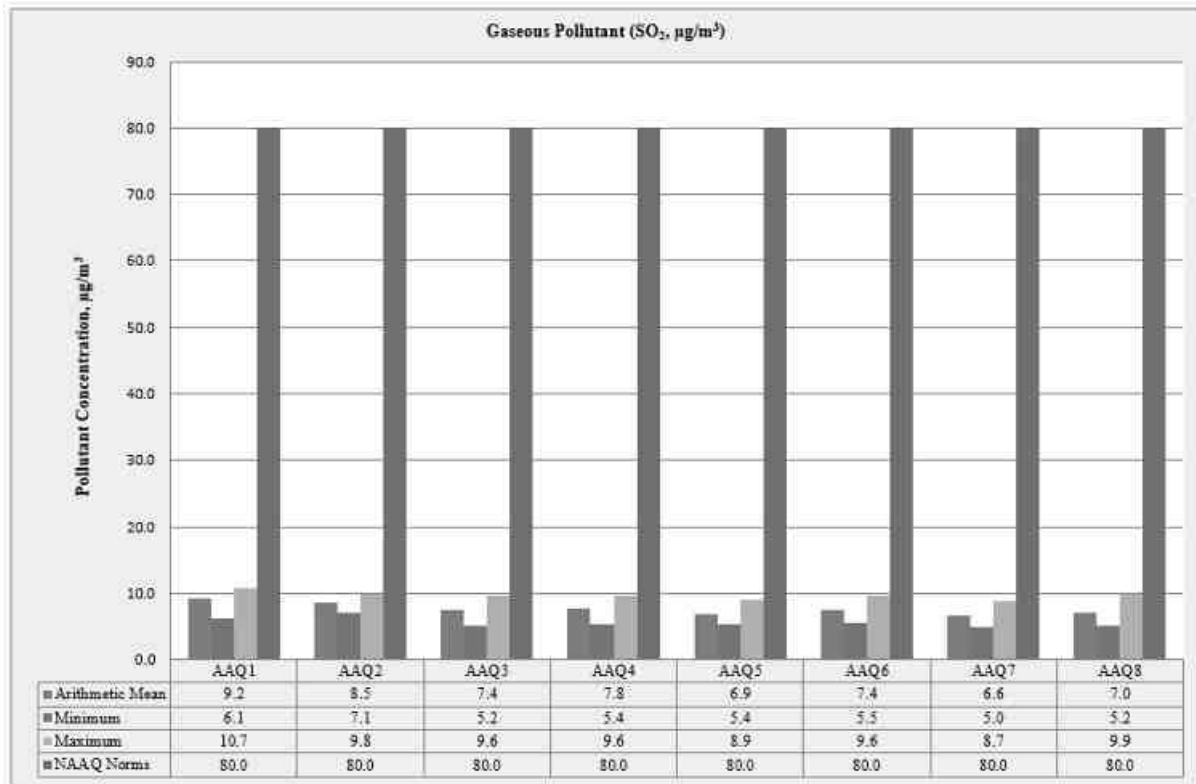
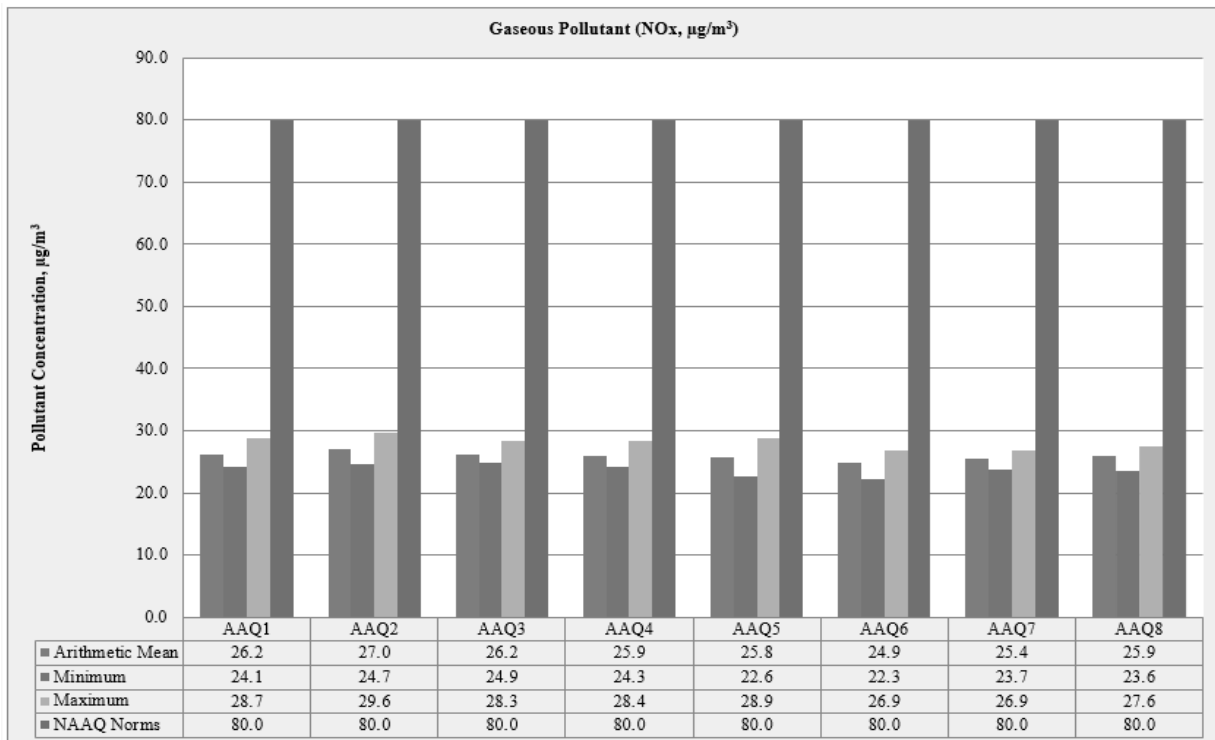


FIGURE 3.17A: BAR DIAGRAM OF PARTICULATE MATTER (NO_x)



3.3.6 Interpretations & Conclusion

As per monitoring data, PM₁₀ ranges from 38.3 µg/m³ to 47.9 µg/m³, PM_{2.5} data ranges from 18.6 µg/m³ to 26.8 µg/m³, SO₂ ranges from 5.0 µg/m³ to 10.7 µg/m³ and NO_x data ranges from 22.3 µg/m³ to 29.6 µg/m³. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB. The minimum & maximum concentrations of PM₁₀ were found to be 38.3 µg/m³ in Edayapalayam village & 41.7 µg/m³ in Core/Project area respectively. The minimum & maximum concentrations of PM_{2.5} were found to be 18.6 µg/m³ in Edayapalayam village & 26.8 µg/m³ in Core/Project area respectively. The maximum concentration in the core zone is due to the cluster of quarries situated within 500m radius.

3.3.7 FUGITIVE DUST EMISSION –

Fugitive dust was recorded at 8 AAQ monitoring stations for 30 days average during the study period.

TABLE 3.28– AVERAGE FUGITIVE DUST SAMPLE VALUES IN µg/m³

AAQ Locations	Avg SPM (µg/m ³)
AAQ 1	64.94
AAQ 2	64.46
AAQ 3	61.63
AAQ 4	58.41
AAQ 5	58.51
AAQ 6	60.62
AAQ 7	61.42
AAQ 8	62.33

Source: Chennai Mettex Lab Private Limited.

Source: Line Diagram of Table 3.29

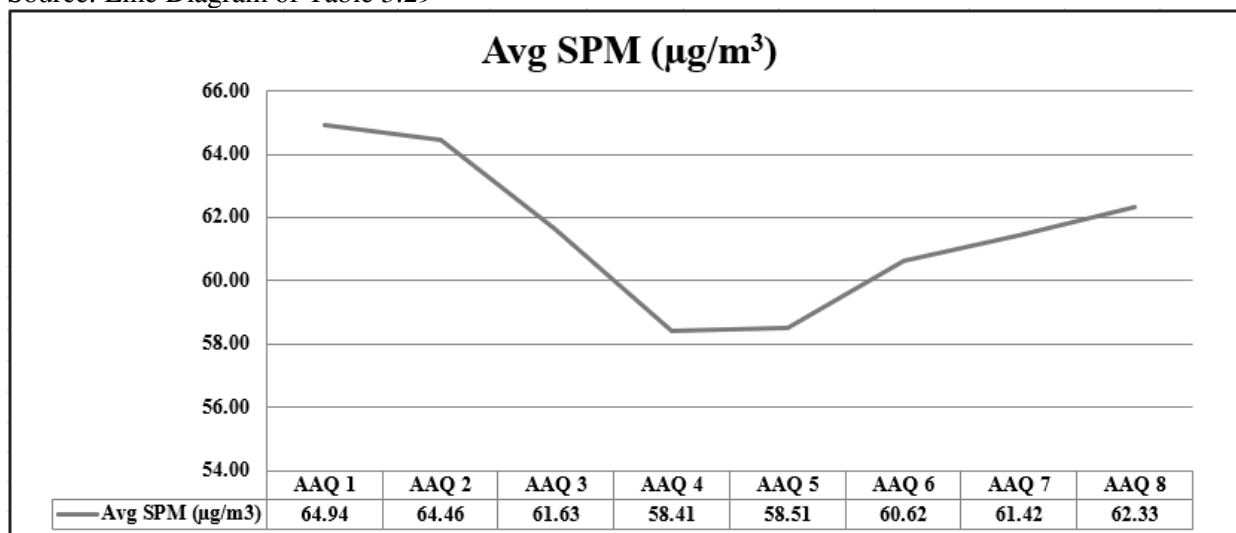
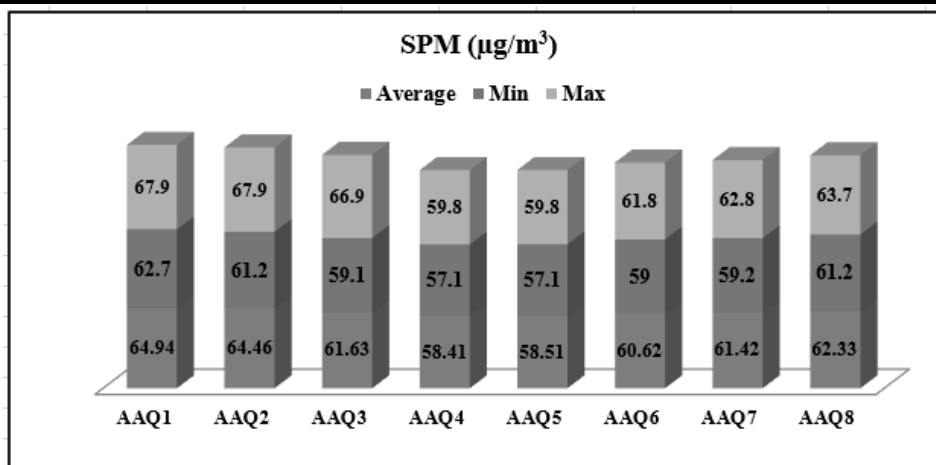


TABLE 3.29– FUGITIVE DUST SAMPLE VALUES IN µg/m³ –

SPM (µg/m ³)	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Average	64.94	64.46	61.63	58.41	58.51	60.62	61.42	62.33
Max	62.7	61.2	59.1	57.1	57.1	59	59.2	61.2
Min	67.9	67.9	66.9	59.8	59.8	61.8	62.8	63.7

Source: Calculations from Lab Analysis Reports



Source: Bar Diagram of table 3.30

3.4 Noise Environment

The vehicular movement on road and mining activities is the major sources of noise in study area, the environmental assessment of noise from the mining activity and vehicular traffic can be undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses.

The main objective of noise monitoring in the study area is to establish the baseline noise level and assess the impact of the total noise expected to be generated during the project operations around the project site.

3.4.1 Identification of Sampling Locations

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at eight (8) locations. The noise level monitoring locations were carried out by covering commercial, residential, rural areas within the radius of 10km. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study.

TABLE 3.30 – DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	N-1	Core Zone	Project Area	10°54'10.25"N 77° 5'23.92"E
2	N-2	Core Zone	Project Area	10°54'7.29"N 77° 5'13.82"E
3	N-3	Pachapalayam	1km SW	10°53'55.88"N 77° 4'38.75"E
4	N-4	Panapatti	3.0km SE	10°52'41.75"N 77° 6'14.33"E
5	N-5	Edayapalayam	3.5km NE	10°55'25.04"N 77° 6'55.99"E
6	N-6	Kallapalayam	5.2Km North	10°57'3.41"N 77° 4'47.72"E
7	N-7	Karachery	4.2km SW	10°52'19.30"N 77° 3'43.58"E
8	N-8	Bogampatti	4.2km East	10°54'24.50"N 77° 7'44.49"E

Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd in association with GEMS

FIGURE 3.18: SITE PHOTOGRAPHS OF NOISE MONITORING IN CLUSTER

3.4.2 Method of Monitoring

Digital Sound Level Meter was used for the study. All reading was taken on the ‘A-Weighting’ frequency network, at a height of 1.5 meters from ground level. The sound level meter does not give a steady and consistent reading and it is quite difficult to assess the actual sound level over the entire monitoring period. To mitigate this shortcoming, the Continuous Equivalent Sound level, indicated by Leq, is used. Equivalent sound level, ‘Leq’, can be obtained from variable sound pressure level, ‘L’, over a time period by using following equation.

$$Leq = 10 \log L / T \sum (10L_n/10)$$

Where L = Sound pressure level at function of time dB (A)

T = Time interval of observation

3.4.3 Analysis of Ambient Noise Level in the Study Area

An analysis of the different Leq data obtained during the study period has been made. Variation was noted during the day-time as well as night-time. The results are presented in below Table 3.31

Day time : 6:00 hours to 22.00 hours.

Night time : 22:00 hours to 6.00 hours

TABLE 3.31 – NOISE MONITORING RESULTS IN CORE AND BUFFER ZONE

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	39.7	40.2	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Core Zone	42.9	34.7	
3	Pachapalayam	40.8	36.4	
4	Panapatti	39.7	36.8	
5	Edayapalayam	39.4	36.4	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
6	Kallapalayam	39.2	37.9	
7	Karachery	39.7	37.2	
8	Bogampatti	36.5	34.2	

Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd in association with GEMS

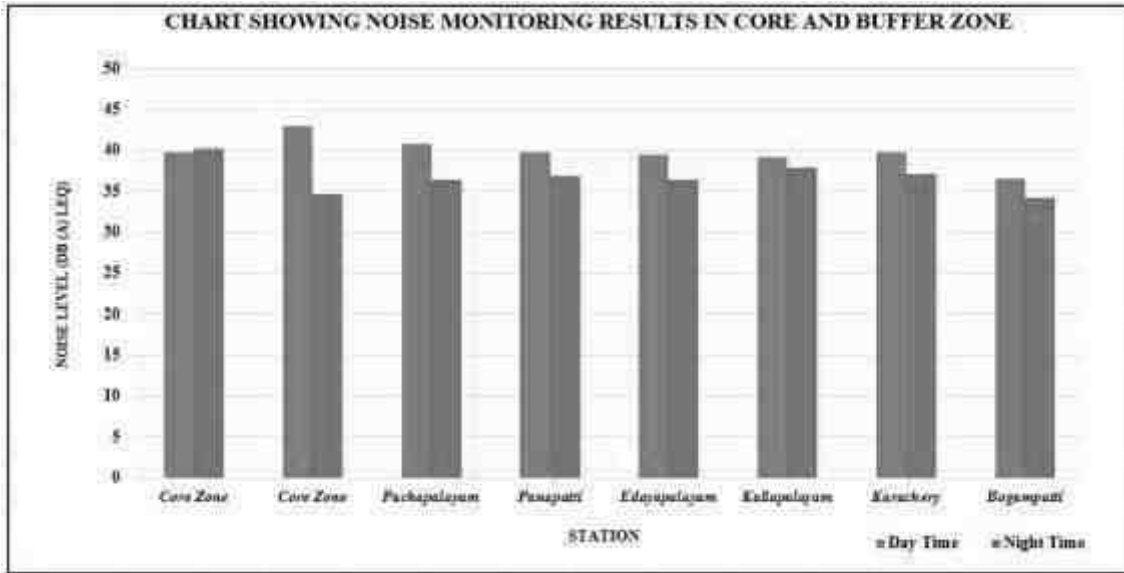


FIGURE 3.19: NOISE MONITORING RESULTS CORE AND BUFFER ZONE

FIGURE 3.20: NOISE MONITORING STATIONS AROUND 10 KM RADIUS

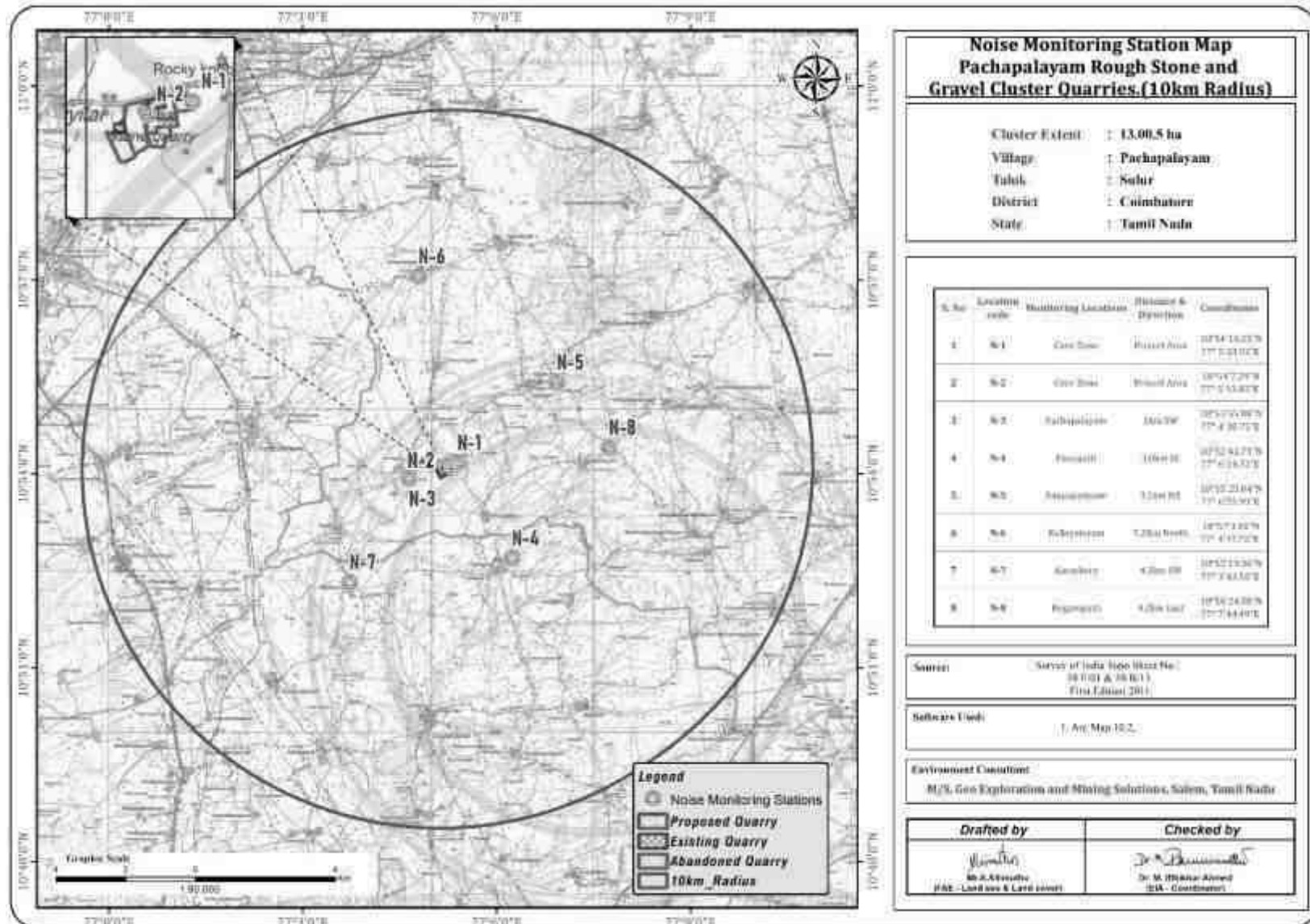
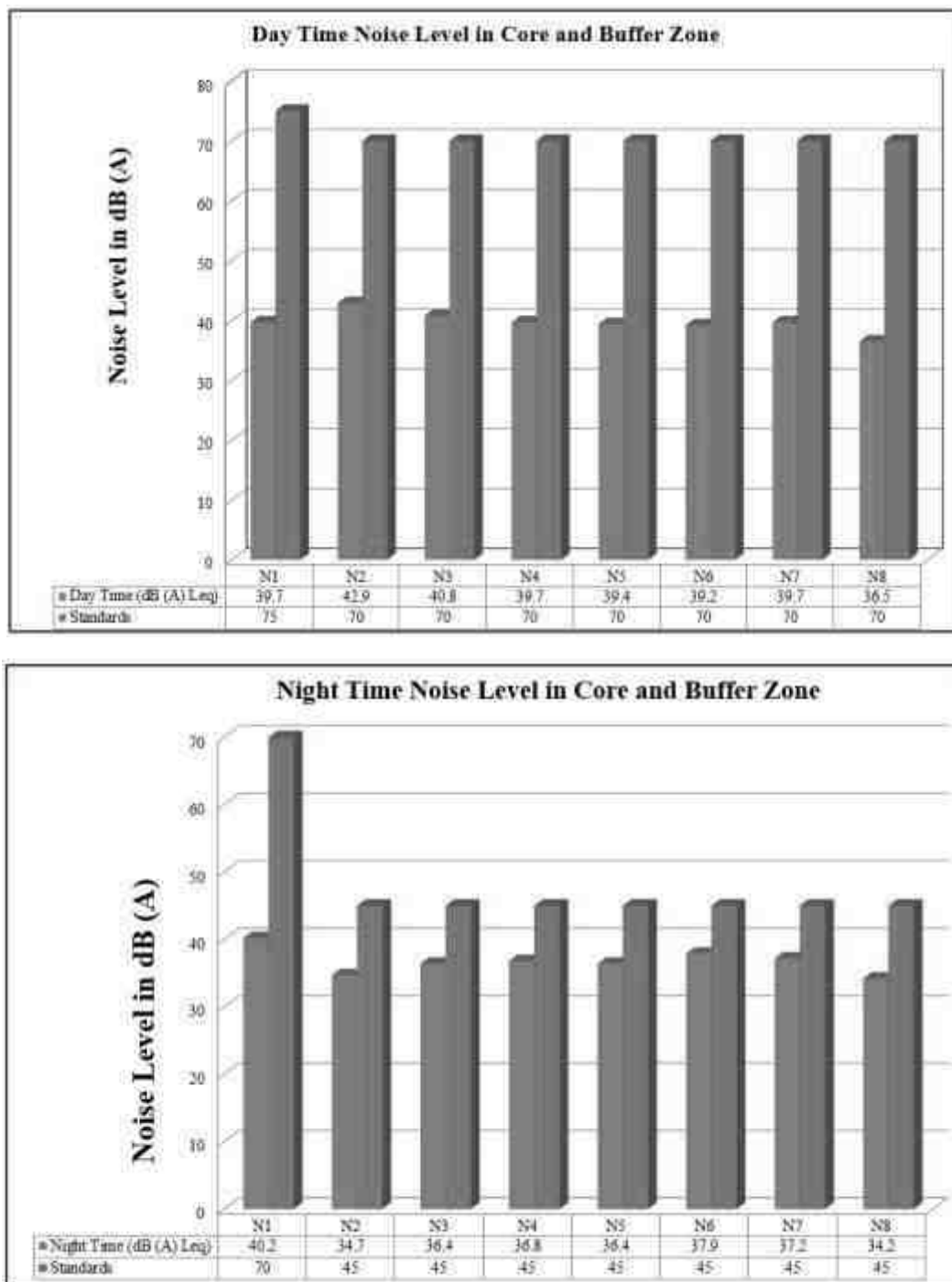


FIGURE 3.21: DAY & NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 8 (eight) locations around the project area considering cluster quarries. Noise levels recorded in core zone during day time were from 39.7 – 42.9 dB (A) Leq and during night time were from 34.7 – 40.2 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 36.5 – 40.8dB (A) Leq and during night time were from 34.2 – 37.9 dB (A) Leq.

The values of noise observed in some of the areas are primarily owing to quarrying activities due to cluster of quarries within 500m radius, movement of vehicles and other anthropogenic activities. Noise monitoring results reveal that the maximum & minimum noise levels at day time were recorded in the range of 47.3dB(A) in core zone and 34.2 dB(A) in Core area and 38.1 dB(A) in Core area & 31.2dB(A) in Core

area respectively in night time. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5 ECOLOGICAL ENVIRONMENT

In this project, the total area of the Cluster within 10km radius from the periphery of this quarry is reported as 13.00.5 Ha with 4 No. of quarries. In such Cluster situation, a common Ecology and Biodiversity study for the entire cluster of quarries is enough to capture all the possible externalities. The common EIA/EMP data can be used for all quarries fall under this cluster but the present work was carried out on detailed study of the impacts Pachapalayam Village, Rough stone and gravel quarry on the ecology and biodiversity of the core lease area with the proper mitigation and sustainable management plan. The lease applied is flat terrain. The following methods were applied during the baseline study of flora, fauna, and diversity assessment.

3.5.1 Objectives of Biological Studies

The present study was undertaken with the following objectives:

- ∞ To study the likely impact of the proposed mining project on the local biodiversity and to suggest mitigation measures, if required, for vulnerable biota.
- ∞ Undertake intensive field survey to assess the status of floral & and faunal component in different habitats in the core and buffer areas of the project site.
- ∞ Identification and listing of flora and fauna which are important as per the Wildlife (Protection) Act 1972.
- ∞ Suggest Wildlife conservation (species-specific/habitat specific) and management plan for the threatened (critically endangered & endangered species - schedule I) faunal species if any reported within the study area.
- ∞ To identify the impacts of mining on agricultural lands and how it affects.
- ∞ Proper collection of information about wildlife Sanctuaries/ national parks/ biosphere reserves of the project area.
- ∞ Devise management & conservation measures for biodiversity.

3.5.2 Methodology of Sampling

Identification of vegetation in relation to the natural flora and crops was conducted through reconnaissance field surveys and onsite observations in core and buffer zone. The plant species identification was done based on the reference materials and also by examining the morphological characteristics and reproductive materials i.e. flowers, fruits and seeds. Land use pattern in relation to agriculture crop varieties were identified through physical verification of land and interaction with local villagers.

The faunal elements (animal species) of core and buffer zone were identified by direct sightings or indirect evidences viz. pug marks, skeletal remains, scats and droppings etc. (Jayson and Easa 2004). Standard binocular was used for the observations. The authenticity of faunal elements occurrence was confirmed by interaction with the local people. Avifauna identification was done with pictorial descriptions of published literature. Information pertaining to existence of any migratory corridors and paths were obtained from local inhabitants. The status of each faunal element was determined and wildlife schedule category was ascertained as per the IUCN-Red Data Book and Indian wildlife (Protection) Act, 1972.

Plot method is used in the floral documentation in the core and buffer zone. For trees (10x10-m), shrubs (5x5-m) and herbs (1x1-m) plots were taken. Birds and butterflies were mainly focused during faunal assessment, transect method was employed for birds and butterflies. Transect is a path along which one counts and records the occurrence of an individual for study. A straight-line walk covering desired distance, within a time span of one hour to 30 minutes was carried out in the proposed region. Bird species were recorded during the hours of peak activity. 0700 to 1100 Hrs and 1430 to 1730 Hrs (Bibby et al. 2000).

Direct observations and bird calls were used for bird documentation. Same transects were used for counting butterflies. Opportunistic observations were made for Amphibians, reptiles and ordinates. Presence of mammals was recorded by direct and indirect signs. All possible transects were taken for birds and butterflies. Birds and butterflies were classified into species level. Recorded bird species were identified to species level using standard books (Ali & Ripley 1987, Grimmett et al., 2016).

3.5.3 Sampling

A stratified simple random sampling procedure was employed to obtain a sample from study area. The study area was further stratified in different land use/ecosystems.

1 Sampling Size

Keeping in mind both random sampling technique and covering all land use patterns for the study following sampling locations were chosen depending up on the area of the proposed site.

2 Timing of Study

The study was carried out during morning and evening hours, to cover the different activity phases for important species such as time resting, feeding, hunting, and daily movements.

3. Observations from Sampling

The various observations relating to flora and fauna species are discussed in detail below, in separate sections.

4 Equipment/ References

- Canon Mark III Camera with 50-500mm lens– Snap shots taken
- Leica Binoculars (8x 20) to spot/identify species
- IUCN Red Data Book – <https://www.iucnredlist.org/species>

Ornithological/Entomological/Herpetological/Mammalian catalogues and pictorial descriptions from various authors and websites are followed for species identification.

3.5.4 Part I Field Sampling Techniques

1 Transect walk – Birds

Six nos of transect lines with varying length (100m-300m) and fixed width (2m) were laid which cuts through the core and buffer areas of proposed site. The transect surveys were conducted from 0700 to 1100Hrs and 1430 to 1730Hrs (Bibby et al. 2000). All avifauna found along these transects were recorded for analysing the data. Counts were conducted while there is no heavy rain, mist or strong wind.

2 Modified Pollard Walk – for Butterflies

The Modified Pollard Walk (Pollard 1977, 1993, Walpole 1999) using fixed width transect walk method were employed to investigate butterfly spatial distribution, diversity and abundance at the different survey sites.

3 Visual Encounter Survey (VES) - reptiles and amphibians

VES is a time-constrained sampling technique (Campbell and Christman, 1982; Corn and Bury, 1990). It needs a systematic search through an area or habitat for a prescribed time period (Campbell and Christman, 1982). The result of VES is measured against the time spent for search. VES technique is one of the simplest methods, and an appropriate technique for both inventory and monitoring Herpetofauna (Heyer et al. 1994).

4 Observational methods- Mammals

For the purpose of recording mammals, we used two different observational techniques: (1) direct observations, and (2) recording of occurrences like holes, markings, scats, hairs, and spines (Menon 2003). For

identification confirmations, photographs with a scale reference were used, and locations were recorded using a portable GPS device. Indigenous knowledge particularly that of the locals, was occasionally employed to compile a preliminary list of species and/or aid in the recognition of indicators.

5 Multiple Stage Quadrat – Vegetation

A variety of habitat or vegetation structure variables were measured using the Multiple Stage Quadrat sampling protocol (Sykes and Horrill 1977). All of those areas were sampled, and the major corners were temporarily delineated with coloured ribbons. Each site was identified in the field using a compass and clinometer, and the plot's latitude, longitude, and elevation were recorded using a handheld Global Positioning System (Garmin 12XL).

3.5.5 Flora

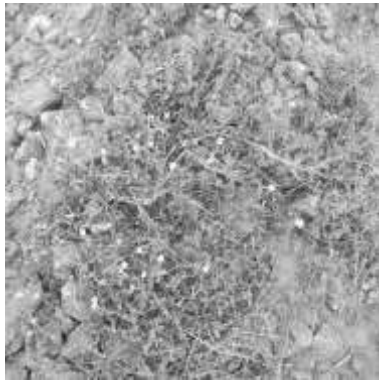
The quadrat sampling technique was used for sampling vegetation. Sampling quadrats of regular shape of dimensions 10 × 10 m, 5 × 5 m, and 1 × 1 m, were nested within each other and were defined as the units for sampling the area and measuring the diversity for trees, Shrubs, and herbs respectively.

3.5.6. Flora Composition in the Core Zone

Taxonomically a total of 21 species belonging to 15 families have been recorded from the core zone of Cluster mining lease area. The lease applied is flat terrain. Based on the habitat classification of the enumerated plants the majority of species were Herbs 6, followed by Trees 5, Shrubs 5, Grass 2, Creeper/Climbers 2, and Cactus 1. Details of flora with the scientific names were mentioned in Table No. 3.1. The result of the core zone of flora studies shows that Fabaceae and Poaceae, Asteraceae are the main dominating species in the study area mentioned in Table No.3.1. No species were found as threatened category.

Table 3.32. Flora in the Core zone of Cluster area, Pachapalayam Rough stone and gravel quarry

SI.No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Neem or Indian lilac	Vembu maram	<i>Azadirachta indica</i>	Meliaceae
2.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	Fabaceae
3.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae
4.	River tamarind	Savundal maram	<i>leucaena leucocephala</i>	Fabaceae
5.	Velvet mesquite	Mullu Maram	<i>Prosopis juliflora</i>	Fabaceae
Shrubs				
6.	West Indian Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
7.	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae
8.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
9.	Tanner's cassia	Avaram	<i>Senna auriculata</i>	Fabaceae
10.	Triangular spruce	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
Herbs				
11.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
12.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
13.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
14.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
15.	Indian nettle	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae
16.	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae
Climber				
17.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
18.	Stinking passionflower	Poonai puduku chedi	<i>Passiflora foetida L</i>	Passifloraceae
Grasses				
19.	Narrow leaf cattail	Sambu	<i>Typha angustifolia</i>	Typhaceae
20.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
Cactus				
21.	Prickly pear	Nagathali	<i>Opuntia dillenii</i>	Cactaceae



a. *Tridax procumbens*



b. *Senna auriculata*



c. *Azadirachta indica*



d. *Euphorbia antiquorum*



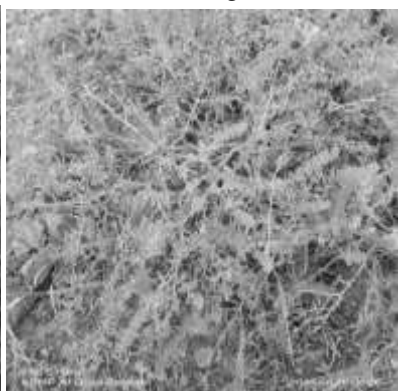
e. *Ficus benghalensis*



f. *Calotropis gigantea*



g. *Vachellia leucophloea*



h. *Ocimum tenuiflorum*



i. *Cissus quadrangularis*



j. *Cynodon dactylon*



k. *Opuntia dillenii*



l. *Leucaena leucocephala*

FIGURE 3.22 : Flora species observation in the Core zone area**3.5.7. Flora Composition in the Buffer Zone**

Similar habitats may be found in the buffer area as well, although there is a wider variety of plants there than in the core zone area. The buffer zone study area contains a total of 83 species that have been recorded from the buffer zone. The floral (83) varieties among them Trees 41, herbs 14, Shrubs 19, Climbers/Creepers 7, Grasses 2, and Cactus 2 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Poaceae, Euphorbiaceae is the main dominating species in the study area mentioned in Table No.3.3. There are no impacts due to this mining activity. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. A list of floral species has been prepared based on primary survey (site observations) and discussion with local people. The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table No 3.33 and their % distribution is shown in Figure 3.2 and total number of flora families is given in Fig No.3.3.

Table 3.33. Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	41
2	Shrubs	19
3	Herbs	14
4	Climber/	7
6	Grass	2
7	Cactus	1
Total No. of Species		83

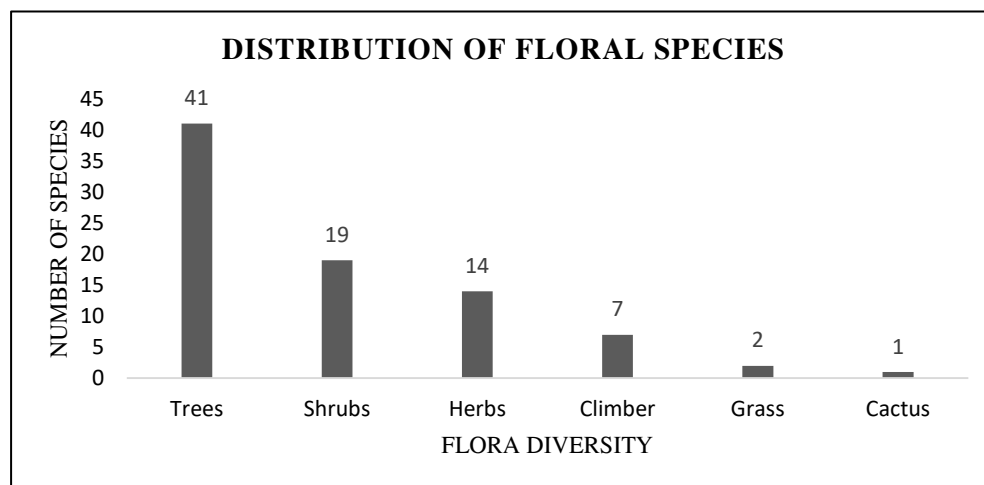
**Figure No. 3.23: Graph showing % distribution of floral life forms**

Table No: 3.34. Flora in the Buffer zone of Cluster area, Pachapalayam Rough stone and gravel quarry

Sl.No	English Name	Vernacular Name	Scientific Name	Family Name	Resource use type *(E,M,EM)
Trees					
1.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae	E
2.	Neem or Indian lilac	Vembu	<i>Azadirachta indica</i>	Meliaceae	M
3.	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae	E
4.	Burflower-tree	Kadamba	<i>Neolamarckiacadamba</i>	Rubiaceae	E
5.	Wild Date Palm	Icham	<i>Phoenix sylvestris</i>	Arecaceae	M
6.	Velvet mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae	M
7.	Madras thorn	Kudukapuli	<i>Pithecellobium dulce</i>	Fabaceae	EM
8.	Monkey pod tree	Thungumoonchi	<i>Samanea saman</i>	Fabaceae	E
9.	Portia tree	Poovarasam	<i>Thespesia Populnea</i>	Malvaceae	E
10.	Jack fruit	Bala maram	<i>Artocarpusintegrifolia</i>	Moraceae	E
11.	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae	EM
12.	Jamun Fruit Plant	Naval maram	<i>Syzygium cumini</i>	Myrtaceae	EM
13.	Gum arabic tree	Karuvelam	<i>Vachellia nilotica</i>	Fabaceae	E
14.	Gulmohar	Neruppu Kondrai	<i>Royal poinciana</i>	Fabaceae	EM
15.	Chinese chaste tree	Nochi	<i>Vitex negundo</i>	Verbenaceae	E
16.	Kapok tree	Ilavam Panju	<i>Ceiba pentandra</i>	Malvaceae	E
17.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	E
18.	Curry tree Plant	Karuveppilai	<i>Murraya koenigii</i>	Rutaceae	M
19.	Bamboo	Moongil	<i>Bambusoideae</i>	Poaceae	E
20.	Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae	E
21.	Indian mulberry	Nuna maram	<i>Morinda tinctoria</i>	Rubiaceae	E
22.	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	EM
23.	Horsetail She-oak	Savukku maram	<i>Casuarina equisetifolia</i>	Casuarinaceae	E
24.	Indian-almond	Inguti	<i>Terminalia catappa</i>	Combretaceae	EM
25.	Eucalyptus	Thailam maram	<i>Eucalyptus tereticornis</i>	Myrtaceae	M
26.	Yellow flame tree	Perunkondrai	<i>Peltophorum pterocarpum</i>	Fabaceae	E
27.	Pongamia pinnata	Pongam	<i>Millettia pinnata</i>	Fabaceae	M
28.	Agati	Agathi keerai	<i>Sesbania grandiflora</i>	Fabaceae	EM
29.	Indian gooseberry	Nelli	<i>Phyllanthus emblica</i>	Phyllanthaceae	EM
30.	Guava	Koyya	<i>Psidium guajava</i>	Myrtaceae	EM
31.	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes	EM
32.	Drumstick tree	Murunga maram	<i>Moringa oleifera</i>	Moringaceae	EM

33.	Henna	Marudaani	<i>Lawsonia inermis</i>	Lythraceae	EM
34.	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae	EM
35.	Peepal	Asoka maram	<i>Ficus religiosa</i>	legume	E
36.	Banana tree	Vazhaimaram	<i>Musa acuminata</i>	Musaceae	EM
37.	Jack fruit	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae	E
38.	Custard apple	Seethapazham	<i>Annona reticulata</i>	Annonaceae	E
39.	Manilkara zapota	Sapota	<i>Manilkara zapota</i>	Sapotaceae	E
40.	java olive tree	Kutiraippitukku	<i>Sterculia foetida</i>	Malvaceae	E
41.	Malayan Cherry	Ten Pazham	<i>Muntingia calabura</i>	Muntingiaceae	M
Shrubs					
1.	Devil's trumpet	Umathai	<i>Datura metel</i>	Solanaceae	EM
2.	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae	M
3.	Castor bean	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae	M
4.	Jungle geranium	Idly Poo	<i>Ixora coccinea</i>	Rubiaceae	M
5.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae	EM
6.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae	M
7.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae	EM
8.	Malabar catmint	Pei veratti	<i>Anisomeles malabarica</i>	Lamiaceae	M
9.	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae	M
10.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae	M
11.	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae	EM
12.	Rosary pea	Kundumani	<i>Abrus precatorius</i>	Fabaceae	M
13.	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae	M
14.	West Indian Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae	E
Herbs					
1.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae	NE
2.	Billygoat weed	Pumpillu	<i>Ageratum conyzoides</i>	Asteraceae	M
3.	Aloe barbadensis	Katrashai	<i>Aloe vera</i>	Asphodelaceae	EM
4.	Madagascar Periwinkle	Nithyakalyani	<i>Catharanthus roseus</i>	Apocynaceae	M
5.	Indian Mercury	Kuppamani	<i>Acalypha indica</i>	Euphorbiaceae	EM
6.	Indian nettle	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae	M
7.	Bui	Ciru-pulai	<i>Aervalanata</i>	Amaranthaceae	M
8.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae	E
9.	Cleome viscosa	Nai kadugu	<i>Celome viscosa</i>	Capparidaceae	M
10.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae	M
11.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae	M

12.	Poor land flatsedg	Kunnakora	<i>Cyperus compressus</i>	Cyperaceae	NE
13.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae	M
14.	Peanut	Kadalai	<i>Arachis hypogaea</i>	Fabaceae	EM
15.	Red Hogweed	Mukurattai	<i>Boerhavia diffusa</i>	Nyctaginaceae	M
16.	Tridax daisy	Thatha poo	<i>Tridax procumbens</i>	Asteraceae	M
17.	Gale of the wind	Keelaneeli	<i>Phyllanthus niruri</i>	Phyllanthaceae	EM
18.	Eggplant	kathirikai	<i>Solanum melongena</i>	Solanaceae	M
19.	European black nightshade	Manathakkali	<i>Solanum nigrum</i>	Solanaceae	EM
Climber					
1.	Ivy gourd	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae	M
2.	Butterfly pea	Sangu poo	<i>Clitoria ternatea</i>	Fabaceae	M
3.	Wild water lemon	Poonai puduku chedi	<i>Passiflora foetida</i>	Passifloraceae	M
4.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	M
5.	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae	EM
Creepers					
1.	Nut grass	Korai	<i>Cyperus rotundus</i>	Poaceae	M
2.	Grona triflora	Siru puladi	<i>Desmodium triflorum</i>	Fabaceae	EM
Grass					
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae	E
2.	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae	NE
Cactus					
1.	Indian fig opuntia	Sapathikalli	<i>Opuntia ficus-indica</i>	Cactaceae	M

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

3.5.8 Abundance and Density

Both this term refers to the number of species in a community. Abundance of any individual species is expressed as a percentage of the total number of species present in community and therefore it is a relative measure. In sampling the abundance of species the individual of species are counted instead of just noting their presence or absence was done while studying the frequency of a species.

Taken together abundance and frequency are of great importance in determining the community structure.

$$\text{Abundance} = \frac{\text{Total no.of individual of the species}}{\text{No of quadrate per units in which they occur}} \times 100$$

$$\text{Density} = \frac{\text{Total no.of individual of the species}}{\text{No.of quadrat per units studied}} \times 100$$

$$\text{Relative abundance} = \frac{\text{Total no.of species}}{\text{Total no.of individual of all species recorded}} \times 100$$

$$\text{Relative Density} = \frac{\text{Density of a given species}}{\text{Total densities of all the species}} \times 100$$

$$\% \text{ Frequency} = \frac{\text{Density of a given species}}{\text{Total densities of all the species}} \times 100$$

Raunkiaer (1934) made an elaborative study on the frequency of species and based on his data, he divided species into 5 Classes viz, A, B, C, D, E. Compare the observed frequency with the Raunkiaer's Law of frequency and depict it in form of histogram (Fig No: 3.24).

On the basis of per cent values various species distribute into five frequency class

Frequency percentage	Class
0-20	A
21-40	B
41-60	C
61-80	D
81-100	E

A graph is plotted (Histogram) with frequency class on X-axis and frequency percentage on Y-axis and compared with Raunkier's value.

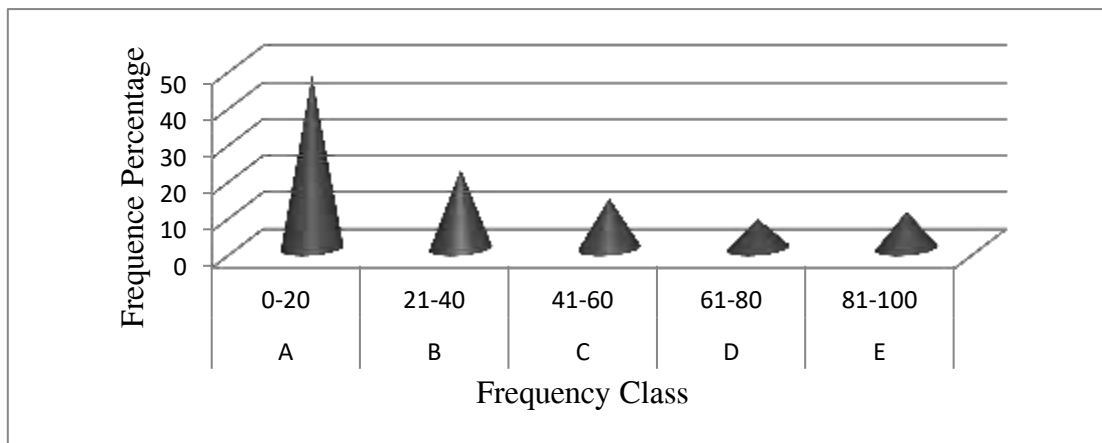
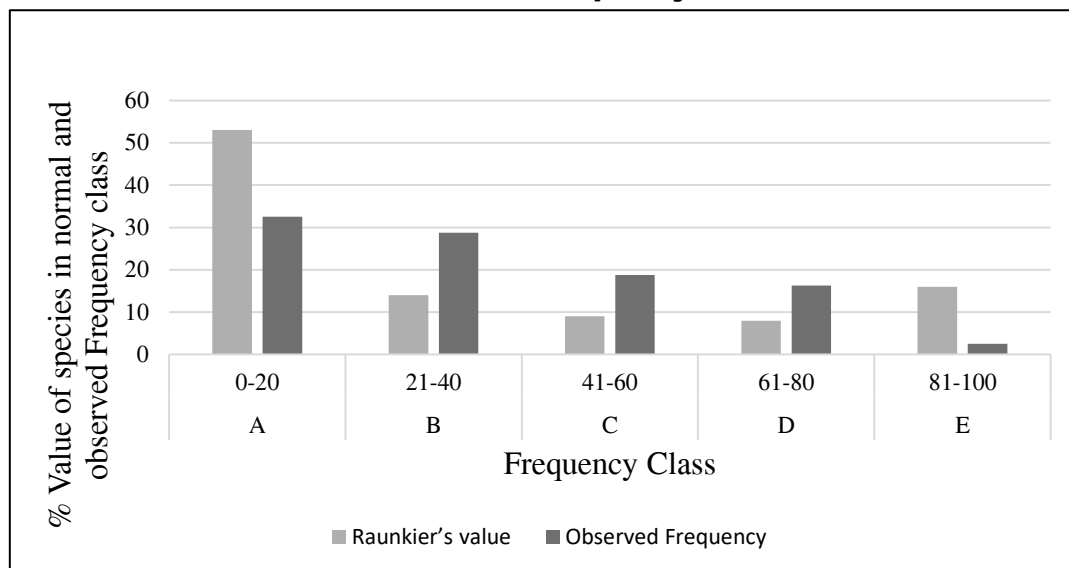


Figure No. 3.24: Frequency class of vegetation

Frequency class	Class value	Raunkier's value	Frequency class of vegetation
A	0-20	53	32.5%
B	21-40	14	28.75%
C	41-60	9	18.75%
D	61-80	8	16.25%
E	81-100	16	2.5%

Figure No. 3.25: Comparison of Raunkiaer's Law of frequency (Normal) with observed frequency



Histogram representing comparison of Raunkiaer's law of frequency (normal) with observed frequency (from table above.).

3.5.9. Interpretation of result:

Frequency data obtained indicates whether the distribution of the species is homogenous i.e. uniform throughout the buffer zone or heterogeneous. Heterogeneous distribution refers to the uneven distribution of various species within a specific area.

Higher the value of Class A&B, the more homogenous and undisturbed the vegetation.

Even observed % frequency classes (A_B_C_D) Differ from the normal Frequency Law of Raunkiaer's as expected since the area under the study is highly disturbed due to various biotic factors. i.e. (A>B>C)>=<D<E). In the present study class, D&E is less species.

3.5.10. The vegetation in the RF / PF areas, ecologically sensitive areas

There are neither reserved (RF) nor protected (PF) forests either in the mine lease area or in the buffer zone. Thus, no forest land is involved in any manner. Hence, no certificate from the Forest department is required. There are no impacts due to this mining activity.

There are no protected or ecologically sensitive areas such as National parks or Important Bird Areas (IBAs), or Wetlands or migratory routes of fauna or water bodies or human settlements within the proposed mine lease area. There are no Biosphere reserves or wildlife sanctuaries or National parks or Important Bird Areas (IBAs), or migratory routes of fauna. Thus, the area under study (Mine lease area and the 10 Km buffer zone) is not ecologically sensitive. It is away from the proposed project site.

There are neither forests nor forest dwellers nor forest dependent communities in the mine lease area. There shall be no forest impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.

3.5.11 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 the Indian Wildlife Protection Act, 1972. There are no rare, endangered, threatened (RET) and endemic species present in the core area.

3.5.12. Fauna Composition in the Core Zone

A total of 20 varieties of species were observed in the Core zone of Pachapalayam Village, Rough stone and gravel quarry (Table No.3.4) among them numbers of Insects 7, Reptiles 3, Mammals 2, and Avian 8. A total of 20 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 nine species are under schedule IV according to the Indian wildlife Act 1972. A total of 8 species of bird were sighted in the mining lease area. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

Table No: 3.35 Fauna in the Core zone of cluster area, Pachapalayam Rough stone and gravel quarry

SI. No	Common Name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
Insects					
1.	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
2.	Dragonfly	Anisoptera	<i>Agriansp</i>	-	-
3.	Colotis danae	Pieridae	<i>Colotis danae</i>	NL	LC
4.	House fly	Muscidae	<i>Musca domestica</i>	-	-
5.	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
6.	Honey Bee	Apidae	<i>Apisindica</i>	-	-
7.	Termite	Blattodea	<i>Hamitermes silvestri</i>	NE	LC
Reptiles					
1.	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
2.	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL	LC
3.	Green vine snake	Colubridae	<i>Ahaetulla nasuta</i>	Schedule IV	NL
Mammals					
1.	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	NL
2.	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule (Part II)	LC
Aves					
1.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
2.	Shikra	Laniidae	<i>Laniusexcubitor</i>	Schedule IV	LC
3.	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
4.	Sunbird	Nectariniidae	<i>Cinnyris asiaticus</i>	Schedule IV	LC
5.	Koel	Cuculidae	<i>Eudynamys</i>	Schedule IV	LC
6.	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	NL	LC
7.	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
8.	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC

*NL- Not listed, LC- Least Concern

(Sources: Species observation in the field study)

3.5.13 Fauna Composition in the Buffer Zone

As the animals, especially vertebrates move from place to place in search of food, shelter, mate or other biological needs, separate lists for core and buffer areas are not feasible however, a separate list of fauna pertaining to core and buffer zone are listed separately. Though there are no reserved forest in the buffer zone. As such there are no chances of occurrence of any rare or endangered or endemic or threatened (REET) species within the core or buffer area.

There are no Sanctuaries, National Parks, Tiger Reserve or Biosphere Reserve or Elephant Corridor or other protected areas within 10 km radius from core area. It is evident from the available records, reports, and circumstantial evidence that the entire study area including the core and buffer areas were free from any endangered animals. There were no resident birds other than common bird species such as, green bee eaters, Rose-ringed parakeet, Common Mynas, Black drangos, Crows, Grey Francolin etc.

The list of bird species recorded during field survey and literature from the study area are given in Table 3.5. The list of reptilian species recorded during field survey and literature from the study area are given in Table 3.6. The list of insect's species recorded during field survey and literature from the study area are given in Table 3.7. The list of Amphibian species recorded during field survey and literature from the study area are given in Table 3.8. It is apparent from the list that none of the species either spotted or reported is included in Schedule I of the Wildlife Protection Act. Similarly, none of them comes under the REET category.

Taxonomically a total of 48 species belonging to 30 families have been recorded from the buffer zone area. Based on habitat classification the majority of species were Insect 5, followed by birds 16, Reptiles 8, Mammals 5, and amphibians 4 and Butterflies 10. There are six Schedule II species, and twenty species are under schedule IV according to the Indian wildlife Act 1972. A total of 16 species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed. There are no impacts on nearby fauna species.

Dominant species are mostly birds and insects, and four amphibian was observed during the extensive field visit *Sphaerotheca breviceps*, *Euphlyctis hexadactylus*, *Bufo melanostictus*, *Euphlyctiscynophlyctis*. The result of Buffer zone of fauna studies shows that Nymphalidae, Colubridae, and Scincidae are the main dominating species in the study area. There is no schedule I Species in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

Table 3.36 List of Fauna & Their Conservation Status, Mammals: (*directly sighted animals & Secondary

SI. No	Common Name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
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(data)

SI. No	Common Name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
1.	Indian palm squirrel	Sciuridae	<i>Funambulus palmarum</i>	Schedule IV	LC
2.	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	LC
3.	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule (Part II)	LC
4.	Indian hare	Leporidae	<i>Lepus nigricollis</i>	Schedule (Part II)	LC
5.	Brown rat	Muridae	<i>Rattus norwegicus</i>	Schedule IV	LC

Status assigned by the IUCN, where – CR – Critically Endangered; EN – Endangered; LC – Least Concern; NT – Near Threatened; VU – Vulnerable, DA – Data Deficient, NE – Not Evaluated

Table 3.37. Listed birds

SI. No	Common Name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
1.	Koel	Cuculidae	<i>Eudynamis</i>	Schedule IV	LC
2.	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NL	LC
3.	Rock pigeon	Columba livi	<i>Columbidae</i>	Schedule IV	LC
4.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
5.	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
6.	Sunbird	Nectariniidae	<i>Nectariniidae</i>	NL	LC
7.	Indian blue robin	Larvivorabrunnea	<i>Muscicapidae</i>	Schedule IV	LC
8.	Asian green bee-eater	Meropidae	<i>Merops orientalis</i>	NL	LC
9.	Small blue Kingfisher	Alcedinidae	<i>Alcedo atthis</i>	Schedule IV	LC
10.	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	NL	LC
11.	White Breasted king fisher	Alcedinidae	<i>Halcyon smyrnensis</i>	Schedule IV	LC
12.	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
13.	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
14.	Woodpecker bird	Picidae	<i>Picidae</i>	Schedule IV	LC
15.	Two-tailed Sparrow	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
16.	Grey Francolin	Phasianidae	<i>Francolinus pondicerianus</i>	Schedule IV	LC

*Status assigned by the IUCN, where – CR – Critically Endangered; EN – Endangered; LC – Least Concern; NT – Near Threatened; VU – Vulnerable, DA – Data Deficient, NE – Not Evaluated

Table 3.38. List of Reptiles either spotted or reported from the study area.

(*indicates direct observations & Secondary data)

1.	Oriental garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
2.	House lizards	Gekkonidae	<i>Hemidactylus flaviviridis</i>	Schedule IV	NL
3.	Indian cobra	Elapid snakes	<i>Naja naja</i>	Sch II (Part II)	LC
4.	Green vine snake	Colubridae	<i>Ahaetulla nasuta</i>	Schedule IV	NL
5.	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch IV (Part II)	LC
6.	Common krait	Elapid snakes	<i>Bungarus caeruleus</i>	Schedule IV	NL
7.	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL	LC
8.	Russell's viper	Viperidae	<i>Vipera russelli</i>	Sch II (Part II)	LC

Table 3.39. List of insects either spotted or reported from the study area

Table.3.40 List of Butterflies reported from the study area

SI. No	Common Name/English Name	Scientific Name	Schedule
1.	Indian palm bob	<i>Suastusgremius</i>	-

SI. No	Common Name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
1.	Indian honey bee	Apidae	<i>Apis cerana</i>	-	-
2.	Termite	Blattodea	<i>Hamitermes silvestri</i>	NE	LC
3.	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
4.	Ant	Formicidae	<i>Camponotus Vicinus</i>	NL	NL
5.	Dragonfly	Gomphidae	<i>Ceratogomphus pictus</i>	-	-
2.	Common jay		<i>Graphiumdoson</i>	-	-
3.	Common rose		<i>Pachlioptaaristolochiae</i>	-	-
4.	Spotless grass yellow		<i>Euremalaeta</i>	-	-
5.	Common Tiger		<i>Danaus genutia</i>	-	-
6.	Common emigrant		<i>Catopsiliapomona</i>	-	-
7.	Crimson tip		<i>Colotisdanae</i>	-	-
8.	Common Indian crow		<i>Euploea core</i>	-	-
9.	Striped tiger		<i>Danaus plexippus</i>	-	-
10.	Milkweed butterfly		<i>Danainae</i>	-	-

Table 3.41. List of Amphibians either spotted or reported from the study area

SI. No	Common Name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
1.	Indian Burrowing frog	Dicroglossidae	<i>Sphaerotheca breviceps</i>	Schedule IV	LC
2.	Green pond frog	Dicroglossidae	<i>Euphlyctis hexadactylus</i>	Schedule IV	LC
3.	Indian Toad	Bufonidae	<i>Bufo melanostictus</i>	Schedule IV	LC
4.	Skipper	Dicroglossidae	<i>Euphlyctiscynophlyctis</i>	Schedule IV	LC

*Status assigned by the IUCN, where – CR – Critically Endangered; EN – Endangered; LC – Least Concern; NT – Near Threatened; VU – Vulnerable, DA – Data Deficient, NE – Not Evaluated

3.5.14 Findings/Results

The assessment was carried out during the summer season. The inspection day was quite alright with respectable weather. The details of the flora and fauna observed are given below.

Records of threatened species in the area

No threatened species were observed

Endangered Species as per Wildlife (Protection) Act

No Endangered fauna was recorded in the project area.

Endemic Species of the Project areas

No endemic species were observed in the project area.

Migratory species of the Project areas

No migratory fauna observed in project area.

Migratory corridors and Flight paths

No migratory corridors and Flight paths were observed in project area.

Breeding and spawning grounds

No breeding and spawning grounds were earmarked for the wildlife fauna in project area.

There are no critically endangered, endangered, vulnerable and endemic species were observed. As the rainfall in the area is scanty and as no toxic wastes are produced or discharged on account of mining, the proposed mining activity is not going to have any additional and adverse impacts on these RET species. There are no ecologically sensitive areas or protected areas within the 10 Km radius. Hence no specific conservation for conservation of any RET species or Wildlife is envisaged.

There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km of the mine lease area. There are no protected forests within the project area. Hence submission of clearance from the National Board of Wildlife does not arise.

There is no endangered, endemic and RET Species. There is no Schedule I species in study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] The proposed project is not going to have any direct or indirect adverse impact on the species mentioned above.

3.5.15 Conclusion

The observations and assessment of the overall ecological scenario involve details such as classification of Biogeographic zone, eco-region, habitat types and land cover, distances from natural habitats, vegetation/forest types, and sensitive ecological habitats such as Wetlands sites, Important Bird areas, migration corridors of important wildlife etc. Such baseline information provides better understanding of the situation and overall ecological importance of the area. This baseline information viewed against proposed project activities help in predicting their impacts on the wildlife and their habitats in the region. Data collected and information gathered from secondary literature on flora, fauna, protected area, natural habitats, and wildlife species etc., and consulted and discussed with local people, from the villages, herders and farmers who inhabit close to the proposed project area.

3.6 SOCIO ECONOMIC ENVIRONMENT

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 the project.

It is expected that the Socio-Economic Status of the area will substantially improve because of this proposed project. 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.

3.6.1 Objectives of the Study

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

- To study the socio-economic status of the people living in the study area of the proposed mining project.

- To assess the impact of the project on Quality of life of the people in the study area.
- To recommend Community Development measures needs to be taken up in the study Area.

3.6.2 Scope of Work

- To study the Socio-economic Environment of the area from the secondary sources;
- Data Collection & Analysis
- Prediction of project impact
- Mitigation Measures

3.6.3 District Profile

Coimbatore is the third largest city of tamilnadu, Coimbatore, is one of the most industrialized cities in Tamil Nadu, known as the textile capital of South India or the Manchester of the South, the city is situated on the banks of the river Noyyal, Coimbatore existed even prior to the 2nd or 3rd century AD by Karikalan, the first of the early Cholas. Among its other great rulers were Rashtrakutas, Chalukyas, Pandyas, Hoysalas and the Vijayanagara kings.

There are more than 25,000 small, medium, large sale industries and textile mill. Coimbatore is also famous for the manufacture of motor pump sets and varied engineering goods. The development of Hydro electricity from the Pykara Falls in the 1930 led to a cotton boom in Coimbatore.

3.6.4 Study area:

PACHAPALAYAM VILLAGE

Pachapalayam village is situated in Teshil Sultur, District Coimbatore and in State of Tamil Nadu India. Village has population of 2933 as per census data of 2011, in which male population is 1488 and female population is 1445. Total geographical area of Pachapalayam village is 1559 Hectares. Population density of Pachapalayam is 2 persons per Hectares. Total number of house hold in village is 842.

As per the Census Data 2011 there are 971 Femals per 1000 males out of 2933 total population of village. There are 922 girls per 1000 boys under 6 years of age in the village.

In Pachapalayam village population of children with age 0-6 is 271 which makes up 9.24% of total population of village. Average Sex Ratio of Pachapalayam village is 971 which is lower than Tamil Nadu state average of 996. Child Sex Ratio for the Pachapalayam as per census is 922, lower than Tamil Nadu average of 943.

TABLE 3.42: PACHAPALAYAM VILLAGE POPULATION FACTS

Number of Households	842
Population	2,933
Male Population	1,488
Female Population	1,445
Children Population	271
Sex-ratio	971
Literacy	65.89%
Male Literacy	74.46%
Female Literacy	57.11%
Scheduled Tribes (ST) %	0
Scheduled Caste (SC) %	556

Source:<https://www.census2011.co.in/data/village/644389-Pachapalayam-tamil-nadu.html>

Gram Panchayat name of the village is Pachapalayam. CD Block name is Sulthanpet and Teshil/Taluk or sub-district is Sultur. Data Reference year is 2009 of Census 2011. Sub District HQ Name is Sultur and Sub District HQ Distance is 16 Km from the village. District Head Quarter name is Coimbatore and its distance from the village is 19km.

TABLE 3.43: DEMOGRAPHICS POPULATION OF VILLAGE PACHAPALAYAM

Total Population	Male Population	Female Population
2933	1488	1445

Source: <https://etrace.in/census/village/pachapalayam-sulur-district-coimbatore-tamil-nadu-644389/>

Sex Ratio of Pachapalayam Village -Census 2011

As per the Census Data 2011 there are 971 Femals per 1000 males out of 2933 total population of village. There are 922 girls per 1000 boys under 6 years of age in the village.

Literacy of Pachapalayam Village

Out of total poplation total 1754 people in Pachapalayam Village are literate, among them 1003 are male and 751 are female in the village. Total literacy rate of of Pachapalayam is 65.89%, for male literacy is 74.46% and for female literacy rate is 57.11%.

Worker's profile of Pachapalayam Village

Total working population of Pachapalayam is 1627 which are either main or marginal workers. Total workers in the village are 1627 out of which 981 are male and 646 are female. Total main workers are 1466 out of which female main workers are 921 and male main workers are 545. Total marginal workers of village are 161.

TABLE 3.44: PACHAPALAYAM VILLAGE CENSUS 2011 DATA

Description	Census 2011 Data
Village Name	Pachapalayam
Teshil Name	Sulur
District Name	Coimbatore
State Name	Tamil Nadu
Total Population	2933
Total Area	1559 (Hectares)
Total No of House Holds	842
Total Male Population	1488
Total Female Population	1445
0-6 Age group Total Population	271
0-6 Age group Male Population	141
0-6 Age group Female Population	130
Total Person Literates	1754
Total Male Literates	1003
Total Female Literates	751
Total Person Illiterates	1179
Total Male Illiterates	485
Total Female Illiterates	694
Scheduled Cast Persons	556
Scheduled Cast Males	278
Scheduled Cast Females	278
Scheduled Tribe Persons	0
Scheduled Tribe Males	0
Scheduled Tribe Females	0

<https://etrace.in/census/village/pachapalayam-sulur-district-coimbatore-tamil-nadu-644389/>

TABLE 3.45: PACHAPALAYAM WORKING POPULATION ---CENSUS 2011

Description	Total	Male	Female
Total Workers	1627	981	646
Main Workers	1466	921	545
Main Workers Cultivators	491	285	206
Agriculture Labourer	177	97	80
Household Industries	19	9	10
Other Workers	779	530	249
Marginal Workers	161	60	101
Non-Working Persons	1306	507	799

<https://etrace.in/census/village/pachapalayam-sulur-district-coimbatore-tamil-nadu-644389/>

TABLE 3.46: POPULATION DATA OF STUDY AREA

SI.No.	Village Name	No of House Holds	Total Population	Male	Female	Total Literate Population	Male Literate	Female Literate	Total Illiterate Population	Male Illiterate	Female Illiterate
1	Arasampalayam	1090	3818	1894	1924	2473	1384	1089	1345	510	835
2	Bogampatti	686	2415	1254	1161	1515	905	610	900	349	551
3	Edayapalayam	667	2251	1130	1121	1659	930	729	592	200	392
4	Kallapalayam	860	3066	1581	1485	2350	1293	1057	716	288	428
5	Kondampatty	738	2467	1218	1249	1625	889	736	842	329	513
6	Kurunallipalayam	528	1753	887	866	1014	599	415	739	288	451
7	Mettubavi	719	2485	1281	1204	1671	971	700	814	310	504
8	Myleripalayam	1393	4990	2451	2539	3169	1746	1423	1821	705	1116
9	Pachapalayam	842	2933	1488	1445	1754	1003	751	1179	485	694
10	Panappatti	763	2635	1383	1252	1740	1026	714	895	357	538
11	Pappampatti	1172	4143	2052	2091	2865	1524	1341	1278	528	750
12	Peedampalli	1134	3896	1955	1941	2982	1601	1381	914	354	560
13	Sellakkarichal	1863	6209	3109	3100	4368	2447	1921	1841	662	1179
14	Solavampalayam	1837	6387	3195	3192	4074	2234	1840	2313	961	1352
15	Vadasithur	1532	5080	2483	2597	3452	1878	1574	1628	605	1023
16	Vadavalli	955	3171	1567	1604	2010	1093	917	1161	474	687

Source: www.censusindia.gov.in - Tamilnadu Census of India – 2011

TABLE 3.47: WORKERS PROFILE OF STUDY AREA

SI.No	Village Name	Total Workers Population	Male Workers	Female Workers	Total Main Workers	Main Workers Male	Main Workers Female	Main Cultivation Workers	Main Agriculture Workers	Main Other Workers	Non-Worker Population
1	Arasampalayam	2041	1269	772	1863	1166	697	360	746	734	1777
2	Bogampatti	1165	813	352	985	731	254	470	278	223	1250
3	Edayapalayam	1150	748	402	977	676	301	200	178	556	1101
4	Kallapalayam	1547	979	568	1522	961	561	362	454	662	1519
5	Kondampatty	1310	818	492	986	635	351	140	414	423	1157
6	Kurunallipalayam	1070	614	456	1061	612	449	335	427	299	683
7	Mettubavi	1372	891	481	1325	879	446	477	457	383	1113
8	Myleripalayam	2912	1666	1246	2581	1539	1042	568	584	1343	2078
9	Pachapalayam	1627	981	646	1466	921	545	491	177	779	1306
10	Panappatti	1579	974	605	1566	969	597	631	604	320	1056
11	Pappampatti	1977	1341	636	1761	1262	499	143	383	1160	2166
12	Peedampalli	1869	1241	628	1465	1023	442	178	183	974	2027
13	Sellakkarichal	3200	2034	1166	2662	1768	894	403	1024	1097	3009
14	Solavampalayam	3367	2134	1233	3037	2014	1023	240	926	1827	3020
15	Vadasithur	2512	1671	841	2419	1631	788	548	717	1126	2568
16	Vadavalli	1894	1111	783	1858	1095	763	289	1113	301	1277

Source: www.censusindia.gov.in – Tamil Nadu Census of India – 2011

TABLE 3.48: COMMUNICATION & TRANSPORT FACILITIES IN THE STUDY AREA

Sl.No	Village Name	PO	SPO	PTO	T	PCO	MP	IC / CSC	PCF	BS	PBS	RS	NH	SH	MDR	BTR	GR	NWR	FP
1	Arasampalayam	2	1	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
2	Bogampatti	2	1	2	1	2	1	2	2	2	2	2	2	2	2	1	1	2	1
3	Edayapalayam	2	2	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
4	Kallapalayam	2	1	2	1	1	1	2	2	1	1	2	1	2	2	1	1	2	1
5	Kondampatty	2	1	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
6	Kurunallipalayam	2	1	2	1	1	1	2	2	1	1	2	2	2	1	1	1	2	1
7	Mettubavi	2	2	2	1	1	1	2	2	1	2	2	2	2	1	1	1	2	1
8	Myleripalayam	2	1	2	1	1	1	2	2	1	2	2	1	1	1	1	1	2	1
9	Pachapalayam	2	1	2	1	1	1	2	1	1	2	2	2	1	1	1	1	2	1
10	Panappatti	2	2	2	1	1	1	2	2	1	2	2	2	2	1	1	1	2	1
11	Pappampatti	2	1	2	1	1	1	2	1	1	1	2	1	2	1	1	1	2	1
12	Peedampalli	2	1	2	1	2	1	2	2	1	1	2	2	1	1	1	1	2	1
13	Sellakkarichal	2	1	2	1	1	1	2	2	1	1	2	1	2	1	1	1	2	1
14	Solavampalayam	2	1	2	1	1	1	2	2	1	1	1	1	2	1	1	1	2	1
15	Vadasithur	2	1	2	1	1	1	2	2	1	1	2	2	2	1	1	1	2	1
16	Vadavalli	2	1	2	1	1	1	2	2	1	2	2	2	2	2	1	1	2	1

Abbreviations: PO - Post Office; MP - Mobile Phone Coverage; RS - Railway Station; GR - Gravel Roads; SPO - Sub Post Office; IC / CSC - Internet Cafe/Common Service Centre; NH - National Highways; NWR - Navigate waterways River; PTO - Post & Telegraph office; PCF - Private Courier Facility; SH - State Highways; FP - Foot path; T- Telephone (Landline); BS - Public Bus Service; MDR - Major District Road; PCO - Public call office / Mobile; PBS - Private Bus Service; BTR - Black Topped (Pucca Roads). Note: 1 - Available within the village 2 - Not available

TABLE 3.49: WATER & DRAINAGE FACILITIES IN THE STUDY AREA

Sl.No	Village Name	TP	CW	UCW	HP	TW/BH	S	R/C	T/P/L	CD	OD	CT
1	Arasampalayam	1	1	1	1	1	2	2	2	1	1	2
2	Bogampatti	1	1	1	1	1	2	2	2	1	1	1
3	Edayapalayam	1	1	1	1	1	2	2	2	1	1	1
4	Kallapalayam	1	1	2	1	1	2	2	1	1	1	1
5	Kondampatty	1	1	1	2	1	2	1	2	1	1	2
6	Kurunallipalayam	1	1	1	2	1	2	2	1	1	1	2
7	Mettubavi	1	1	1	2	1	1	2	2	1	1	2
8	Myleripalayam	1	1	1	1	1	2	2	2	1	1	2
9	Pachapalayam	1	1	1	1	1	2	2	2	1	1	2
10	Panappatti	1	1	1	1	1	1	2	2	1	1	1
11	Pappampatti	1	2	1	2	1	1	2	2	1	1	1
12	Peedampalli	1	1	1	2	2	2	2	2	1	1	2
13	Sellakkarichal	1	1	1	1	1	1	2	2	1	1	2
14	Solavampalayam	1	1	1	1	1	2	2	2	1	1	1
15	Vadasithur	1	1	1	1	1	2	2	2	1	1	1
16	Vadavalli	1	1	1	2	1	1	2	2	2	1	2

Abbreviations: T - Tap Water; R / C - River / Canal; CW - Covered Well; T/P/L - Tank / Pond / Lake; UCW - Uncovered Well; CD - Covered Drainage; HP - Hand Pump; OD - Open Drainage; TW/BH - Tube / Bore Well; CT - Community Toilet Complex for General public; S - Spring

Note – 1 - Available within the village; 2 - Not available\

TABLE 3.50: OTHER FACILITIES IN THE STUDY AREA

Sl.No	Village Name	ATM	CB	COB	ACS	SHG	PDS	RM	AMS	NC	NC-AC	CC	SF	PL	APS	BDRO	PS
1	Arasampalayam	2	2	1	1	1	1	2	2	1	1	2	2	1		1	1
2	Bogampatti	2	2	2	2	1	1	2	2	1	1	1	2	1		1	1
3	Edayapalayam	2	2	1	1	1	1	2	2	1	1	1	1	1		1	1
4	Kallapalayam	2	2	2	1	1	1	2	2	1	1	1	1	1		1	1
5	Kondampatty	2	2	2	2	1	1	2	2	1	1	2	1	1		1	1
6	Kurunallipalayam	2	2	2	1	1	1	2	2	1	1	1	1	1		1	1
7	Mettubavi	2	2	2	2	1	1	2	2	1	1	1	1	1		1	1
8	Myleripalayam	2	2	2	2	1	1	2	2	1	1	1	1	2		1	1
9	Pachapalayam	2	2	2	2	1	1	2	2	1	1	1	1	1		1	1
10	Panappatti	2	2	2	2	1	1	2	2	1	1	2	1	1		1	1
11	Pappampatti	2	1	2	2	1	1	2	2	1	1	1	1	1		1	1
12	Peedampalli	2	2	2	2	1	1	2	2	1	1	2	1	1		1	1
13	Sellakkarichal	2	1	1	1	1	1	1	2	1	1	2	1	1		1	1
14	Solavampalayam	2	2	2	2	1	1	2	2	1	1	2	1	2		1	1
15	Vadasithur	2	2	2	1	1	1	2	2	1	1	1	1	1		1	1
16	Vadavalli	2	2	1	2	1	1	2	2	1	1	1	2	1		1	1

Abbreviations: ATM - Automatic Teller Machine; PDS - Public Distribution System (Shop); CB - Commercial Bank; RM - Regular Market; COB - Co-operative Bank; AMS - Agricultural Market Society; ACS - Agricultural Credit Societies; NC - Nutritional Centres; SHG - Self Help Group; NC-AC - Nutritional Centres - Anganwadi Centre; DBRO - Birth & Death Registration Office; PS - Power Supply Note – 1 - Available within the village; 2 - Not available

TABLE 3.51: EDUCATIONAL FACILITIES IN THE STUDY AREA

Sl.No	Village Name	PPS		PS		MS		SS		SSS		DC		EC		MC		MI		PT		VTS		SSD	
		G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P
1	Arasampalayam	1	2	1	2	1	2	1	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	2	2
2	Bogampatti	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	Edayapalayam	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	Kallapalayam	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	Kondampatty	1	2	1	1	1	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2
6	Kurunallipalayam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	Mettubavi	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	Myleripalayam	1	2	1	2	1	2	2	2	2	2	2	2	1	2	2	2	2	2	1	2	2	2	2	2
9	Pachapalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	Panappatti	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	Pappampatti	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	Peedampalli	1	2	1	2	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	Sellakkarichal	1	2	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	Solavampalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	Vadasithur	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	Vadavalli	1	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Abbreviations: PPS-Pre Primary School; SSS-Senior Secondary School; DC-Degree School; PT-Polytechnic; PS-Primary School; G-Government ; EC-Engineering College; VTS-Vocational School /ITI; MS-Middle School; P-Private; MC-Medical College; SSD-Special School For Disabled; SS-Secondary School; MI-Management College/Institute;

Note – 1 - Available within the village; 2 - Not available

TABLE 3.52: MEDICAL FACILITIES IN THE STUDY AREA

Sl. No.	Village Name	CHC	PHC	PHSC	MCW	TBC	HA	HAM	D	VH	MHC	FWC	NGM-I/O
1	Arasampalayam	0	0	1	0	0	0	0	0	0	0	0	b
2	Bogampatti	0	0	0	0	0	0	0	0	0	0	0	c
3	Edayapalayam	0	0	0	0	0	0	0	0	0	0	0	c
4	Kallapalayam	0	0	1	0	0	0	0	0	0	0	0	c
5	Kondampatty	0	0	1	0	0	0	0	0	0	0	0	a
6	Kurunallipalayam	0	0	0	0	0	0	0	0	0	0	0	b
7	Mettubavi	0	0	0	0	0	0	0	0	0	0	0	b
8	Myleripalayam	0	1	1	1	1	0	0	1	0	0	1	
9	Pachapalayam	0	0	0	0	0	0	0	0	1	0	0	c
10	Panappatti	0	0	1	0	0	0	0	0	1	0	0	c
11	Pappampatti	0	0	1	0	0	0	0	0	1	0	0	c
12	Peedampalli	0	0	1	0	0	0	0	0	0	0	0	b
13	Sellakkarichal	0	0	1	0	0	0	0	0	3	0	0	b
14	Solavampalayam	0	0	3	0	0	0	0	0	0	0	0	b
15	Vadasithur	0	0	1	0	0	0	0	0	1	0	0	b
16	Vadavalli	0	0	1	0	0	0	0	0	0	0	0	b

Abbreviations: CHC-Community Health Centre; TBC-TB Clinic; VH- Veternity Hospital; PHC-Primary Health Centre; HA-Aallopathic Hospital ; FWC-Family Welfare Centre; PHSC-Primary Health Sub Centre ; HAM-Alternative Medicine Hospital; MH-Mobile Health Clinic; MCW-Maternity and Child Welfare Centre; D-Dispensary; NGM-I/O-Non Government Medical Facilities In & Out Patient

Note – 1 - Available within the village; 2 - Not available a-facility available at <5kms b-facility available at>10kms

Source: www.censusindia.gov.in – Tamil Nadu Census of India – 2011

3.6.6 Recommendation and Suggestion

- Awareness program to be conducted to make the population aware to get education and a better livelihood.
- 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 community may be preferred. Long term and short-term employments can be generated.
- Health care centre and ambulance facility can be provided to the population to get easy access to medical facilities. Maternity facility should be made available at the place to avoid going to distant 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.

3.6.7 Summary & 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.

CHAPTER – 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 General

The environmental impact can be categorized as either primary or secondary, primary impacts which are attributed directly by the project; secondary impacts are those which are indirectly induced. The open cast mining operations involve development of benches, Approach Road, Haul Road, Excavation and handling of material. If adequate control measures are not taken to prevent/mitigate the adverse environmental impacts/lead to damage of the eco-system.

In order 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 for sustainable resource extraction. Based on the baseline environmental status at the existing mine site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed. The various anticipated impacts will be on

- Land environment
- Water Environment
- Air Environment
- Noise Environment
- Socio economic environment
- Solid waste
- Soil environment

4.1 Land Environment

4.1.2 Anticipated Impact from all Proposed Projects

- 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

4.1.2.1 Common Mitigation Measures for Respective Individual Proposed Projects

- 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 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., 7.5 m safety barrier and other safety provided) so as to help minimise 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

4.1.3 Soil Environment

4.1.4 Impact on Soil Environment

The top layer of the project site in the form of Gravel formation, the Gravel will be directly loaded into tippers for the filling and levelling of low-lying areas. There is no disposal of Gravel. The excavated rough stone will be directly loaded into dumpers to the needy customers.

There will be no disposal of waste water from the quarry operation, No discharge of toxic effluent from the proposed projects. The dust emission at working face and haul roads will be controlled by water sprinkling and plantation.

Erosion and Sedimentation (Removal of protective vegetation cover; Exposure of underlying soil horizons that may be less pervious, or more erodible than the surface layers; Reduced capacity of soils to absorb rainfall; Increased energy in storm-water runoff due to concentration and velocity; and Exposure of subsurface materials which are unsuitable for vegetation establishment).

4.1.5 Common Mitigation Measures for Respective Individual Proposed Projects

- Run-off diversion – Garland drains will be constructed all around the project boundary to prevent surface flows from entering the quarry works areas. And will be discharged into vegetated natural drainage lines, or as distributed flow across an area stabilised against erosion.
- Sedimentation ponds - Run-off from working areas will be routed towards sedimentation ponds. These trap sediment and reduce suspended sediment loads before runoff is discharged from the quarry site. Sedimentation ponds should be designed based on runoff, retention times, and soil characteristics. There may be a need to provide a series of sedimentation ponds to achieve the desired outcome.
- Retain vegetation – Retain existing or re-plant the vegetation at the site wherever possible.
- Monitoring and maintenance – Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season.

4.1.6 Waste Dump Management

There are no wastages anticipated in this rough stone and gravel quarrying operation. The entire quarried out materials will be utilized (100%).

The overburden in the form of gravel formation the gravel will be also sold to needy customers for the filling and levelling of low-lying areas.

4.2 Water Environment

4.2.1 Anticipated Impact on Surface and ground water

The impact due to quarrying on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. The quarrying activity will not intersect ground water table as the maximum depth of the quarry in the cluster is 40m and water table is found at a depth of 70-65m BGL.

The quarrying operation will be carried out well above the water table. There is no intersection of surface water bodies (Streams, Canal, Odai etc.) in the project area. During rainy season rain water will be collected in the quarry pit and later used for greenbelt development and for the water sprinkling in the haul roads. There is no proposal for discharging of quarry pit water outside the project area.

TABLE 4.1: WATER REQUIREMENTS

PROPOSAL – P1		
*Purpose	Quantity	Source
Dust Suppression	1.0 KLD	From Existing bore wells from nearby area
Green Belt development	0.4 KLD	From Existing bore wells from nearby area
Drinking and Domestic purpose	0.2KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	1.6 KLD	
PROPOSAL – P2		
*Purpose	Quantity	Source
Dust Suppression	1.8 KLD	From Existing bore wells from nearby area
Green Belt development	0.6 KLD	From Existing bore wells from nearby area
Domestic purpose	0.6 KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	3.0 KLD	
PROPOSAL – P3		
*Purpose	Quantity	Source
Dust Suppression	1.0 KLD	From Existing bore wells from nearby area
Green Belt development	1.5 KLD	From Existing bore wells from nearby area
Domestic purpose	0.5 KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	3.0 KLD	
PROPOSAL – P4		
*Purpose	Quantity	Source
Dust Suppression	0.6 KLD	From Existing bore wells from nearby area
Green Belt development	0.5 KLD	From Existing bore wells from nearby area
Sanitation & Drinking	0.4 KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	1.5 KLD	

* Water for drinking purpose will be brought from approved water vendors

Source: Approved Mining Plan Pre-Feasibility Report

Total water requirement in the cluster quarries is about 9.7 KLD, the water for dust suppression and greenbelt development will be sourced from the mine pit water collected during rainy seasons, the water for domestic purpose and drinking will be sourced from the approved water vendors.

4.2.2 Common Mitigation measures:

- Garland drain, settling tank will be constructed along the proposed mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear 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 and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting system.
- 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 (every 6 month once) 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 (every 6 month once) and analysing the quality of water in open well, bore wells and surface water

4.3 Air Environment

The air borne particulate matter is the main air pollutant in this opencast mining. The mining operation will be carried out by jackhammer drilling (35mm dia) and Hydraulic Excavators will be utilized for excavation of Rough Stone waste.

4.3.1. 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.

4.3.1.1. Modelling of Incremental Concentration from all Proposed Projects

Wind erosion of the exposed areas and the air borne particulate matter generated by quarrying operation, and transportation are mainly PM₁₀ & PM_{2.5} and emissions of Sulphur dioxide (SO₂) & Oxides of Nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

Similarly, loading - unloading and transportation of Rough Stone, wind erosion of the exposed area and movement of light vehicles causes of pollution. This leads to an impact on the ambient air environment around the project area.

Anticipated incremental concentration due to this quarrying activity and net increase in emissions due to quarrying activities within 500 meters around the project area is predicted by Open Pit Source modelling using AERMOD Software.

The impact on Air Environment is due to the mining and allied activities during Land Development phase, Mining process and Transportation. The emissions of Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are marginal. Loading - unloading and transportation of Rough Stone, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities releasing Particulate Matter (PM₁₀) affecting Ambient Air of the area. Prediction of impacts on air environment has been carried out taking into consideration cumulative production three proposed quarries. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

4.3.1.2 Emission Estimation

An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant.

The general equation for emissions estimation is:

$$E = A \times EF \times (1-ER/100)$$

Where:

E = emissions;

A = activity rate;

EF = emission factor, and

ER = overall emission reduction efficiency, %

The proposed mining activity includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 4-2.

TABLE 4.2: ESTIMATED EMISSION RATE FOR P1 to P3

EMISSION ESTIMATION FOR QUARRY "P1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.052984003	g/s
	Blasting	Point Source	0.000101004	g/s
	Mineral Loading	Point Source	0.035866482	g/s
	Haul Road	Line Source	0.002484002	g/s/m
	Overall Mine	Area Source	0.048631119	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000127403	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000005208	g/s
EMISSION ESTIMATION FOR QUARRY "P2"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.071997955	g/s
	Blasting	Point Source	0.000467967	g/s
	Mineral Loading	Point Source	0.039433880	g/s
	Haul Road	Line Source	0.002486915	g/s/m
	Overall Mine	Area Source	0.041834027	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000317853	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000009088	g/s
EMISSION ESTIMATION FOR QUARRY "P3"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.067235278	g/s
	Blasting	Point Source	0.000332354	g/s
	Mineral Loading	Point Source	0.038650977	g/s
	Haul Road	Line Source	0.002486051	g/s/m
	Overall Mine	Area Source	0.045125012	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000264479	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000009017	g/s
EMISSION ESTIMATION FOR QUARRY "P4"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.099917191	g/s
	Blasting	Point Source	0.002408882	g/s
	Mineral Loading	Point Source	0.043963407	g/s
	Haul Road	Line Source	0.002496266	g/s/m
	Overall Mine	Area Source	0.074129176	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.001053822	g/s

Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000103037	g/s
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4.3.2 Frame work of Computation & Model details

The prediction included the impact of Excavation, Drilling, Blasting, loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

Impact was predicted over the distance of 10km around the source to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of PM₁₀ was observed close to the source due to low to moderate wind speeds. Incremental value of PM₁₀ was superimposed on the base line data monitored at the proposed site to predict total GLC of PM₁₀ due to combined impacts.

Air Pollution Dispersion Modelling

Baseline Air Quality –

Baseline air quality has been measured at 2 locations in the cluster and 6 locations within the buffer zone of the study area. The 24 - hourly average samples of particulate matters (PM₁₀ and PM_{2.5}), SO₂ and NO_x were measured following the National Ambient Air Quality Standards (NAAQS), 2009. Monitoring data of 8 sampling stations are given below –

Meteorological Data –

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

A temporary meteorological station was installed at project site and monitored continually for study period without break. The station was installed at a height of 4 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis. A weather data was collected from IMD, Coimbatore agro for the month of Mar2022 – May2022 to correlate with site data and found not much of change in the parameters.

FIGURE 4.1: AERMOD TERRAIN MAP

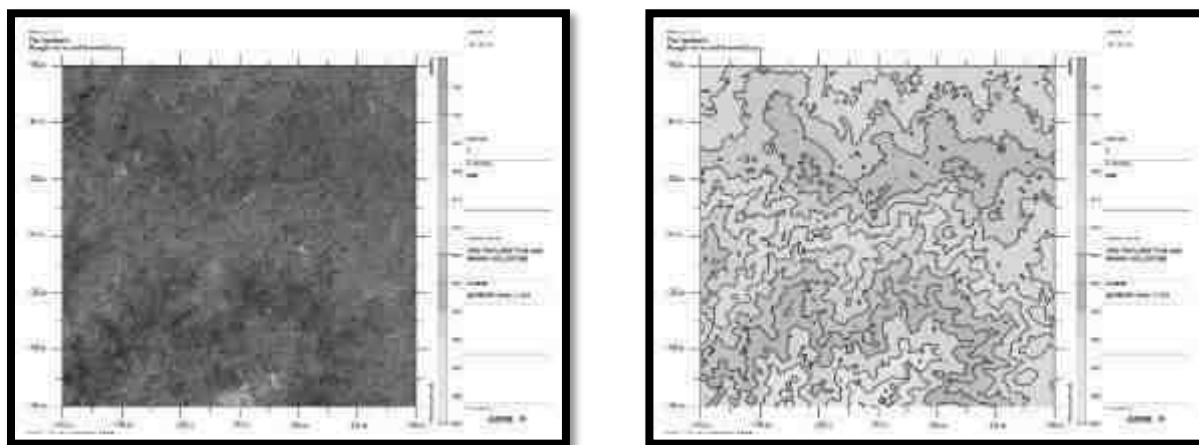


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

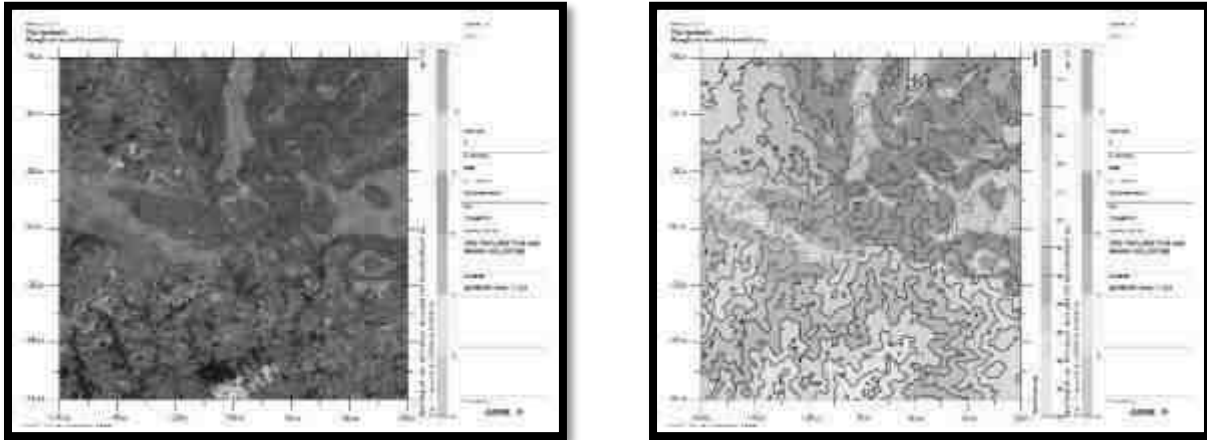


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM₂₅

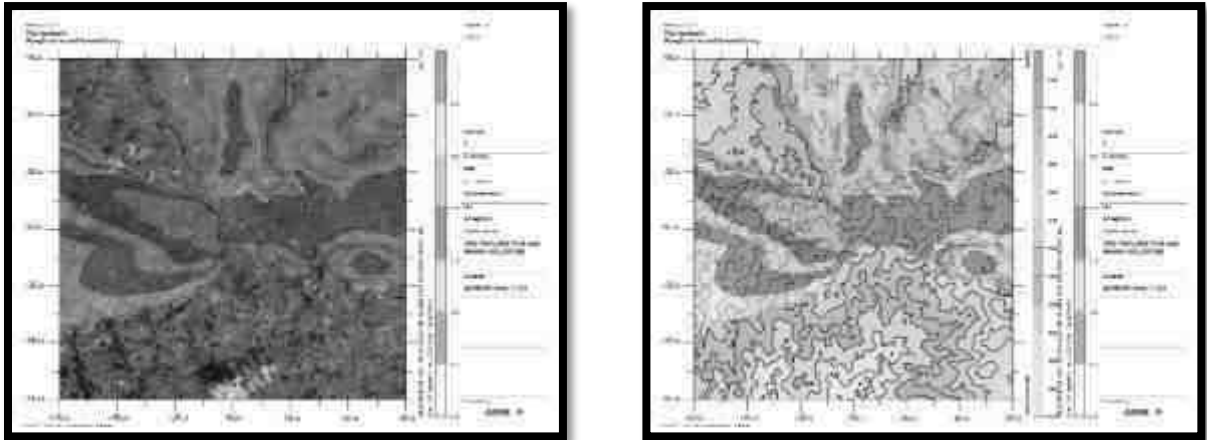


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF SO₂

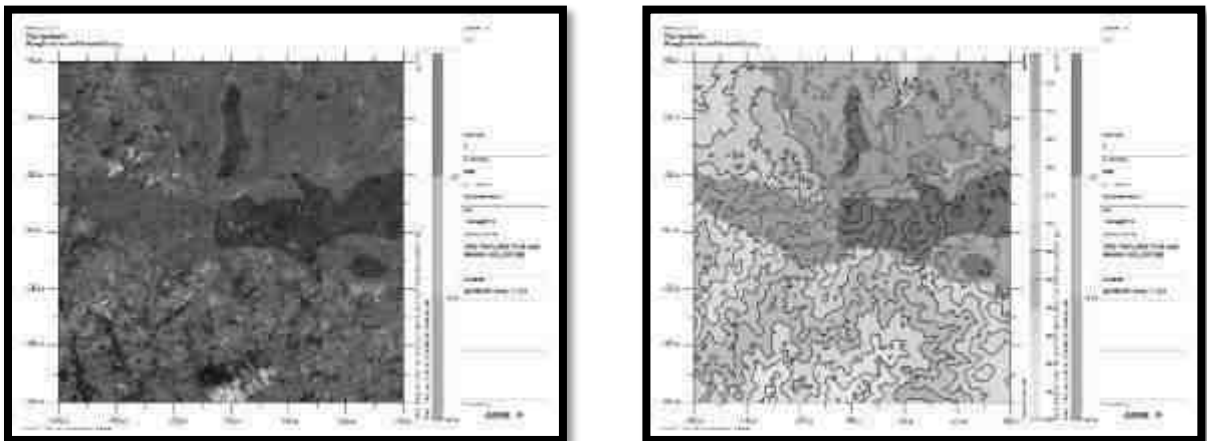


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF NO_x

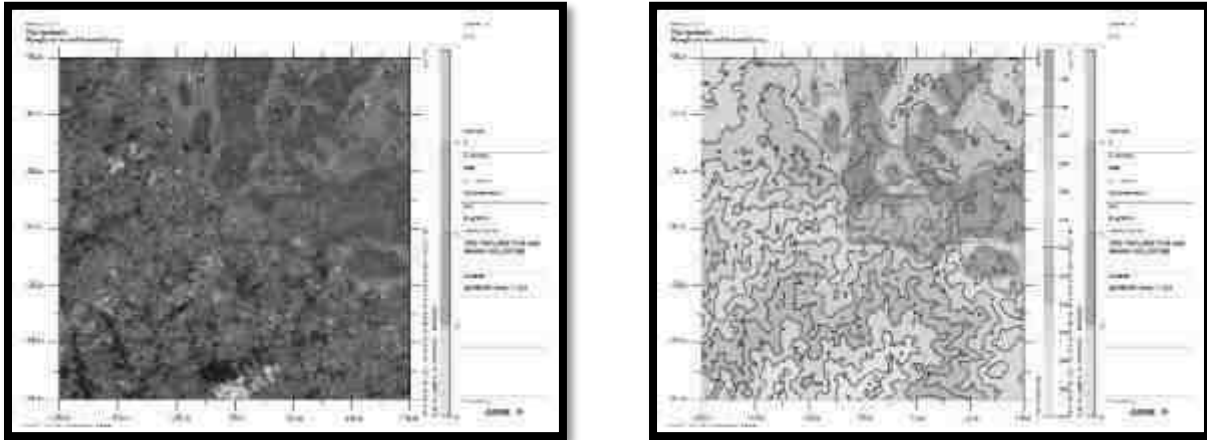
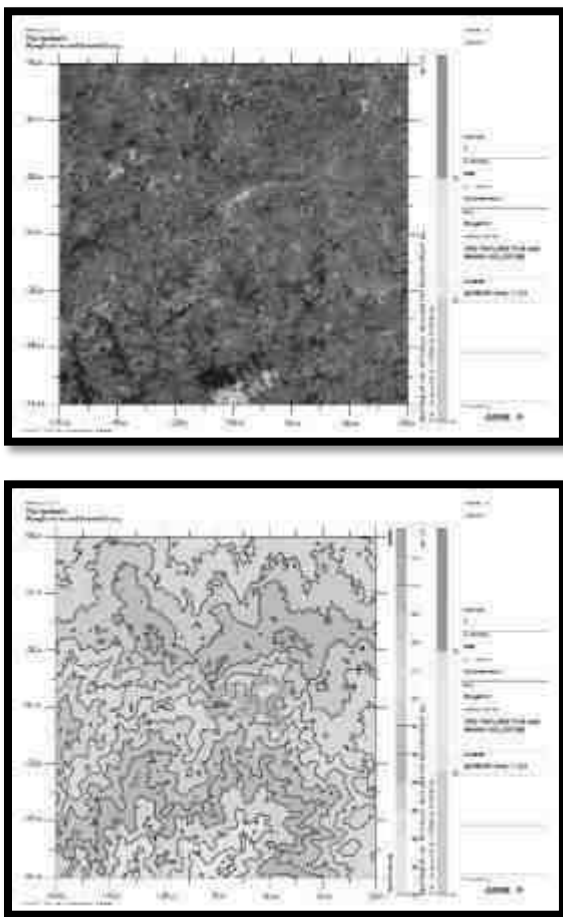


FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST



4.3.2.1 Model Results

The post project Resultant Concentrations of PM10, PM2.5, SO2& NOX (GLC) is given in Table below:

TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM₁₀

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ (µg/m ³)	Incremental value of PM ₁₀ due to mining (µg/m ³)	Total PM ₁₀ (µg/m ³) (5+6)
AAQ1	10°54'11.10"N 77° 5'21.26"E	-21	51	44.5	12.86	57.3
AAQ2	10°54'5.32"N 77° 5'33.12"E	341	-145	43.0	12.14	55.1
AAQ3	10°53'21.90"N 77° 5'50.17"E	863	-1487	41.7	0	41.7
AAQ4	10°53'58.52"N 77° 4'33.76"E	-1475	-358	41.0	5.00	46.0
AAQ5	10°55'37.92"N 77° 5'11.41"E	-321	2717	40.2	10.82	51.0
AAQ6	10°55'27.35"N 77° 6'34.23"E	2213	2391	40.2	7.60	47.8
AAQ7	10°52'36.73"N 77° 5'55.85"E	1039	-2885	43.2	0	43.2
AAQ8	10°54'26.88"N 77° 2'34.38"E	-5123	524	41.5	2.30	43.8

TABLE 4.4: INCREMENTAL & RESULTANT GLC OF PM_{2.5}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM _{2.5} (µg/m ³)	Incremental value of PM _{2.5} due to mining (µg/m ³)	Total PM _{2.5} (µg/m ³) (5+6)
AAQ1	10°54'11.10"N 77° 5'21.26"E	-21	51	24.4	5.43	29.9
AAQ2	10°54'5.32"N 77° 5'33.12"E	341	-145	23.8	5.00	28.8
AAQ3	10°53'21.90"N 77° 5'50.17"E	863	-1487	21.8	0	21.8
AAQ4	10°53'58.52"N 77° 4'33.76"E	-1475	-358	22.1	2.91	25.0
AAQ5	10°55'37.92"N 77° 5'11.41"E	-321	2717	40.2	4.79	44.9
AAQ6	10°55'27.35"N 77° 6'34.23"E	2213	2391	40.5	3.85	44.3
AAQ7	10°52'36.73"N 77° 5'55.85"E	1039	-2885	24.0	0	24.0
AAQ8	10°54'26.88"N 77° 2'34.38"E	-5123	524	22.8	1.70	24.5

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline So ₂ (µg/m ³)	Incremental value of So ₂ due to mining (µg/m ³)	Total So ₂ (µg/m ³) (5+6)
AAQ1	10°54'11.10"N 77° 5'21.26"E	-21	51	9.2	1.59	10.8
AAQ2	10°54'5.32"N 77° 5'33.12"E	341	-145	8.5	1.50	10.0
AAQ3	10°53'21.90"N 77° 5'50.17"E	863	-1487	7.4	0	7.4
AAQ4	10°53'58.52"N 77° 4'33.76"E	-1475	-358	7.8	0.62	8.4
AAQ5	10°55'37.92"N 77° 5'11.41"E	-321	2717	6.9	1.38	8.3
AAQ6	10°55'27.35"N 77° 6'34.23"E	2213	2391	7.4	1.00	8.4
AAQ7	10°52'36.73"N 77° 5'55.85"E	1039	-2885	6.6	0	6.6
AAQ8	10°54'26.88"N 77° 2'34.38"E	-5123	524	7.0	0.29	7.3

TABLE 4.6: INCREMENTAL & RESULTANT GLC OF NO_x

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline No _x (µg/m ³)	Incremental value of No _x due to mining (µg/m ³)	Total No _x (µg/m ³) (5+6)
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AAQ1	10°54'11.10"N 77° 5'21.26"E	-21	51	26.2	8.67	34.9
AAQ2	10°54'5.32"N 77° 5'33.12"E	341	-145	27.0	8.15	35.2
AAQ3	10°53'21.90"N 77° 5'50.17"E	863	-1487	26.2	0	26.2
AAQ4	10°53'58.52"N 77° 4'33.76"E	-1475	-358	25.9	0	25.9
AAQ5	10°55'37.92"N 77° 5'11.41"E	-321	2717	25.8	4.00	29.8
AAQ6	10°55'27.35"N 77° 6'34.23"E	2213	2391	24.9	1.10	26.0
AAQ7	10°52'36.73"N 77° 5'55.85"E	1039	-2885	25.4	0	25.4
AAQ8	10°54'26.88"N 77° 2'34.38"E	-5123	524	25.9	0	25.9

TABLE 4.7: INCREMENTAL & RESULTANT GLC OF FUGITIVE DUST

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive ($\mu\text{g}/\text{m}^3$)	Incremental value of Fugitive due to mining ($\mu\text{g}/\text{m}^3$)	Total Fugitive ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	10°54'11.10"N 77° 5'21.26"E	-21	51	64.94	76	140.94
AAQ2	10°54'5.32"N 77° 5'33.12"E	341	-145	64.46	18	82.46
AAQ3	10°53'21.90"N 77° 5'50.17"E	863	-1487	61.63	0	61.63
AAQ4	10°53'58.52"N 77° 4'33.76"E	-1475	-358	58.41	0	58.41
AAQ5	10°55'37.92"N 77° 5'11.41"E	-321	2717	58.51	0	58.51
AAQ6	10°55'27.35"N 77° 6'34.23"E	2213	2391	60.62	0	60.62
AAQ7	10°52'36.73"N 77° 5'55.85"E	1039	-2885	61.42	0	61.42
AAQ8	10°54'26.88"N 77° 2'34.38"E	-5123	524	62.33	0	62.33

From the resultant of cumulative concentration i.e., Background + Incremental Concentration of pollutant in all the receptor locations without effective mitigation measures are still within the prescribed NAAQ limits of 100, 80 & 80 $\mu\text{g}/\text{m}^3$ for PM10, SO₂ & NO_x respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.3.4. Common Mitigation Measures for Respective Individual Proposed Projects

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 checkups, 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 months once to assess effectiveness of mitigation measures proposed

4.4 Noise Environment (Impact & Mitigation Measures)

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. These activities will not cause any problem to the inhabitants of this area because there is no human settlement in close proximity to the project area. 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 working pit due to these major noise-generating sources. Noise modelling has been carried out to assess the impact on surrounding ambient noise levels. Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves, which are propagated outwards from the source through the air at a speed of 1,100 ft/sec, with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A).

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.

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

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.

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

4.4.1 Anticipated Impact

Attenuation due to Green Belt has been taken to be 4.9 dB (A). The inputs required for the model are:

- Source data
- Receptor data
- Attenuation factor

Source data has been computed taking into account of all the machinery and activities used in the mining process. Same has been listed in Table 4-8.

TABLE 4.8: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY

Sl.No.	Machinery / Activity	Impact on Environment?	Noise Produced in dB(A) at 50 ft from source*
1	Blasting	Yes	94
2	Jack Hammer	Yes	88
3	Compressor	No	81
4	Excavator	No	85
5	Tipper	No	84
Total Noise Produced			95.8

*50 feet from source = 15.24 meters

Source: U.S. Department of Transportation (Federal Highway Administration) – Construction Noise Handbook

The total noise to be produced by mining activity is calculated to be 95.8 dB (A). Generally, most mining operations produce noise between 100-109 dB (A). We have considered equipment and operation noise levels (max) to be approx. 109 dB (A) for noise prediction modelling.

TABLE 4.9: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7	N8
Maximum Monitored Value (Day) dB(A)	47.3	47.2	46.7	46.2	46.6	47.1	45.9	45.1
Incremental Value dB(A)	47.3	52.1	40.1	30.6	29.2	25.8	27.6	27.6
Total Predicted Noise level dB(A)	46.3	53.3	47.6	46.3	46.7	47.1	46.0	45.2
NAAQ Standards	Industrial		Day Time- 75 dB (A)			Night Time- 70 dB (A)		
	Residential		Day Time- 55 dB (A)			Night Time- 45 dB (A)		

4.4.2 Common Mitigation Measures for Respective Individual Proposed Projects

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

- Time intervals for each quarry during blasting.
- Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
- Limiting time exposure of workers to excessive noise.
- Proper and regular maintenance of vehicles, machinery and other equipment's.
- The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipment's.
- Speed of trucks entering or leaving the quarry will be limited to moderate speed to prevent undue noise from empty vehicles...
- Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes (occasionally).
- Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment.
- Provision of Quiet areas, where employees can get relief from workplace noise.
- The development of green belts around the periphery of the quarry site to attenuate noise.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.

4.4.3 Ground Vibrations

Ground vibrations due to the proposed mining activities are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc., However, the major source of ground vibration from the quarry is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground 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 agricultural fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the project area is located 1km Southeast in Karacheri village. The ground vibrations due to the blasting in proposed mine are calculated using the empirical equation.

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

$$V = K [R/Q^{0.5}]^{-B}$$

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

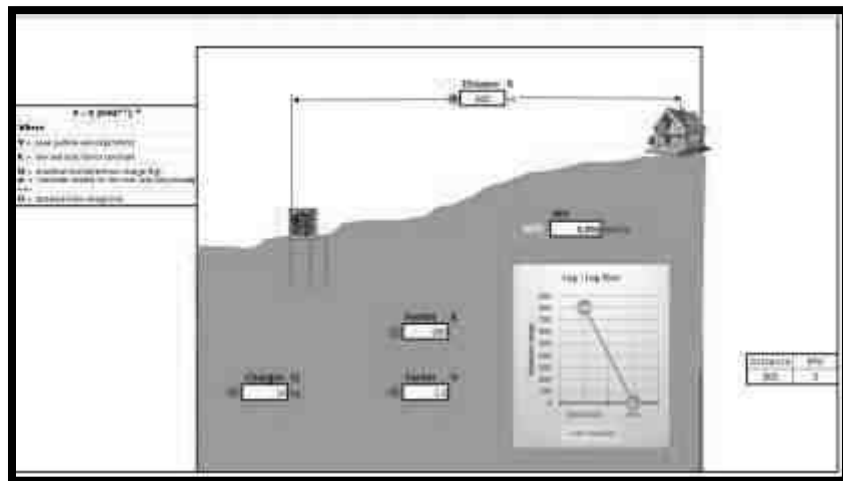
B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

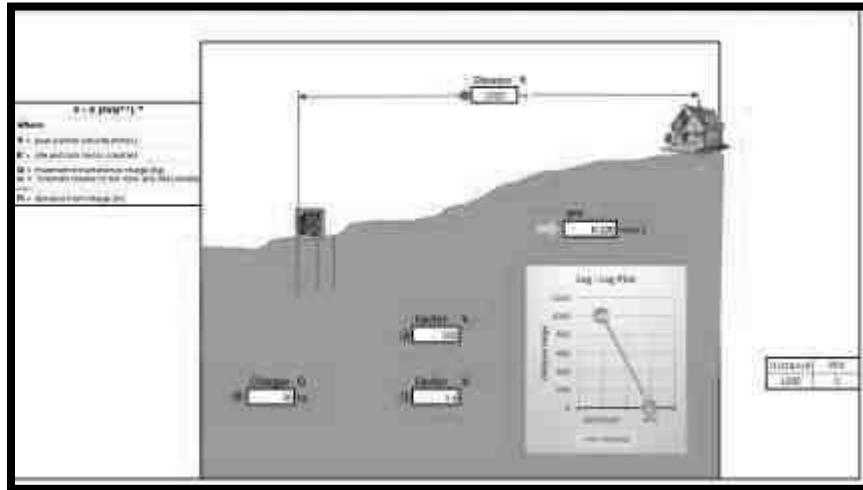
TABLE 4.10: PREDICTED PPV VALUES DUE TO BLASTING

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	14	800	0.094
P2	30	1000	0.120
P3	33	860	0.165
P4	127	630	0.800

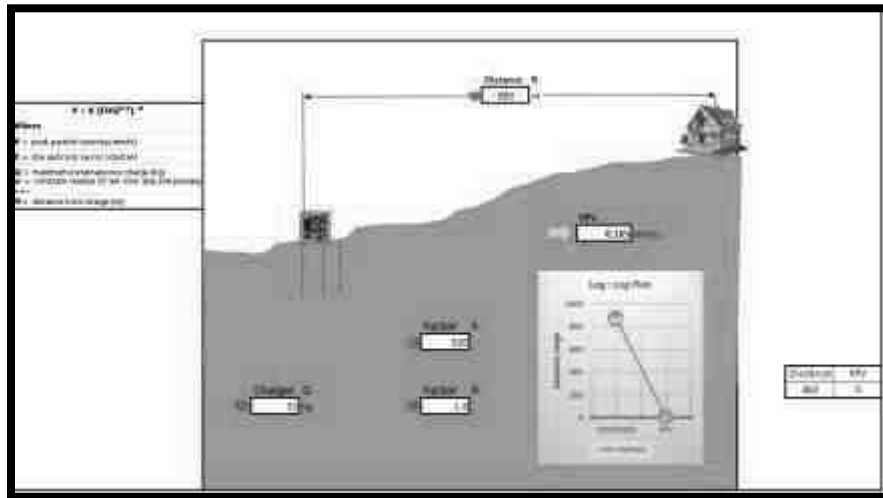
P1- Thiru. L. Thangarasu



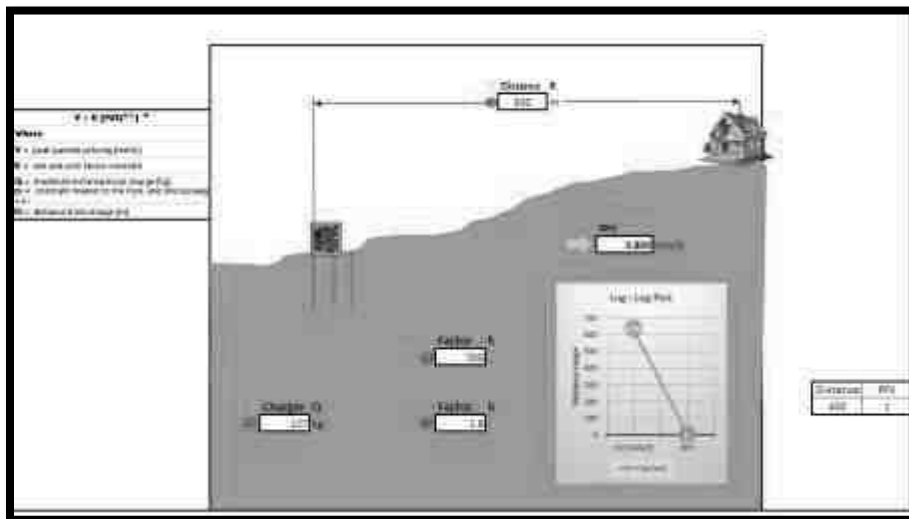
P2- Thiru. D. Karthikeyan



P3- Thiru.S. Durairaj



P4-Thiru.N.Thangavel



From the above, the charge per blast of 127Kg is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. It should be ensured that the explosives used for blasting at one blast should not exceed more than 28 Kg at any point of time. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3.1 Common Mitigation Measures for Respective Individual Proposed Projects

- The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting will be maintained as per DGMS guidelines;
- Blasting shelter will be provided as per DGMS guidelines;
- Blasting operations will be carried out only during day time;
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity will be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed.
- A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public.
- Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire.
- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used.
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
- Appropriate blasting techniques shall be adopted such that the predicted peak particle velocity shall not exceed 8 Hz.
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices.

4.5 Ecology and Biodiversity

4.5.1. Impact Identification and Evaluation

In general, impact prediction methods argue that the foremost step in impact appraisal must consider and identify project actions that are likely to bring significant changes in the project environment. The present study determined to predict the likely impacts of the Proposed Rough stone and gravel quarry Mining Project in the surrounding environment with a specific focus on biological attributes covering habitats/ecosystems and associated biodiversity. Likely impacts identified were categorized into different levels like, direct or primary and indirect or secondary impacts based on the influence of sources of impacts.

There is no National Park or Wildlife Sanctuary in the study area. In addition, No Biosphere Reserves, Wildlife corridors, or, Tiger / Elephant reserves within 10 km of the project area. No Schedule- I species were found in the buffer zone of the proposed project area during the biodiversity assessment.

4.5.2. Impact on Flora

The lease applied is flat terrain and it is Patta land which is not fit for cultivation. It is mostly devoid of any considerable vegetation. The proposed mine lease area (core zone) not encompasses any designated forest land within it. The vegetation is very sparse and scanty. So, there will be no impact on flora from the mining operation. There will not be much contamination of soil or any other materials from the mining operation. No threatened plant species were reported in the core and buffer study area during the field survey.

4.5.2.1 Anticipated Impact on agricultural land associated with flora

1. There are no impacts on the nearby agricultural land due to this mining activity.
2. None of the plants will be cut during the operational phase of the mine.
3. There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

Most of the land in the buffer area is undulating terrain with croplands, grass patches, and small shrubs. Hence, there will be no effect on the flora of the region.

4.5.3 Mitigation Measures

4.5.3.1. Green Belt Development Plan

Greenbelt means planting of special type of plants suitable to that particular agroclimate zone and soil characteristics in a place that will make the area cooler, reduce air pollution, prevent soil erosion, and further improve the soil fertility status. A green belt around the periphery of the boundary and roadside will be created to avoid erosion of soil, prevent landslides, and minimize air pollution and noise pollution in the project area. The green plants are capable of absorbing air pollutants and forming sinks for pollutants. Leaves with their vast area in a tree crown, absorb pollutants.

4.5.3.2 Design of Green Belt

The present plan comprises the details of field investigations. Plant species for greenbelt development are selected as per CPCB guidelines. The green belt will be developed along the periphery of the Proposed Rough stone and gravel quarry. The Greenbelt development plan has been formulated considering the parameters such as climate, soil types, topography, etc.

a. Characteristic features of plants to be used for Absorption of pollutant gases

- Plant species should be perennial and evergreen with thick canopy cover.
- The crown of the tree (mass of foliage/leaves and branches growing outward from the trunk of the tree) should be either Oblong, Round, or Spreading for effective absorption of pollutant gases.
- Plant should have foliage of longer duration.
- The foliage should be freely exposed through: Adequate height of crown, Openness of foliage/leaves in canopy, Big leaves (long and broad laminar surfaces).

Table No 4.11. List of plant species proposed for Greenbelt development

S. No	Scientific name	Tamil Name
1	<i>Aegle marmelos</i>	Vilva maram
2	<i>Albizia lebbek</i>	Vaagai maram
3	<i>Cassia fistula</i>	Konrai tree
4	<i>Lannea coromandelica</i>	Othiyam
5	<i>Limonia acidissima</i>	Vila maram
6	<i>Syzygium cumini</i>	Naval maram
7	<i>Toona ciliata</i>	Santhana Vembu
8	<i>Ficus hispida</i>	Aththi maram
9	<i>Borassus flabellifer</i>	Panai-maram
10	<i>Madhuca longifolia</i>	Illupai maram

(*Source: Term of Reference-ToR)

Table No 4.12. Species suitable for abatement of noise and dust pollution

S. No	Botanical name	Common name
1	<i>Azadirachta indica</i>	Vembhu maram
2	<i>Ficus religiosa</i>	Arasan maram
3	<i>Ficus hispida</i>	Aththi maram
4	<i>Bombax ceiba</i>	Mul Elavu
5	<i>Syzygium cumini</i>	Naval maram
6	<i>Tamarindus indica</i>	Puliyamaram
7	<i>Mangifera indica</i>	Manga maram
8	<i>Harwickia binata</i>	Anjan maram
9	<i>Delonix regia</i>	Neruppu Kondrai
10	<i>Cassia Fistula</i>	Sara Kondrai

(*Source: Guidance for Developing Green Belts Manual, CPCB 2000)

These species need to be planted along the periphery of the lease area to absorb fugitive emissions and noise levels that are generated during mining activities. All the open spaces, where tree plantation may not be possible, should be covered with shrubs and grass to prevent erosion of topsoil.

Some of the important aspects to be considered are:

- ✓ Planting of trees in each row will be in staggered orientation.
- ✓ In the front row, shrubs will be grown.
- ✓ Since the trunks of the tall trees are generally devoid of foliage, it will be useful to have shrubs in front of the trees so as to give coverage to this portion.

- ✓ The spacing between the trees will be maintained slightly less than the normal spaces, so that the trees may grow vertically and slightly increase the effective height of the green belt.

TABLE 4.13: GREENBELT DEVELOPMENT PLAN- P1-P4

PROPOSAL – P1- Thiru. L. Thangarasu					
Year	No. of trees proposed to be planted	Survial %	Area to be covered	Name of the species	No. of trees expected to be grown
I	900	80	Near 7.5m safety distance, panchayat road and village road	Neem, Pongamia Pinnata, Casuarina etc.,	725
PROPOSAL – P2- Thiru. D. Karthikeyan					
Year	No. of trees proposed to be planted	Survial %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	600	80%	Near 7.5m safety distance, panchayat road and village road	Neem, Pongamia Pinnata, Casuarina etc.,	485
PROPOSAL – P3- Thiru.S.Durairaj					
Year	No. of trees proposed to be planted	Survial %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	740	80	Near 7.5m safety distance, panchayat road and village road	Neem, Pongamia Pinnata, Casuarina etc.,	590
PROPOSAL – P4- Thiru.N.Thangavel					
Year	No. of trees proposed to be planted	Survial %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	2300	80	Near 7.5m safety distance, panchayat road and village road	Neem, Pongamia Pinnata, Casuarina etc.,	1850

TABLE 4.14: BUDGET FOR GREEBELT DEVELOPMENT PLAN-P1- Thiru. L. Thangarasu

ACTIVITY		YEAR					RATE	AMOUNT (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	40	40	40	40	40	@100 Rs Per sapling	20,000
	Cost	4000	4000	4000	4000	4000		
Plantation in the quarried out top benches, approach & Panchayat Road	Nos.	40	40	40	40	40	@100 Rs Per sapling	20,000
	Cost	4,000	4,000	4,000	4,000	4,000		
Wire Fencing (In Mtrs) 670		2,01,000					@300 Rs Per Meter	2,01,000
Garland drain (In Mtrs) 600		1,80,000					@300 Rs Per Meter	1,80,000
TOTAL								4,21,000

TABLE 4.15: BUDGET FOR GREEBELT DEVELOPMENT PLAN-P2- Thiru. D. Karthikeyan

ACTIVITY	YEAR					RATE	AMOUNT (INR)
	I	II	III	IV	V		
Plantation (In Nos.)	40	40	40	40	40	@100 Rs Per sapling	Rs.20,000/-
Plantation & Maintenance Cost	4,000	4,000	4,000	4,000	4,000	Including Maintenance	
Wire Fencing (In Mtrs)	1,20,000					@300 Rs	Rs.1,20,000/-

400 Mtrs						Per Meter	
Garland Drain with check (In Mtrs) 433 Mtrs	1,29,900					@300 Rs Per Meter	Rs.1,29,900/-
Cost for Plantation in worked out bench & Approach Road	-	-	-	-	30,000	@100 Rs Per sapling Including Maintenance	Rs.30,000/-
TOTAL							Rs.2,99,900/-

TABLE 4.16: BUDGET FOR GREEBELT DEVELOPMENT PLAN-P3- Thiru.S.Durairaj

ACTIVITY	YEAR					RATE	AMOUNT (INR)
	I	II	III	IV	V		
Plantation (In Nos.)	600					@100 Rs Per sapling Including Maintenance	Rs.60,000/-
Plantation & Maintenance Cost	60000						
Wire Fencing (In Mtrs) 580 Mtrs	1,74,000					@300 Rs Per Meter	Rs.1,74,000/-
Garland Drain with check (In Mtrs) 530 Mtrs	1,59,000					@300 Rs Per Meter	Rs.1,59,000/-
Cost for Plantation in worked out bench & Approach Road	-	-	-	-	-	@100 Rs Per sapling Including Maintenance	-
TOTAL							Rs.3,93,000/-

TABLE 4.17: BUDGET FOR GREEBELT DEVELOPMENT PLAN-P4- Thiru.N. Thangavel

ACTIVITY		YEAR					RATE	COST (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	70	70	70	70	70	@100 Rs Per sapling	35,000/-
	Cost	7000	7000	7000	7000	7000		
Plantation in the quarried out top benches, approach road and panchayat road	Nos.	40	40	40	40	40	@100 Rs Per sapling	20,000/-
	Cost	4000	4000	4000	4000	4000		
Wire Fencing (In Mtrs) 920 Mtrs		2,76,000	-	-	-	-	@300 Rs Per Meter	2,76,000/-
Garland drain (In Mtrs) 830 Mtrs		2,49,000	-	-	-	-	@300 Rs Per Meter	2,49,000/-
TOTAL								5,80,000/-

After complete extraction of mineral, the excavated pits will be allowed to collect rainwater and seepage water to serve as a reservoir to charge the nearby wells. Fish culture will also be attempted. A bund will be constructed around the pits. In order to minimize the impact of mining on the vegetation outside the mine lease area, it is recommended that adequate protection measures must be implemented. As mining involves movement of vehicles and increased anthropogenic activities, some of the areas can be fenced by involving local people and educating them about increased benefits of such activities.

4.5.3. Anticipated Impact on Fauna

- Since the terrestrial fauna in the study area are distributed away from the mine site, the impacts of project are likely to be much low on terrestrial fauna of the region. The proposed mining lease area is devoid of any significant vegetation, it is not suitable for permanent habitat for any specific wildlife.
- Habitat degradation and disturbance to faunal group due to ground vibration and increase in noise level will be minimize or resolved by modern technologies. So, from above facts it is revealed that there will be no impact on fauna. No threatened fauna species reported in the core and buffer study area.

4.5.3.1. Measures for protection and conservation of wildlife species

- Topsoil has a large number of seeds of native plant species in the mining area.
- Topsoil will be used for restoration and suitable surfaces for planted seedlings.
- Checks and controls the movement of vehicles in and out of the mine.
- Undertaking mitigative measures for a conducive environment to the flora and fauna in consultation with Forest Department.
- A dust suppression system will be installed within the mine and periphery of the mine.
- Plantation around the mine area will help in creating habitats for small faunal species and create a better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

4.5.4. Impact on Aquatic Biodiversity

Mining activities will not disturb the aquatic ecology as there is no effluent discharge proposed from the rough stone quarry. There is no natural perennial surface water body within the mine lease area, like wetlands, rivers streams, Odai, Vaari, Canal, Channel, lakes, Pond, Tank, and farmer sites. There is no impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. There is no nearby any water bodies. Aquatic biodiversity is not observed in the study area.

4.6 Socio Economic

4.6.1 Anticipated Impact from all Proposed Projects

- Dust generation from mining activity can have negative impact on the health of the workers and people in the nearby area.
- Approach roads can be damaged by the movement of tippers
- Increase in Employment opportunities both direct and indirect thereby increasing economic status of people of the region

4.6.2 Common Mitigation Measures for Respective Individual Proposed Projects

- Good maintenance practices will be adopted for all 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.
- 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, duties, etc., from this project directly and indirectly.
- From above details, the quarry operations will have highly beneficial positive impact in the area

4.7 Occupational Health and Safety

Occupational health and safety hazards occur during the operational phase of mining and primarily include the following:

- Respiratory hazards
- Noise
- Physical hazards

- Explosive storage and handling

4.7.1 Respiratory Hazards

Long-term exposure to silica dust may cause silicosis the following measures are proposed:

- Cabins of excavators and tippers will be enclosed with AC and sound proof
- Use of personal dust masks will be made compulsory

4.7.2 Noise

Workers are likely to get exposed to excessive noise levels during mining activities. The following measures are proposed for implementation

- No employee will be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection
- The use of hearing protection will be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(A)
- Ear muffs provided will be capable of reducing sound levels at the ear to at least 85 dB(A)
- Periodic medical hearing checks will be performed on workers exposed to high noise levels

4.7.3 Physical Hazards

The following measures are proposed for control of physical hazards

- Specific personnel training on work-site safety management will be taken up;
- Work site assessment will be done by rock scaling of each surface exposed to workers to prevent accidental rock falling and / or landslide, especially after blasting activities;
- Natural barriers, temporary railing, or specific danger signals will be provided along rock benches or other pit areas where work is performed at heights more than 2m from ground level;
- Maintenance of yards, roads and footpaths, providing sufficient water drainage and preventing slippery surfaces with an all-weather surface, such as coarse gravel will be taken up

4.7.4 Occupational Health Survey

All the persons will undergo pre-employment and periodic medical examination. Employees will be monitored for occupational diseases by conducting the following tests

- General physical tests
- Audiometric tests
- Full chest, X-ray, Lung function tests, Spirometric tests
- Periodic medical examination – yearly
- Lung function test – yearly, those who are exposed to dust
- Eye test

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment.

First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

4.8 *Mine Waste Management*

No waste is anticipated from any of the proposed quarries.

4.9 *Mine Closure*

Mine closure plan is the most important environmental requirement in mining projects. The mine closure plan should cover technical, environmental, social, legal and financial aspects dealing with progressive and post closure activities. The closure operation is a continuous series of activities starting from the decommissioning of the project.

Therefore, progressive mine closure plan should be specifically dealt with in the mining plan and is to be reviewed along with mining plan. As progressive mine closure is a continuous series of activities, it is obvious that the proposals of scientific mining have included most of the activities to be included in the closure plan. While formulating the closure objectives for the site, it is important to consider the existing or the pre-mining land use of the site; and how the operation will affect this activity.

The primary aim is to ensure that the following broad objectives along with the abandonment of the mine can be successfully achieved:

- To create a productive and sustainable after-use for the site, acceptable to mine owners, regulatory agencies, and the public
- To protect public health and safety of the surrounding habitation
- To minimize environmental damage
- To conserve valuable attributes and aesthetics
- To overcome adverse socio-economic impacts.

4.9.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

4.9.1.1 Physical Stability

All anthropogenic structures, which include mine workings, buildings, rest shelters etc., remaining after mine decommissioning should be physically stable. They should present no hazard to public health and safety as a result of failure or physical deterioration and they should continue to perform the functions for which they were designed. The design periods and factors of safety proposed should take full account of extreme events such as floods, hurricane, winds or earthquakes, etc. and other natural perpetual forces like erosion, etc.,

4.9.1.2 Chemical Stability

The solid wastes on the mine site should be chemically stable. This means that the consequences of chemical changes or conditions leading to leaching of metals, salts or organic compounds should not endanger public health and safety nor result in the deterioration of environmental attributes. If the pollutant discharge likely to cause adverse impacts is predicted in advance, appropriate mitigation measures like settling of suspended solids or passive treatment to improve water quality as well as quantity, etc., could be planned. Monitoring should demonstrate that there is no adverse effect of pollutant concentrations exceeding the statutory limits for the water, soil and air qualities in the area around the closed mine.

4.9.1.3 Biological Stability

The stability of the surrounding environment is primarily dependent upon the physical and chemical characteristics of the site, whereas the biological stability of the mine site itself is closely related to rehabilitation and final land use. Nevertheless, biological stability can significantly influence physical or chemical stability by stabilizing soil cover, prevention of erosion/wash off, leaching, etc.,

A vegetation cover over the disturbed site is usually one of the main objectives of the rehabilitation programme, as vegetation cover is the best long-term method of stabilizing the site. When the major earthwork components of the rehabilitation programme have been completed, the process of establishing a stable vegetation community begins. For re-vegetation, management of soil nutrient levels is an important consideration. Additions of nutrients are useful under three situations.

- Where the nutrient level of spread topsoil is lower than material in-situ e.g., for development of social forestry
- Where it is intended to grow plants with a higher nutrient requirement than those occurring naturally e.g., planning for agriculture
- Where it is desirable to get a quick growth response from the native flora during those times when moisture is not a limiting factor e.g., development of green barriers

The Mine closure plan should be as per the approved mining plan. The mine closure is a part of approved mine plan and activities of closure shall be carried out as per the process described in mine closure plan.

CHAPTER – 5: ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 *Introduction:*

Consideration of alternatives to a project proposal is a requirement of EIA process. This quarry is site specific. The site has been selected based on geological investigation and exploration and from the Existing quarry pits around the project site. Drilling, Blasting, Excavation, Loading & Transportation will be carried out in this quarrying operation.

- This area denotes the indicative of flow pattern of the rock mass in N30⁰E to S30⁰W with dipping SE60⁰.
- Transportation facility for materials & manpower.
- Overall impact on environment and mitigation feasibility.
- Socio – economic background.

Enough infrastructure exists and lesser resources are required to be deployed. Since, any major construction for infrastructure is not required and hence does not affect the environment considerably.

5.1 Factors Behind the Selection of Project Site

Rough Stone and Gravel Quarry Projects at Pachapalayam Villages are a site specific. The proposed mining lease area has following advantages: -

- The mineral deposit occurs in a non-forest area.
- There is no habitation within the project area; hence no R & R issues exist.
- There is no river, stream, nallah and water bodies in the applied mine lease area.
- Availability of skilled, semi-skilled and unskilled workers in this region.
- All the basic amenities such as medical, fire fighting, education, transportation, communication and infrastructural facilities are well connected and accessible.
- The mining operations will not intersect the ground water level. Hence, no impact on ground water environment.
- Study area falls in seismic zone – III, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history.

5.2 *Analysis of Alternative Site*

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

5.3 Factors Behind Selection of Proposed Technology

Mechanized open cast mining operation with drilling and blasting method will be used to extract Rough Stone and Gravel in the area. The quarry areas fall in the clusters has following advantages –

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working out deposit is preferred over underground method.
- The material will be loaded after sprinkling with water with the help of excavators into dumpers / trippers and transported to the needy customers.

-
- Blasting and availability of drills along with controlled blasting technology gives desired fragmentation so that the mineral is handled safely and used without secondary blasting.

Semi skilled labours fit for quarrying operations are easily available around the nearby villages.

5.4 *Analysis of Alternative Technology*

Open cast mechanized method has been selected for this project. This technology is having least gestation period, economically viable, safest and less labour intensive. The method has inbuilt flexibility for increasing or decreasing the production as per market condition.

CHAPTER – 6: ENVIRONMENTAL MONITORING PROGRAMME

6.0 General

Environmental Monitoring will be taken up for various environmental components as per conditions stipulated in Environmental Clearance Letter issued by MoEF & Consent to Operate issued by the State Pollution Control Board. Monitoring reports will be submitted to regulator as per statutory requirements. The entire monitoring work will be carried out by MoEF & CC / NABL recognized laboratories.

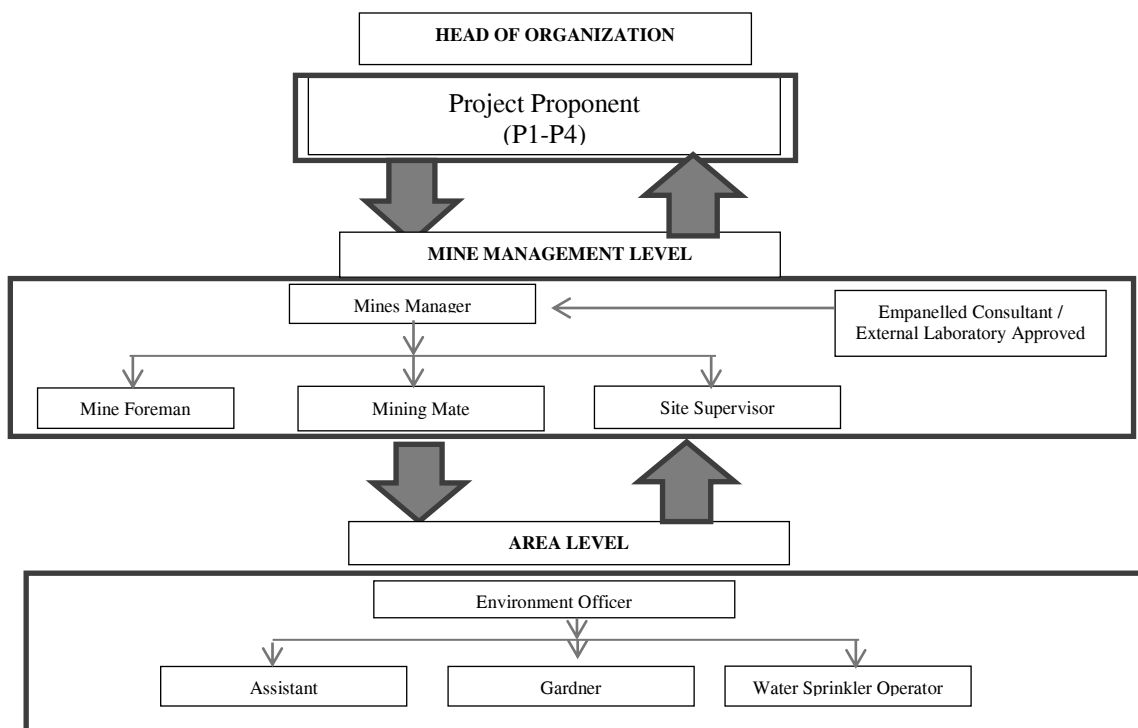
The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness or deficiency of the measures adopted and provides insight for future corrections.

6.1 Methodology of Monitoring Mechanism

Implementation of EMP and periodic monitoring will be carried out by the proponents and respective quarry owners in the cluster quarries. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to proposed project; Mine Management Level environmental protection measures like dust suppression, treatment and recycling of waste water, control of noise due to blasting and Ground vibration, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of other hand, implementation of area level protection measures like plantation and green Environmental Management Plan and environmental clearance conditions will be monitored by the proponent. On the belt development, environmental quality monitoring etc.,

An environment monitoring cell (EMC) will be constituted at the quarry consisting of following members to monitor the implementation of EMP and other environmental protection measures.

FIGURE 6.1 ENVIRONMENTAL MONITORING CELL



The responsibilities of this cell will be:

- Implementation of pollution control measures
- Monitoring programme implementation
- Post-plantation care
- To check the efficiency of pollution control measures taken
- Any other activity as may be related to environment
- Seeking expert's advice when needed

The environmental monitoring cell will co-ordinate all monitoring programs at site and data thus generated will be regularly furnished to the State regulatory agencies. The sampling and analysis report of the monitored environmental attributes will be submitted to the Tamil Nadu Pollution Control Board (TNPCB) at a frequency of monthly, half-yearly and yearly. The half-yearly reports will be submitted to Ministry of Environment and Forest, Regional Office and SEIAA as well.

The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board (CPCB)/Ministry of Environment, Forest and Climate Change (MoEF & CC).

6.2 Implementation Schedule of Mitigation Measures

The mitigation measures proposed in Chapter-4 will be implemented so as to reduce the impact on the environment due to the operations of the proposed project. Implementation schedule of mitigation measures is given in Table 6.1.

TABLE 6.1 IMPLEMENTATION SCHEDULE

Sl No.	Recommendations	Time Period	Schedule
1	Land Environment Control Measures	Before commissioning of the project	Immediately after the commencement of the project
2	Soil Quality Control Measures	Before commissioning of the project	Immediately after the commencement of the project
3	Water Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
4	Air Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
5	Noise Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
6	Ecological Environment	Phase wise implementation every year along with mine operations	Immediately and as project progress

6.3 Monitoring Schedule and Frequency

The environmental monitoring will be conducted in the mine operations as follows:

- Air quality;
- Water and wastewater quality;
- Noise levels;
- Soil Quality; and
- Greenbelt Development

The details of monitoring are detailed in Table 6.2

TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC FOR P1 TO P5

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

Source: Guidance of manual for mining of minerals, February 2010

6.4 Environmental Policy of the Proponents

The project proponents in the proposed quarries are committed to ensure that:

- Protect the environment by control and prevention of pollution and promote green environment.
- To operate the quarry with an objective of no injuries and accidents at the work place and provide a safe work place for our employees, contractors and others who perform their duties.
- Adequate health care will be taken to all the employees and create process to reduce the adverse effect of the operations on Health of the employees.
- Provide safety appliance and continuous training in safety to employees to ensure safe production and achieve the target of zero accidents.
- Develop safe working methods and practices, remove unsafe work conditions and consider all the aspects at the early stages of process development to provide safe working atmosphere.
- Communicate Safety, Health and Environmental Policy to all employees for better understanding and practice.

6.5 Budgetary Provision for Environmental Monitoring Programme

The cost in respect of monitoring of environmental attributes, parameter to be monitored, sampling/monitoring locations with frequency and cost provision against each proposal is shown in Table 6.3. Monitoring work will be outsourced to external laboratory approved by NABL / MoEF.

The proposed total cost for Environmental Monitoring Programme for Four proposed quarries in cluster for the mining plan period is Rs 15,20,000/-.

TABLE 6.3 ENVIRONMENT MONITORING BUDGET P1-P3

Parameter	Sl. Nos	Capital Cost
Air Quality, Meteorology, Water Quality, Hydrology, Soil Quality Noise Quality, Vibration Study Greenbelt	P1	Rs.3,80,000/-
	P2	Rs.3,80,000/-
	P3	Rs.3,80,000/-
	P4	Rs.3,80,000/-
	Total	15,20,000

Source: Approved Mining Plan

6.6 Reporting Schedules of Monitored Data

The monitored data on Air quality, Water quality, Noise levels and other environmental attributes will be periodically examined by the proponent with Environmental Monitoring cell and necessary corrective measures will be carried out. The monitoring data will be submitted to Tamil Nadu State Pollution Control Board in the Compliance to CTO Conditions & environmental audit statements every year to MoEF & CC and Half-Yearly Compliance Monitoring Reports to MoEF & CC Regional Office and SEIAA.

Periodical reports to be submitted to: -

- MoEF & CC – Half yearly status report
- TNPCB - Half yearly status report
- Department of Geology and Mining: quarterly, half yearly annual reports
- SEIAA, Chennai, Tamil Nadu

Besides the Mines Manager/Agent will submit the periodical reports to –

- Director of mines safety,
- Labour enforcement officer,
- Controller of explosives as per the norms stipulated by the department.

CHAPTER – 7: ADDITIONAL STUDIES

7.0 General

The following Additional Studies were done as per items identified by project proponent and items identified by regulatory authority. Items identified by public and other stakeholders will be incorporated after Public Hearing.

- Public Consultation
- Risk Assessment
- Disaster Management Plan
- Cumulative Impact Study
- Plastic Waste Management
- Post-COVID Health Management Plan

7.1. Public Consultation:

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district is submitted along with this Draft EIA / EMP Report and the outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

7.2 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 in order 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 cluster 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. Factors of risks involved due to human induced activities in connection with mining & allied activities with detailed analysis of causes and control measures for the mine is given in below Table 7.1.

TABLE 7.1 RISK ASSESSMENT & CONTROL MEASURES

S. No	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	<ul style="list-style-type: none"> ▪ All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations; ▪ Entry of unauthorized persons will be prohibited; ▪ Fire fighting and first-aid provisions in the mine office complex 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. ▪ Working of quarry, as per approved plans and regularly updating the mine plans; ▪ Cleaning of mine faces shall be daily

			<p>done in order to avoid any overhang or undercut;</p> <ul style="list-style-type: none"> ▪ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager; ▪ Maintenance and testing of all mining equipment as per manufacturer 's guidelines.
2	Drilling& Blasting	<p>Due to improper and unsafe practices</p> <p>Due to high pressure of compressed air, hoses may burst</p> <p>Drill Rod may break</p>	<ul style="list-style-type: none"> ▪ Safe operating procedure established for drilling (SOP) will be strictly followed. ▪ Only trained operators will be deployed. ▪ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places. ▪ Drilling shall not be carried on simultaneously on the benches at places directly one above the other. ▪ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. ▪ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. ▪ Operator shall regularly use all the personal protective equipment.
3	Blasting	<p>Fly rock, ground vibration, Noise and dust.</p> <p>Improper charging, stemming & Blasting/fining of blast holes</p> <p>Vibration due to movement of vehicles</p>	<ul style="list-style-type: none"> ▪ The maximum charge per delay and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blast can be conducted safely. ▪ SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation ▪ Shots are fired during daytime only. ▪ All holes charged on any one day shall be fired on the same day. ▪ The danger zone is and will be distinctly demarcated (by means of red flags)
4	Transportation	<p>Potential hazards and unsafe workings contributing to accident and injuries</p> <p>Overloading of material</p> <p>While reversal & overtaking of vehicle</p>	<ul style="list-style-type: none"> ▪ Before commencing work, drivers personally check the dumper/truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition. ▪ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the

		Operator of truck leaving his cabin when it is loaded.	<ul style="list-style-type: none"> ▪ vehicle. ▪ Concave mirrors should be kept at all corners ▪ All vehicles should be fitted with reverse horn with one spotter at every tipping point ▪ Loading according to the vehicle capacity ▪ Periodical maintenance of vehicles as per operator manual
5	Natural calamities	Unexpected happenings	<ul style="list-style-type: none"> ▪ Escape Routes will be provided to prevent inundation of storm water ▪ Fire Extinguishers & Sand Buckets
6	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	<ul style="list-style-type: none"> ▪ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

7.3 Disaster Management Plan

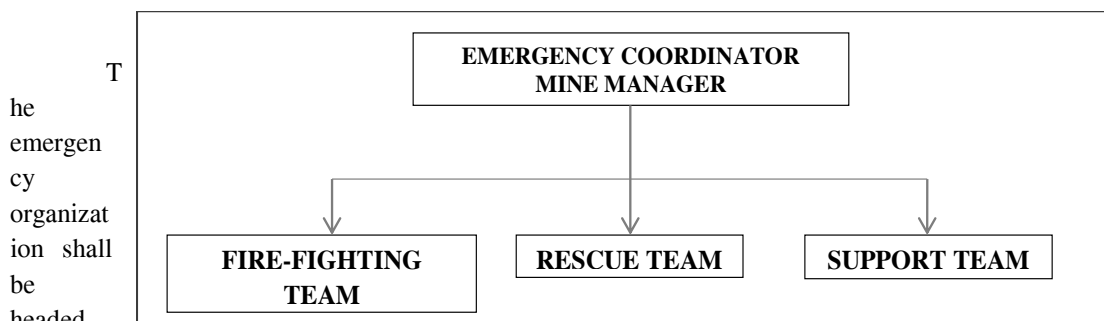
Natural disasters like Earthquake, Land slides has not been recorded in the past history as the terrain is categorized under seismic zone III. The area is far away from the sea hence the disaster due to heavy floods and tsunamis are not anticipated. The Disaster Management Plan is aimed to ensure safety 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.

In case a disaster takes place, despite preventive actions, disaster management will have to be done in line with the descriptions below. There is an organization proposed for dealing with the emergency situations and the coordination among key personnel and their team has been shown in Fig 7.1.

FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT FOR P1 TO P4



emergency coordinator who will be qualified competent mine manager. There would be three teams for taking care of emergency situations – Fire-Fighting Team, Rescue Team and Support Team. The proposed composition of the teams is given in Table 7.2.

TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION

DESIGNATION	QUALIFICATION
FIRE-FIGHTING TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member	Mines Foreman
Team Member	Mining Mate
RESCUE TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member/ Incident Controller (IC)	Environment Officer
Team Member	Mining Foreman
SUPPORT TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Assistant Team Leader	Environment Officer
Team Member	Mining Mate
Security Team Leader/ Emergency Security Controller	Mines Foreman

Once the mine becomes operational, the above table along with names of personnel will be prepared and made easily available to workers. A mobile communication network and wireless shall connect Mine Emergency Control Room (MECR) to control various departments of the mine, fire station and neighbouring industrial units/mines.

Roles and responsibilities of emergency team –

(a) Emergency coordinator (EC)

The emergency coordinator shall assume absolute control of site

(b) Incident controller (IC)

Incident controller shall be a person who shall go to the scene of emergency and supervise the action plan to overcome or contain the emergency. Shift supervisor or Environmental Officer shall assume the charge of IC.

(c) Communication and advisory team

The advisory and communication team shall consist of heads of Mining Departments i.e., Mines Manager

(d) Roll call coordinator

The Mine Foreman shall be Roll Call Coordinator. The roll call coordinator will conduct the roll call and will evacuate the mine personnel to assembly point. His prime function shall be to account for all personnel on duty.

(e) Search and rescue team

There shall be a group of people trained and equipped to carryout rescue operation of trapped personnel. The people trained in first aid and fire-fighting shall be included in search and rescue team

(f) Emergency security controller

Emergency Security Controller shall be senior most security person located at main gate office and directing the outside agencies e.g., fire brigade, police, doctor and media men etc.,

Emergency control procedure –

The onset of emergency, will in all probability, commence with a major fire or explosion or collapse of wall along excavation and shall be detected by various safety devices and also by members of operational staff on duty. If located by a staff member on duty, he (as per site emergency procedure of which he is adequately briefed) will go to nearest alarm call point, break glass and trigger off the alarms. He will also try his best to

inform about location and nature of accident to the emergency control room. In accordance with work emergency procedure the following key activities will immediately take place to interpret and take control of emergency.

- On site fire crew led by a fireman will arrive at the site of incident with fire foam tenders and necessary equipment.
- Emergency security controller will commence his role from main gate office
- Incident controller shall rush to the site of emergency and with the help of rescue team and will start handling the emergency.
- Site main controller will arrive at MECR with members of his advisory and communication team and will assume absolute control of the site.
 - He will receive information continuously from incident controller and give decisions and directions to:
 - Incident controller
 - Mine control rooms
 - Emergency security controller

Proposed fire extinguishers at different locations

The following type of fire extinguishers is proposed at strategic locations within the quarry.

Location	Type of Fire Extinguishers
Electrical Equipment's	CO ₂ type, foam type, dry chemical powder type
Fuel Storage Area	CO ₂ type, foam type, dry chemical powder type, Sand bucket
Office Area	Dry chemical type, foam type

Alarm system to be followed during disaster –

On receiving the message of disaster from Site Controller, fire-fighting team, the mine control room attendant will sound siren wailing for 5 minutes. Incident controller will arrange to broadcast disaster message through public address system.

On receiving the message of "Emergency Over" from Incident Controller the emergency control room attendant will give "All Clear Signal", by sounding alarm straight for 2 minutes.

The features of alarm system will be explained to one and all to avoid panic or misunderstanding during disaster.

In order to prevent or take care of hazard / disasters if any the following control measures have been adopted.

- All safety precautions and provisions of Metalliferous Mines Regulations (MMR), 1961 is strictly followed during all mining operations
- Fire fighting and first-aid provisions in the mines office complex and mining area will be provided.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees and the use of same is strictly adhered to through regular monitoring
- Training and refresher courses for all the employees working in the quarry in phase manner
- Cleaning of mine faces will be carried out regularly
- Provision of high-capacity standby pumps with generator sets with enough quantity of diesel for emergency pumping especially during monsoon.
- A blasting SIREN will be used at the time of blasting for audio signal.
- Checking of blasting area for any un-blasted hole or material.
- Warning notice boards indicating the time of blasting and NOT TO TRESPASS will be displayed at prominent places

7.4 CUMULATIVE IMPACT STUDY

There are 4 proposed and 2 existing quarries, 1 abandoned quarry falls in the cluster. The list of quarries is as below –

TABLE 7.3: LIST OF QUARRIES WITHIN 500 METER RADIUS FROM THIS PROPOSAL

PROPOSED QUARRIES				
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	Status
P1	Thiru. L. Thangarasu, S/o. R. Lakshmanasamy, residing at No.3/87, West Arasur, Arasur, Suler Taluk Coimbatore District,	408/2B and 408/2C, Pachapalayam Village, Suler Taluk	1.81.5	Obtained ToR vide, Lr.No. SEIAA- TN/F.No.9538/SEAC/ToR- 1322/2023 Dated:10.02.2023
P2	Thiru. D. Karthikeyan, S/o. S. Devaraj, residing at Door No.2/15, Post office Street, Periyakuyilai Post, Chettipalayam Via, Coimbatore District, Tamil Nadu State – 641 201	409/1A1(Part), 409/1A2(Part), 409/1B1 and 409/1B2, Pachapalayam Village, Suler Taluk	1.21.0	Obtained ToR vide, Lr.No. SEIAA- TN/F.No.8860/SEAC/ToR- 1122/2021 Dated:23.03.2022
P3	Thiru.S. Durairaj, S/o.Sellappan, Malakkadu Thottam, Periyakuyilai Post, Pachapalayam, Coimbatore District	408/3B and 408/3C, Pachapalayam Village, Suler Taluk	1.47.5	Obtained ToR vide, Lr.No. SEIAA- TN/F.No.9172/SEAC/ToR- 1186/2022 Dated:06.07.2022
P4	Thiru. N. Thangavelu, S/o. Nachimuthu Goundar, No. 153/A, Maraimalai Adigal Street, Palladam Taluk, Tiruppur District – 641 664	407/2A, &407/2B, Pachapalayam Village,	4.62.0	Obtained ToR vide, Lr No.SEIAA- /F.No.10099/ToR- 1515/2023 Dated: 01.08.2023.
Total			9.12.0	
NEAREST PROPOSED QUARRY				
CODE	Name of the Proponent and Address	S.F.Nos , Village & Taluk	Extent in Ha	Lease Period
P5	Thiru.K.Ganesh	407/1F, & 407/1G Pachapalayam Village,	2.46.0	Precise area Communicated
Total			2.46.0	
EXISTING QURRIES				
CODE	Name of the Proponent and Address	S.F.Nos , Village & Taluk	Extent in Ha	Lease Period
E-1	Thiru.A. Ayyasamy	407/1D, Pachapalayam Village,	0.37.0	15.09.2017-14.09.2022
E-2	Thiru.M. Appusamy	408/1B,408/2A &408/3A, Pachapalayam Village,	1.05.5	06.12.2017- 05.12.2022

		Total	1.42.5	
ABANDONED QURRY				
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	Lease Period
A-1	Thiru.E.Anandhakumar	408-2E, Pachapalayam Village,	1.28.5	11.05.2011 to 10.05.2016
Total			1.28.5	
EXPIRED QURRY				
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	Lease Period
-	-	-	-	-
TOTAL CLUSTER EXTENT			13.00.5 Ha	

Note:-

- Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016

As per above notification S.O.2269(E) dated : 01.07.2016 in para (b) in Appendix XI, - (ii)(5): The lease not operative for three years or more and leases which have got environmental clearance as on 15th January, 2016 shall not be counted for calculating the area of cluster, but shall be included in the Environment Management Plan and the Regional Environmental Management Plan”

TABLE 7.4: SALIENT FEATURES OF THE PROPOSED PROJECTS IN CLUSTER

SALIENT FEATURES OF PROPOSAL “P1”			
Name of the Mine	Thiru. L. Thangarasu, Rough Stone & Gravel Quarry Project		
Land Type	It is a Patta land. Jointly registered in the name of the Thiru.S. Jagadesh and Tmt. L.Deivamani vide Patta No.1437.		
S.F. Nos	408/2B and 408/2C,		
Extent	1.81.5 Ha		
Existing pit dimensions	110m (L) x 58m (W) x 26m(D) 130m (L) x 37m (W) x 14m(D)		
Ultimate pit dimensions	110m (L) x 58m (W) x 30m(D) 130m (L) x 37m (W) x 25m(D)		
Geological Reserves	Rough Stone	Weather ed Rock	Gravel
	1,94,001 m ³	4,530	3,020 m ³
Mineable Reserves	Rough Stone	Weather ed Rock	Gravel
	48,572 m ³	1152 m ³	1080 m ³
Proposed production for five years	48,572 m³	1152 m³	1080 m³
Mining Plan Period / Lease Period	5 Years		
Depth of mining	depth of mining is about 30m (2m Gravel +3m Weathered Rock + 25m Rough stone)		
Toposheet No	58 F/01		
Latitude	10°54'02.97"N to 10°54'07.85"N		
Longitude	77°05'13.59"E to 77°05'20.62"E		
Water Level	70-65m		
Highest Elevation	407m AMSL		
Machinery proposed	Jack Hammer	2	
	Compressor	1	
	Excavator with Bucket and Rock Breaker	1	
	Tippers	1	
Blasting	Usage of Slurry Explosive with MSD detonators		
Manpower Deployment	11 Nos		
Total Project Cost	Project Cost	Rs. 55,18,000/-	
	EMP Cost	Rs. 3,80,000/-	

		Total	Rs. 58,98,000/-
CER cost		Rs.5,00,000/-	
Nearest Habitation		800m-W	
SALIENT FEATURES OF PROPOSAL "P2"			
Name of the Mine	Thiru. D. Karthikeyan , Roughstone and gravel quarry		
Land Type	It is a Patta land, S.F.Nos. 409/1A1 and 409/1B1 are registered in the name of Tmt. D. Bakiyalakshmi, vide Patta No.1427 and S.F.No. 409/1A2 and 409/1B2 are registered in the name of Tmt. S. Jothilakshmi vide patta No. 1428.		
S.F. No.	409/1A1(Part), 409/1A2(Part), 409/1B1 and 409/1B2		
Extent	1.21.0 Ha		
Previous quarry operation details	<p>Operated by</p> <ul style="list-style-type: none"> ☞ the applied area has been considered quarrying operation earlier. The quarry lease was first granted in favour of Thiru. K. Shanmugam, over an extent of 1.78.0 hectares of Patta land in S.F.No. 409/1 of Pachapalayam village, Sular (formerly Palladam) Taluk, Coimbatore District vide R.C.No. 973/2005/M.M.2, dated: 24.05.2005 for the period of Five years. ☞ Another quarry lease was granted in favour of Tmt. D. Bakkiyalakshmi, over an extent of 0.89.0 hectares of Patta land in S.F.No. 409/1B of Pachapalayam village, Sular Taluk, Coimbatore District vide R.C.No. 190/2011/M.M-2, dated: 28.09.2011 for the period of three years from 28.09.2011 to 31.10.2014. ☞ There is an existing quarry pit. 		
Existing pit dimension	107m (L) x 73m (W) x 8m(D)		
Ultimate pit dimension	121m (L) x 74m (W) x 37m(D)		
Depth of mining	37m (2m Gravel + 35m Rough stone)		
Geological Resources	Rough Stone	Gravel	
	4,23,500 m ³	24,200 m ³	
Mineable Reserves	Rough Stone	Gravel	
	1,03,868 m ³	650 m ³	
Proposed production for five years	1,03,868 m ³	650 m ³	
Mining Plan Period / Lease Period	5 Years		
Toposheet No	58 - F/01		
Latitude	10°54'08.07"N to 10°54'11.43"N		
Longitude	77°05'19.26"E to 77°05'24.22"E		
Water Level	65-60m		
Highest Elevation	420m AMSL		
Machinery	Jack Hammer	3	
	Compressor	1	
	Excavator with Bucket and Rock Breaker	1	
	Tipppers	2	
Blasting	Usage of Slurry Explosive with MSD detonators		
Manpower Deployment	18 Nos		
Total Cost	Project Cost	Rs. 27,86,800/-	
	EMP Cost	Rs. 3,80,000/-	
	Total	Rs. 31,66,800/-	
CER cost	Rs.5,00,000/-		
Nearest Habitation	1km-W		
SALIENT FEATURES OF PROPOSAL "P3"			
Name of the Mine	Thiru.S.Durairaj , Rough stone and Gravel quarry		
Land Type	It is a Patta land, Jointly Registered the Name of Applicant (Durairaj), Ravichandran and Subbulakshmi vide Patta Nos.574 & 471. The applicant has been consent from Joint Pattadhars.		
S.F. No.	408/3B and 408/3C		

Extent	1.47.5 Ha		
Previous quarry details	It is a fresh application; the area has been quarrying earlier.		
Existing pit dimension	123m (L) X 107m (W) X 16m (D)		
Depth restricted as per ToR	30m bgl (2m Gravel + 28m Rough stone)		
Geological Reserves	Rough Stone	Weathered Gravel	
	640584 m ³	30504m ³	
Mineable Reserves	Rough Stone	Weathered Gravel	
	1,12,701 m ³	2220 m ³	
Proposed production for five years	Rough Stone	Gravel	
	1,12,701 m ³	2220 m ³	
Mining Plan Period / Lease Period	5 Years		
Depth of mining	44m Bgl		
Ultimate Pit Dimension	123m (L)	107m (W)	44m BGL (D)
Toposheet No	58-F/01		
Latitude	10°54'06.50"N to 10°54'12.24"N		
Longitude	77°05'15.85"E to 77°05'20.27"E		
Water Level	55to 60m BGL		
Machinery	Jack Hammer	4	
	Compressor	1	
	Excavator with Bucket and Rock Breaker	1	
	Tipplers	1	
Blasting	Usage of Slurry Explosive with MSD detonators		
Manpower Deployment	19 Nos		
Total Project Cost	Project Cost	Rs. 46,87,612/-	
	EMP Cost	Rs. 3,80,000/-	
	Total	Rs. 50,67,612	
CER cost	Rs.5,00,000/-		
Nearest Habitation	860m-SW		
SALIENT FEATURES OF PROPOSAL "P4"			
Name of the Mine	Thiru.N.Thangavel, Rough stone and Gravel quarry		
Land Type	It is a Patta land. Registered in the name of the applicant (Thiru.N.Thangavelu). Refer the Patta 629 copy as Annexure No. IV		
S.F. No.	407/2A, &407/2B,		
Extent	4.62.0 Ha		
Previous quarry details	<p>It is a fresh application; the area has been quarrying earlier. The quarry lease was previously granted in the favour of Thiru.N. Thangavelu, over an extent of 4.62.0 hectares of Patta land in S.F.Nos. 407/2A & 407/2B of Pachapalayam Village, Suler Taluk, Coimbatore District for the period of five years from 07.10.2017 to 06.10.2022.</p> <p>The lessee has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu vide letter No. SEIAA-TN / F.No. 5486 / 1(a) / EC. No: 3898 / 2016, Dated: 05.06.2017.</p> <p>The applicant has once again applied a quarry lease on 21.03.2022, over an extent of 4.62.0 hectares of Patta lands in S.F.Nos. 407/2A & 407/2B of Pachapalayam Village, Suler Taluk, Coimbatore District for the period of five years.</p>		
Existing pit dimension	38m (L) X 107m (W) X 8m (D) 254m (L) X 104m (W) X 17m (D) 92m (L) X 51m (W) X 2m (D)		
Depth of mining	40m (2m Gravel + 38m Rough Stone) below ground level		
Geological Reserves	Rough Stone	Gravel	

	13,04,105m ³	8,856m ³
Mineable Reserves	Rough Stone	Gravel
	4,40,285m ³	-
Proposed production for five years	Rough Stone	Existing Gravel Dump
	4,40,285m ³	3,372m ³
Mining Plan Period / Lease Period	5 Years	
Depth of mining	40m Bgl	
Ultimate Pit Dimension	288 (L)	134m (W) 40m BGL (D)
Toposheet No	58-F/01	
Latitude	10°53'58.36"N to 10°54'10.72"N	
Longitude	77°05'08.47"E to 77°05'13.86"E	
Elevation	405m Amsl	
Water Level	70 to 65m BGL	
Machinery	Jack Hammer	11
	Compressor	3
	Excavator with Bucket and Rock Breaker	2
	Tipplers	4
Blasting	Usage of Slurry Explosive with MSD detonators	
Manpower Deployment	43 Nos	
Total Project Cost	Project Cost	Rs. 88,47,000/-
	EMP Cost	Rs. 3,80,000/-
	Total	Rs.92,27,000/-
CER cost	Rs.5,00,000/-	
Nearest Habitation	630m-W	
SALIENT FEATURES OF PROPOSAL "P5"		
Name of the Mine	Thiru.K.Ganesh, Rough stone quarry	
Land Type	It is a Patta land, Registered the Name of Applicant Tmt.Mayilathal, Vide patta no.160 The applicant has been consent from Joint Pattadar for the period of five years from the date of executions of quarry lease.	
S.F. No.	407/1F & 407/1G	
Extent	2.46.0 Ha	
Previous quarry details	It is a fresh application; the area has been quarrying earlier.	
Existing pit dimension	184m (L) X 106m (W) X 30m (D)	
Depth of mining	46m bgl (1m Gravel + 45m Rough stone)	
Geological Reserves	Rough Stone	Gravel
	4,89,403m ³	3,063m ³
Mineable Reserves	Rough Stone	Gravel
	1,83,078 m ³	-
Proposed production for five years	Rough Stone	Gravel
	1,83,078 m ³	-
Mining Plan Period / Lease Period	5 Years	
Depth of mining	46m Bgl	
Ultimate Pit Dimension	184m (L)	106m (W) 46m BGL (D)
Toposheet No	58-F/01	
Latitude	10°53'56.55"N to 10°54'03.46"N	
Longitude	77°05'04.48"E to 77°05'11.01"E	
Elevation	408m Amsl	
Water Level	65to 60m BGL	
Machinery	Jack Hammer	4
	Compressor	1
	Excavator with Bucket and Rock Breaker	1
	Tipplers	2
Blasting	Usage of Slurry Explosive with MSD detonators	

Manpower Deployment	20 Nos	
Total Project Cost	Project Cost	Rs. 77,12,200/-
	EMP Cost	Rs. 3,80,000/-
	Total	Rs. 80,92,200/-
CER cost	Rs.5,00,000/-	
Nearest Habitation	500m-W	

The Cumulative Impact is mainly anticipated due to drilling & blasting and excavation and transportation activities in all the quarries (proposed and existing) within the cluster and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting.

Impact on Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.5 & 7.6

TABLE 7.5 CUMULATIVE PRODUCTION LOAD OF ROUGH STONE IN CLUSTER

Quarry	Production for five-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 6m ³ per load
P1	48,572	9,714	32	5Trips /Day
P2	1,03,868	20,774	69	12 Trips /Day
P3	1,12,701	24,340	81	14Trips /Day
P4	4,40,285	88,057	294	49 Trips /day
P5	1,83,078	36,616	122	20 Trips /day
Total	8,88,504	1,79,501	598	100Trips /Day

TABLE 7.6: CUMULATIVE PRODUCTION OF GRAVEL IN CLUSTER

Quarry	Mineable Reserves in m ³	Per Year Production in m ³	Per Day in m ³	Number of Lorry Load @ 6m ³ per load
P1	1080	1080	4	1 lorry load per week
P2	650	650	2	-
P3	2,220	1,110	4	1 lorry load per week
P4	3372	1124	4	1 lorry load per week
P5	2,640	880	3	-
TOTAL	9,962	4844	17	3 Trips/ week

Source: Approved Mining plans of the respective projects

Based on the above production quantities the emissions due to various activities in all the 5 proposed quarries includes various activities like ground preparation, excavation, handling and transport of mineral. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.7.

TABLE 7.7: EMISSION ESTIMATION FROM CLUSTER

EMISSION ESTIMATION FOR QUARRY "P1"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.052984003	g/s
	Blasting	Point Source	0.000101004	g/s
	Mineral Loading	Point Source	0.035866482	g/s
	Haul Road	Line Source	0.002484002	g/s/m
	Overall Mine	Area Source	0.048631119	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000127403	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000005208	g/s
EMISSION ESTIMATION FOR QUARRY "P2"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.071997955	g/s
	Blasting	Point Source	0.000467967	g/s
	Mineral Loading	Point Source	0.039433880	g/s

	Haul Road	Line Source	0.002486915	g/s/m
	Overall Mine	Area Source	0.041834027	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000317853	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000009088	g/s
EMISSION ESTIMATION FOR QUARRY "P3"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.067235278	g/s
	Blasting	Point Source	0.000332354	g/s
	Mineral Loading	Point Source	0.038650977	g/s
	Haul Road	Line Source	0.002486051	g/s/m
	Overall Mine	Area Source	0.045125012	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000264479	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000009017	g/s
EMISSION ESTIMATION FOR QUARRY "P4"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.099917191	g/s
	Blasting	Point Source	0.002408882	g/s
	Mineral Loading	Point Source	0.043963407	g/s
	Haul Road	Line Source	0.002496266	g/s/m
	Overall Mine	Area Source	0.074129176	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.001053822	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000103037	g/s
EMISSION ESTIMATION FOR QUARRY "P5"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.079734117	g/s
	Blasting	Point Source	0.000779535	g/s
	Mineral Loading	Point Source	0.040711120	g/s
	Haul Road	Line Source	0.0024887	g/s/m
	Overall Mine	Area Source	0.055959952	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000469149	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000025522	g/s

Source: Emission Formula.

TABLE 7.8: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM ₁₀ in µg/m ³	
Location	AAQ1 – CORE
Background (average)	44.15
Highest Incremental	12.86
Resultant	57.3
NAAQ Norms	100 µg/m ³
PM _{2.5} in µg/m ³	
Background (average)	24.4
Highest Incremental	5.43
Resultant	29.9
NAAQ Norms	60 µg/m ³
SO ₂ in µg/m ³	
Location	AAQ1 – CORE
Background (average)	9.2
Highest Incremental	1.59
Resultant	10.8
NAAQ Norms	80 µg/m ³
NO _x in µg/m ³	
Location	AAQ1 – CORE
Background (average)	26.2
Incremental	8.67
Resultant	34.9
NAAQ Norms	80 µg/m ³

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.

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

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.

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

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 7.9: PREDICTED NOISE INCREMENTAL VALUES FROM CLUSTER

Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
N1	47.3	47.3	46.3	Residential Day Time– 55 dB (A) Night Time- 45 dB (A)
N2	47.2	52.1	53.3	
N3	46.7	40.1	47.6	
N4	46.2	30.6	46.3	
N5	46.6	29.2	46.7	
N6	47.1	25.8	47.1	
N7	45.9	27.6	46.0	
N8	45.1	27.6	45.2	

Source: Lab Monitoring Data

The incremental noise level is found within the range of 42.4 – 48.7 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. 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, it can be seen that the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

Ground Vibrations

Ground vibrations due to mining activities in the all the 5-proposal quarry and 3 existing quarries within cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from the all the 5proposal quarry and 3 existing quarries is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can with stand more ground 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 agricultural fields nearby the mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from 8mines respectively are as in below Table 7.9

TABLE 7.10: NEAREST HABITATION FROM EACH MINE

Location ID	Distance in Meters

Habitation Near P1	800
Habitation Near P2	1000
Habitation Near P3	860
Habitation Near P4	630
Habitation Near P5	500

Source: Satellite Imagery and Field Data

The ground vibrations due to the blasting in all the mines are calculated using the empirical equation for assessment of peak particle velocity (PPV) is:

$$V = K [R/Q^{0.5}]^{-B}$$

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

TABLE 7.11: GROUND VIBRATIONS AT 4 MINES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	14	800	0.094
P2	30	1000	0.120
P3	33	860	0.165
P4	127	630	0.800

Source: PPV Calculation

From the above table, the charge per blast is considered as maximum in each mine and the resultant PPV is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

Socio Economic Environment –

The 8 mines shall provide employment and revenue will be created to government

TABLE 7.12: SOCIO ECONOMIC BENEFITS FROM 5 MINES

Location Code	Employment	Project Cost	CER
P1	11	Rs. 58,98,000/-	Rs.5,00,000/-
P2	18	Rs. 31,66,800/-	Rs.5,00,000/-
P3	19	Rs. 50,67,612/-	Rs.5,00,000/-
P4	43	Rs.92,27,000/-	Rs.5,00,000/-
P5	20	Rs. 80,92,200/-	Rs.5,00,000/-
Total	111	Rs. 3,14,51,612/-	Rs. 25,00,000/-

A total of 145 people will get employment due to 5 mines in cluster mines are 111 Nos. Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018 by all the mines.

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.

- 5 Proposed projects shall fund towards CER – **Rs 25,00,000/-**

TABLE 7.13: GREENBELT DEVELOPMENT BENEFITS FROM CLUSTER MINES

CODE	No of Trees proposed to be planted	Survival %	Area Covered Sq.m	Name of the Species	No. of Trees expected to be grown
P1	900	80%	Near 7.5m safety	Neem, Pongamia	725

P2	600	80%	distance, panchayat road and village road	Pinnata, Casuarina etc.,	485
P3	740	80%			590
P4	2300	80%			1850
P5	1230	80%			980
Total	5,770	80%			4,630

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Casuarina, etc in the Cluster at a rate of 5770 Trees Planted over a period of 5 Years with Survival Rate of 80% and expected growth is around 4630 Trees over an area of all proposed quarries.

7.5 PLASTIC WASTE MANAGEMENT PLAN FOR P1 TO P4

All the Project Proponent shall comply with Tamil Nadu Government Order (Ms) No. 84 Environment and Forest (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.

Objective –

- To investigate the actual supply chain network of plastic waste.
- To identify and propose a sustainable plastic waste management by installing bins for collection of recyclables with all the plastic waste
- Preparation of a system design layout, and necessary modalities for implementation and monitoring.

TABLE 7.14: ACTION PLAN TO MANAGE PLASTIC WASTE

Sl.No.	Activity	Responsibility
1	Framing of Layout Design by incorporating provision of the Rules, user fee to be charged from waste generators for plastic waste management, penalties/fines for littering, burning plastic waste or committing any other acts of public nuisance	Mines Manager
2	Enforcing waste generators to practice segregation of bio-degradable, recyclable and domestic hazardous waste	Mines Manager
3	Collection of plastic waste	Mines Foreman
4	Setting up of Material Recovery Facilities	Mines Manager
5	Segregation of Recyclable and Non-Recyclable plastic waste at Material Recovery Facilities	Mines Foreman
6	Channelization of Recyclable Plastic Waste to registered recyclers	Mines Foreman
7	Channelization of Non-Recyclable Plastic Waste for use either in Cement kilns, in Road Construction	Mines Foreman
8	Creating awareness among all the stakeholders about their responsibility	Mines Manager
9	Surprise checking's of littering, open burning of plastic waste or committing any other acts of public nuisance	Mine Owner

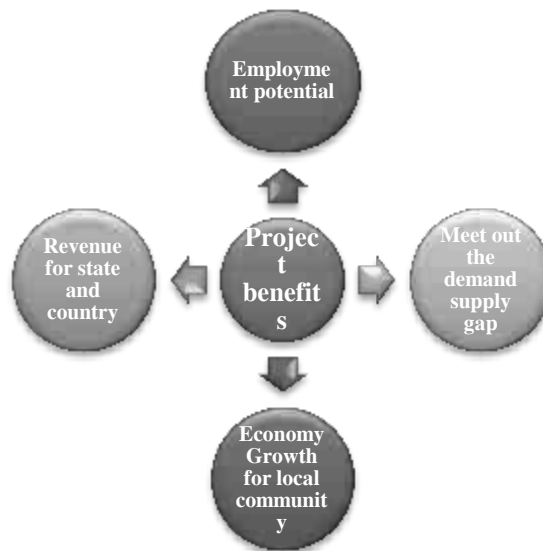
Source: Proposed by FAE's and EC

CHAPTER – 8: PROJECT BENEFITS

8.0 General

The four Proposed Projects for Quarrying Rough Stone and Gravel at Pachapalayam Village aims to produce cumulatively **7,05,426m³** Rough Stone over a period of 5 Years & **7,322m³** of Gravel over a period of 3 Years. 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



8.1 Employment Potential

It is proposed to provide employment to about 91 persons for carrying out mining operations and give preference to the local people in providing employment. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc. the economic status of the local people will be enhanced due to mining project.

8.1 Socio-Economic Welfare Measures Proposed

The impact of mining activity in the area will be more positive than negative on the socio-economic environment in the immediate project impact area. The employment opportunities both direct and indirect will contribute to enhanced money incomes to job seekers with minimal skill sets especially among the local communities.

8.1 Improvement in Physical Infrastructure

The proposed project site is located in Pachapalayam village, Suler taluk, Coimbatore District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to the cluster quarry projects.

- Road Transport facilities
- Communications
- Medical, Educational and social benefits will be made available to the nearby civilian population in addition to the workmen employed in the mine.

8.1 Improvement in Social Infrastructure

The quarry projects in the region will have positive impact on the social economic condition of the area by way of providing employment to the local peoples; thereby increasing the per capita income, housing, education, medical and transportation facilities, economic status, health and agriculture.

- Social welfare program like medical camps, educational facilities to the poverty level students, providing water supply from the quarries during drought seasons will be taken from the project proponent's
- Supplementing Govt. efforts in health monitoring camps, social welfare and various Awareness programs among the rural population.

8.1 Other Tangible Benefits

The proposed quarry project is likely to have other tangible benefits as given below.

- Indirect employment opportunities to local people in contractual works like construction of infrastructural facilities, transportation, sanitation, for supply of goods and services to the quarry site and other community services.
- Additional housing demand for rental accommodation will increase.
- Cultural, recreation and aesthetic facilities will also improve.
- Improvement in communication, transport, education, community development and medical facilities and overall change in employment and income opportunity.
- The State Government will also benefit directly from the proposed mine, through increased revenue from royalties, cess, DMF, GST etc.,

CORPORATE SOCIAL RESPONSIBILITY

Individual Project Proponents will take responsibility to develop awareness among all levels of their staff about CSR activities and the integration of social processes with business processes. Those involved with the undertaking of CSR activities will be provided with adequate training and re-orientation.

Under this programme, the project proponents will take-up following programmes for social and economic development of villages within 10 km of the project site. For this purpose, separate budget will be provided every year. For finalization of these schemes, proponent will interact with LSG. The schemes will be selected from the following broad areas –

- Health Services
- Social Development
- Infrastructure Development
- Education & Sports
- Self-Employment

CSR Cost Estimation

- CSR activities will be taken up in the Pachapalayam village mainly contributing to education, health, training of women self-help groups and contribution to infrastructure etc., CSR budget is allocated as 2.5% of the profit.

CORPORATE ENVIRONMENT RESPONSIBILITY–

Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum 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 4proposed mines is Rs. 20,00,000/-.

TABLE 8.1 CER – ACTION PLAN

Code	CER
P1	Rs 5,00,000/-
P2	Rs 5,00,000/-
P3	Rs 5,00,000/-
P4	Rs 5,00,000/-
Total	Rs 20,00,000/-

Source: Field survey conducted by FAE, consultation with project proponents

CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

Not Applicable, Since Environmental Cost Benefit Analysis not recommended at the Scoping stage.

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN – P1

10.0 General

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of Environmental Management plan will ensure to keep all the environmental parameters of the project in respect of Ambient Air quality, Water quality, Socio – economic improvement standards.

Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.1 Environmental Policy

The Project Proponent is committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent **Thiru. L. Thangarasu** will –

- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities
- Allocate necessary resources to ensure the implementation of the environmental policy
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities
- Implement monitoring programmes to provide early warning of any deficiency or unanticipated performance in environmental safeguards
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement

Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level of each Proposed Quarry.

The said team will be responsible for:

- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Analysis of the water and air samples collected through external laboratory
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme
- 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.

10.2 Land Environment Management –

Land degradation is one of the major adverse impacts of opencast mining in the form of excavated voids and contamination of soil affects the viability of the soil resource.

Soil contamination then has a number of flow-on effects like, Inhibition of plant growth, and death of existing plants in contaminated areas and contamination of soil also has potential to impact on a surface water quality and groundwater resources.

TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Re fueling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
Greenbelt development and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager
Thick plantation using native flora species will be carried out on the top benches.	Mines Manager
There will be formation of a small surface water body in the mined-out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.3 Soil Management

Top Soil Management –

- There is no topsoil for this project site.

Overburden / Waste and Side Burden Management –

- 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.

TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Garland drains are to be paved around the quarry pit area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface water via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Environment Officer
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.4 Water Management

In the proposed quarrying project, no process is involved for the effluent generation, only oil & grease from the machinery wash is anticipated and domestic sewage from mine office.

The quarrying operation is proposed upto a depth of 30 m, the water table in the area is 70m – 65 m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT

CONTROL	RESPONSIBILITY
To maximize the reuse of pit water for water supply	Mines Foreman
Temporary and permanent garland drain will be constructed to contain the catchments of the mining area and to divert runoff from undisturbed areas through the mining areas	Mines Manager
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations	Mines Manager
Ensure there is no process effluent generation or discharge from the project area into water bodies	Mines Foreman
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Foreman
Monthly or after rainfall, inspection for performance of water management structures and systems	Mines Manager
Conduct ground water and surface water monitoring for parameters specified by CPCB	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

10.5 Air Quality Management

The existing and proposed mining activities would result in the increase of particulate matter concentrations due to fugitive dust. Water sprinkling twice per day on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements.

TABLE 10.4: PROPOSED CONTROLS FOR AIR ENVIRONMENT

CONTROL	RESPONSIBILITY
Generation of dust during excavation is minimized by daily (twice) water sprinkling on working face and daily (twice) water sprinkling on haul road	Mines Manager
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself is implemented	Mines Manager
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution	Mines Manager
Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Mines Manager
Provision of Dust Mask to all workers	Mines Manager
Greenbelt development all along the periphery of the project area	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.6 Noise Management

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and other allied activities. No mining activities are planned during night time.

TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT

CONTROL	RESPONSIBILITY
Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Foreman
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Mines Manager
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Mining Mate
Provision of effective silencers for mining machinery and transport vehicles	Mines Manager
Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring shall be carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.7 Ground Vibration and Fly Rock Control

TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK

CONTROL	RESPONSIBILITY
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Suitable spacing and burden will be maintained to avoid misfire / fly rocks	Manager Mines
Number of blast holes will be restricted to control ground vibrations	Manager Mines
Blasting will be carried out only during noon time	Mining Mate
Undertake noise or vibration monitoring	Mines Manager
ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material	Mines Foreman

Source: Proposed by FAE's & EIA Coordinator

10.8 Biological Environment Management

The proponent will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc.,

Following control measures are proposed for its management and will be the responsibility of the Mines Manager.

- Greenbelt development all along the safety barrier of the project area
- It is also proposed to implement the greenbelt development programme and post plantation status will be regularly checked for every season.
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
- Year wise greenbelt development will be recorded and monitored
 - Based on the area of plantation.
 - Period of plantation

- Type of plantation
 - Spacing between the plants
 - Type of manuring and fertilizers and its periods
 - Lopping period, interval of watering
 - Survival rate
 - Density of plantation
- The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

10.8.1 Green Belt Development Plan

About 900nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 10.7 PROPOSED GREENBELT ACTIVITIES FOR 5 YEAR PLAN PERIOD – P1

PROPOSAL – P1-Thiru.D. Jayakumar					
Year	No. of trees proposed to be planted	Survial %	Area to be covered	Name of the species	No. of trees expected to be grown
I	900	80	Near 7.5m safety distance, panchayat road and village road	Neem, Pongamia Pinnata, Casuarina etc.,	725

Source: Conceptual Plan of Approved Mining plan& proposed by FAE's & EIA Coordinator

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil, Conserve moisture for increasing ground water recharging,
- Restore the ecology of the area, restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community.

A well-planned Green Belt with multi rows (three tiers) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul roads to prevent air, dust noise propagation to undesired places and efforts will be taken for the enhancement of survival rate.

10.8.2 Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- Creating of bio-diversity.
- Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- Efficient in absorbing pollutants without major effects on natural growth

TABLE 10.8: RECOMMENDED SPECIES TO PLANT IN THE GREENBELT – P1

S. No	Botanical Name	Local Name	Importance
1.	Azadirachta indica	Neem, Vembu	Neem oil & neem products
2.	Tamarindus indica	Tamarind	Edible & Medicinal and other Uses
3.	Polyalthia longifolia	Nettilinkam	Tall and evergreen tree
4.	Borassus Flabellifer	Palmyra Palm	Tall Wind breaker tree and its fruits are edible

Source: Proposed by FAE's & EIA Coordinator

10.9 Occupational Safety & Health Management

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health impact in quarries are fugitive dust and noise. Safety of

employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.9.1 Medical Surveillance and Examinations –

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline measures for determining changes in health.
- Evaluating the effect of noise on workers
- Enabling corrective actions to be taken when necessary
- Providing health education

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail medical examination at the time of employment. The medical examination covers the following tests under mines act 1952.

- General Physical Examination and Blood Pressure
- X-ray Chest and ECG
- Sputum test
- Detailed Routine Blood and Urine examination

The medical histories of all employees will be maintained in a standard format annually. Thereafter, the employees will be subject to medical examination annually. The below tests keep upgrading the database of medical history of the employees.

TABLE 10.9: MEDICAL EXAMINATION SCHEDULE – P1

Sl.No	Activities	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
1	Initial Medical Examination (Mine Workers)					
A	Physical Check-up					
B	Psychological Test					
C	Audiometric Test					
D	Respiratory Test					
2	Periodical Medical Examination (Mine Workers)					
A	Physical Check – up					
B	Audiometric Test					
C	Eye Check – up					
D	Respiratory Test					
3	Medical Camp (Mine Workers & Nearby Villagers)					
4	Training (Mine Workers)					

Medical Follow ups:- Work force will be divided into three targeted groups age wise as follows:-		
Age Group	PME as per Mines Rules 1955	Special Examination
Less than 25 years	Once in a Three Years	In case of emergencies
Between 25 to 40 Years	Once in a Three Years	In case of emergencies
Above 40 Years	Once in a Three Years	In case of emergencies

Medical help on top priority immediately after diagnosis/ accident is the essence of preventive aspects.

10.9.2 Proposed Occupational Health and Safety Measures –

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- Lightweight and loose-fitting clothes having light colours will be preferred to wear.
- Noise exposure measurements will be taken to determine the need for noise control strategies.
- The personal protective equipment will be provided for mine workers.
- Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment.
- At noisy working activity, exposure time will be minimized.

- Dust generating sources will be identified and proper control measure will be adopted.
- Periodic medical examinations will be provided for all workers.
- Strict observance of the provisions of DGMS Acts, Rules and Regulations in respect of safety both by management and the workers.
- The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centres. All personal protective equipment's will be provided to them.
- A safety committee meeting every month will be organized to discuss the safety of the mines and the persons employed.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.

FIGURE 10.1: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS – P1



10.9.3 Health and Safety Training Programme

The Proponents will provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centres in the State and engage Environmental Consultants to provide periodical training to all the employees to carry out the mining operation in and eco-friendly manner.

TABLE 10.10: LIST OF PERIODICAL TRAININGS PROPOSED FOR EMPLOYEES – P1

Course	Personnel	Frequency	Duration	Instruction
New-Employee Training	All new employees exposed to mine hazards	Once	One week	Employee rights Supervisor responsibilities Self-rescue Respiratory devices Transportation controls Communication systems Escape and emergency evacuation Ground control hazards Occupational health hazards

				Electrical hazards First aid Explosives
Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health & safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new- hire training	Yearly	One week	Required health and safety standards Transportation controls Communication systems Escape ways, emergency evacuations Fire warning Ground control hazards First aid Electrical hazards Accident prevention Explosives Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance Emergency evacuation procedures Health standards Safety rules Respiratory devices

Source: Proposed by FAE's & EIA Coordinator as per DGMS Norms

10.9.4 Budgetary Provision for Environmental Management –

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.11 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.11: EMP BUDGET FOR PROPOSED PROJECT – P1

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	18150	18150
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 3 Units	50000	5000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 2 Units	5000	250
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	36300
Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000	
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0

	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Compentent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	126287
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	18150	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	363000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 900Trees - (200Inside Lease Area & 700Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	40000	6000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	210000	21000

	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	63150	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	286575	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 11 Employees	44000	11000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	11000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	3630
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	90750	10000

	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			2299050	1220617

In order to implement the environmental protection measures, an amount of Rs.22.99 lakhs as capital cost and recurring cost as Rs. 1.22 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

Year Wise Break Up	
1st Year	₹35,19,667
2nd Year	₹12,81,648
3rd Year	₹13,45,730
4th Year	₹14,13,017
5th Year	₹15,46,818
Total	₹91 Lakshs

10.10 CONCLUSION

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct a review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN – P2

10.1 General

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of Environmental Management plan will ensure to keep all the environmental parameters of the project in respect of Ambient Air quality, Water quality, Socio – economic improvement standards.

Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.2 Environmental Policy

The Project Proponent is committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent **Thiru. D. Karthikeyan** will –

- Allocate necessary resources to ensure the implementation of the environmental policy
- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts
- Implement monitoring programmes to provide early warning of any deficiency or unanticipated performance in environmental safeguards
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement

Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level of each Proposed Quarry.

The said team will be responsible for:

- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Analysis of the water and air samples collected through external laboratory
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme

- 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.

10.3 Land Environment Management –

Land degradation is one of the major adverse impacts of opencast mining in the form of excavated voids and contamination of soil affects the viability of the soil resource.

Soil contamination then has a number of flow-on effects like, Inhibition of plant growth, and death of existing plants in contaminated areas and contamination of soil also has potential to impact on a surface water quality and groundwater resources.

TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Re fueling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
Greenbelt development and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager
Thick plantation using native flora species will be carried out on the top benches.	Mines Manager
There will be formation of a small surface water body in the mined-out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.4 Soil Management

Top Soil Management –

- There is no topsoil for this project site.

Overburden / Waste and Side Burden Management –

- 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.

TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Garland drains are to be paved around the quarry pit area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface water via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Environment Officer

Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager
-------------------------------------------------------------------------------------------------	---------------

Source: Proposed by FAE's & EIA Coordinator

10.5 Water Management

In the proposed quarrying project, no process is involved for the effluent generation, only oil & grease from the machinery wash is anticipated and domestic sewage from mine office.

The quarrying operation is restricted upto a depth of 37m, the water table in the area is 65 m – 60m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT

CONTROL	RESPONSIBILITY
To maximize the reuse of pit water for water supply	Mines Foreman
Temporary and permanent garland drain will be constructed to contain the catchments of the mining area and to divert runoff from undisturbed areas through the mining areas	Mines Manager
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations	Mines Manager
Ensure there is no process effluent generation or discharge from the project area into water bodies	Mines Foreman
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Foreman
Monthly or after rainfall, inspection for performance of water management structures and systems	Mines Manager
Conduct ground water and surface water monitoring for parameters specified by CPCB	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

10.6 Air Quality Management

The existing and proposed mining activities would result in the increase of particulate matter concentrations due to fugitive dust. Water sprinkling twice per day on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements

TABLE 10.4: PROPOSED CONTROLS FOR AIR ENVIRONMENT

CONTROL	RESPONSIBILITY
Generation of dust during excavation is minimized by daily (twice) water sprinkling on working face and daily (twice) water sprinkling on haul road	Mines Manager
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself is implemented	Mines Manager
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution	Mines Manager
Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Mines Manager
Provision of Dust Mask to all workers	Mines Manager

Greenbelt development all along the periphery of the project area	Mines Manager
-------------------------------------------------------------------	---------------

Source: Proposed by FAE's & EIA Coordinator

10.7 Noise Management

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and other allied activities. No mining activities are planned during night time.

TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT

CONTROL	RESPONSIBILITY
Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Foreman
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Mines Manager
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Mining Mate
Provision of effective silencers for mining machinery and transport vehicles	Mines Manager
Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring shall be carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.8 Ground Vibration and Fly Rock Control

TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK

CONTROL	RESPONSIBILITY
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Suitable spacing and burden will be maintained to avoid misfire / fly rocks	Manager Mines
Number of blast holes will be restricted to control ground vibrations	Manager Mines
Blasting will be carried out only during noon time	Mining Mate
Undertake noise or vibration monitoring	Mines Manager
ensure blast holes are adequately stemmed for the depth of the hole and stemmed with	Mines Foreman

suitable angular material

Source: Proposed by FAE's & EIA Coordinator

10.8 Biological Environment Management

The proponent will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc.,

Following control measures are proposed for its management and will be the responsibility of the Mines Manager.

- Greenbelt development all along the safety barrier of the project area
- It is also proposed to implement the greenbelt development programme and post plantation status will be regularly checked for every season.
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
- Year wise greenbelt development will be recorded and monitored
 - Based on the area of plantation.
 - Period of plantation
 - Type of plantation
 - Spacing between the plants
 - Type of manuring and fertilizers and its periods
 - Lopping period, interval of watering
 - Survival rate
 - Density of plantation
- The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

10.8.1 Green Belt Development Plan

About 600 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 10.7 PROPOSED GREENBELT ACTIVITIES FOR 5 YEAR PLAN PERIOD – P2

PROPOSAL – P2					
Year	No. of trees proposed to be planted	Survial %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	600	80%	Near 7.5m safety distance, panchayat road and village road	Neem, Pongamia Pinnata, Casuarina etc.,	485

Source: Conceptual Plan of Approved Mining plan& proposed by FAE's & EIA Coordinator

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil, Conserve moisture for increasing ground water recharging,
- Restore the ecology of the area, restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community.

A well-planned Green Belt with multi rows (three tiers) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul roads to prevent air, dust noise propagation to undesired places and efforts will be taken for the enhancement of survival rate.

10.8.2 Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- Creating of bio-diversity.
- Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- Efficient in absorbing pollutants without major effects on natural growth

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3	Polyalthia longifolia	Nettilinkam	Tall and evergreen tree
4	Borassus Flabellifer	Palmyra Palm	Tall Wind breaker tree and its fruits are edible

Source: Proposed by FAE's & EIA Coordinator

10.9 Occupational Safety & Health Management

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health impact in quarries are fugitive dust and noise. Safety of employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.9.1 Medical Surveillance and Examinations –

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline measures for determining changes in health.
- Evaluating the effect of noise on workers
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- Providing health education

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail medical examination at the time of employment. The medical examination covers the following tests under mines act 1952.

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- X-ray Chest and ECG
- Sputum test
- Detailed Routine Blood and Urine examination

The medical histories of all employees will be maintained in a standard format annually. Thereafter, the employees will be subject to medical examination annually. The below tests keep upgrading the database of medical history of the employees.

TABLE 10.9: MEDICAL EXAMINATION SCHEDULE – P2

Sl.No	Activities	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
1	Initial Medical Examination (Mine Workers)					
A	Physical Check-up					
B	Psychological Test					
C	Audiometric Test					
D	Respiratory Test					
2	Periodical Medical Examination (Mine Workers)					
A	Physical Check – up					
B	Audiometric Test					
C	Eye Check – up					
D	Respiratory Test					
3	Medical Camp (Mine Workers & Nearby Villagers)					
4	Training (Mine Workers)					

Medical Follow ups:- Work force will be divided into three targeted groups age wise as follows:-		
Age Group	PME as per Mines Rules 1955	Special Examination
Less than 25 years	Once in a Three Years	In case of emergencies
Between 25 to 40 Years	Once in a Three Years	In case of emergencies
Above 40 Years	Once in a Three Years	In case of emergencies

Medical help on top priority immediately after diagnosis/ accident is the essence of preventive aspects.

10.9.2 Proposed Occupational Health and Safety Measures –

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- Lightweight and loose-fitting clothes having light colours will be preferred to wear.
- Noise exposure measurements will be taken to determine the need for noise control strategies.
- The personal protective equipment will be provided for mine workers.
- Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment.
- At noisy working activity, exposure time will be minimized.
- Dust generating sources will be identified and proper control measure will be adopted.
- Periodic medical examinations will be provided for all workers.
- Strict observance of the provisions of DGMS Acts, Rules and Regulations in respect of safety both by management and the workers.
- The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centres. All personal protective equipment's will be provided to them.
- A safety committee meeting every month will be organized to discuss the safety of the mines and the persons employed.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.

FIGURE 10.1: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS – P2



10.9.3 Health and Safety Training Programme

The Proponents will provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centres in the State and engage

Environmental Consultants to provide periodical training to all the employees to carry out the mining operation in and eco-friendly manner.

TABLE 10.10: LIST OF PERIODICAL TRAININGS PROPOSED FOR EMPLOYEES – P2

Course	Personnel	Frequency	Duration	Instruction
New-Employee Training	All new employees exposed to mine hazards	Once	One week	Employee rights Supervisor responsibilities Self-rescue Respiratory devices Transportation controls Communication systems Escape and emergency evacuation Ground control hazards Occupational health hazards Electrical hazards First aid Explosives
Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul Road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health & safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new-hire training	Yearly	One week	Required health and safety standards Transportation controls Communication systems Escape ways, emergency evacuations Fire warning Ground control hazards First aid Electrical hazards Accident prevention Explosives Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance Emergency evacuation procedures Health standards Safety rules Respiratory devices

Source: Proposed by FAE's & EIA Coordinator as per DGMS Norms

10.9.4 Budgetary Provision for Environmental Management –

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.11 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.11: EMP BUDGET FOR PROPOSED PROJECT – P2

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	12100	12100
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 3 Units	75000	7500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 2 Units	10000	500
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	24200
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0

	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Compentent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	270057
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	12100	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	242000	10000
	3. Progressive Closure Activity Green belt development - 600 trees per one hectare - Proposal for 900Trees - (200Inside Lease Area & 400Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendmets, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	40000	6000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	120000	12000

	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	44985	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	612821	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 18 Employees	72000	18000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	18000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	2420
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	60500	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000

	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR, 1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
CER	As per MoEF & CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoEF & CC OM	500000	0
TOTAL			2103700	1352777

In order to implement the environmental protection measures, an amount of Rs.21.03 lakhs as capital cost and recurring cost as Rs. 13.52 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

Year Wise Break Up	
1st Year	₹3,45,6476.8
2nd Year	₹14,20,415.64
3rd Year	₹14,91,436.422
4th Year	₹15,66,008.243
5th Year	₹16,89,293.655
Total	₹ 96 lakhs

10.10 CONCLUSION –

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct a review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN – P3

10.0 General

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of Environmental Management plan will ensure to keep all the environmental parameters of the project in respect of Ambient Air quality, Water quality, Socio – economic improvement standards.

Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.1 ENVIRONMENTAL POLICY

The Project Proponent is committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent **Thiru.S.Durairaj** will –

- Allocate necessary resources to ensure the implementation of the environmental policy
- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts
- Implement monitoring programmes to provide early warning of any deficiency or unanticipated performance in environmental safeguards
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement

Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level of each Proposed Quarry.

The said team will be responsible for:

- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Analysis of the water and air samples collected through external laboratory
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme

- 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.

10.2 Land Environment Management –

Land degradation is one of the major adverse impacts of opencast mining in the form of excavated voids and contamination of soil affects the viability of the soil resource.

Soil contamination then has a number of flow-on effects like, Inhibition of plant growth, and death of existing plants in contaminated areas and contamination of soil also has potential to impact on a surface water quality and groundwater resources.

TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Re fueling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
Greenbelt development and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager
Thick plantation using native flora species will be carried out on the top benches.	Mines Manager
There will be formation of a small surface water body in the mined out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.3 Soil Management

Top Soil Management –

- There is no topsoil for this project site.

Overburden / Waste and Side Burden Management –

- 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.

TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Garland drains are to be paved around the quarry pit area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface water via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer
Empty sediment from sediment traps	Environment Officer

Maintain, repair or upgrade garland drain system	
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.4 Water Management

In the proposed quarrying project, no process is involved for the effluent generation, only oil & grease from the machinery wash is anticipated and domestic sewage from mine office.

The quarrying operation is restricted upto a depth of 44m , the water table in the area is 55 m – 60 m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT

CONTROL	RESPONSIBILITY
To maximize the reuse of pit water for water supply	Mines Foreman
Temporary and permanent garland drain will be constructed to contain the catchments of the mining area and to divert runoff from undisturbed areas through the mining areas	Mines Manager
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations	Mines Manager
Ensure there is no process effluent generation or discharge from the project area into water bodies	Mines Foreman
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Foreman
Monthly or after rainfall, inspection for performance of water management structures and systems	Mines Manager
Conduct ground water and surface water monitoring for parameters specified by CPCB	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

10.5 Air Quality Management

The existing and proposed mining activities would result in the increase of particulate matter concentrations due to fugitive dust. Water sprinkling twice per day on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements

TABLE 10.4: PROPOSED CONTROLS FOR AIR ENVIRONMENT

CONTROL	RESPONSIBILITY
Generation of dust during excavation is minimized by daily (twice) water sprinkling on working face and daily (twice) water sprinkling on haul road	Mines Manager
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself is implemented	Mines Manager
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution	Mines Manager
Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Mines Manager
Provision of Dust Mask to all workers	Mines Manager

Greenbelt development all along the periphery of the project area	Mines Manager
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Source: Proposed by FAE's & EIA Coordinator

10.6 Noise Management

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and other allied activities. No mining activities are planned during night time.

TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT

CONTROL	RESPONSIBILITY
Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Foreman
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Mines Manager
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Mining Mate
Provision of effective silencers for mining machinery and transport vehicles	Mines Manager
Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring shall be carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.7 Ground Vibration and Fly Rock Control

TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK

CONTROL	RESPONSIBILITY
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Suitable spacing and burden will be maintained to avoid misfire / fly rocks	Manager Mines
Number of blast holes will be restricted to control ground vibrations	Manager Mines
Blasting will be carried out only during noon time	Mining Mate
Undertake noise or vibration monitoring	Mines Manager
ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material	Mines Foreman

Source: Proposed by FAE's & EIA Coordinator

10.8 Biological Environment Management

The proponent will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc.,

Following control measures are proposed for its management and will be the responsibility of the Mines Manager.

- Greenbelt development all along the safety barrier of the project area
- It is also proposed to implement the greenbelt development programme and post plantation status will be regularly checked for every season.
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
- Year wise greenbelt development will be recorded and monitored
 - Based on the area of plantation.
 - Period of plantation
 - Type of plantation
 - Spacing between the plants
 - Type of manuring and fertilizers and its periods
 - Lopping period, interval of watering
 - Survival rate
 - Density of plantation
- The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

10.8.1 Green Belt Development Plan

About 740 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 10.7 PROPOSED GREENBELT ACTIVITIES FOR 5 YEAR PLAN PERIOD – P3

PROPOSAL – P3					
Year	No. of trees proposed to be planted	Survial %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	740	80	Near 7.5m safety distance, panchayat road and village road	Neem, Pongamia Pinnata, Casuarina etc.,	590

Source: Conceptual Plan of Approved Mining plan& proposed by FAE's & EIA Coordinator

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil. Conserve moisture for increasing ground water recharging,
- Restore the ecology of the area, restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community.

A well-planned Green Belt with multi rows (three tiers) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul roads to prevent air, dust noise propagation to undesired places and efforts will be taken for the enhancement of survival rate.

10.8.2 Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- Creating of bio-diversity.
- Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- Efficient in absorbing pollutants without major effects on natural growth

TABLE 10.8: RECOMMENDED SPECIES TO PLANT IN THE GREENBELT – P3

S.No	Botanical Name	Local Name	Importance
1	Azadirachta indica	Neem, Vembu	Neem oil & neem products
2	Tamarindus indica	Tamarind	Edible & Medicinal and other Uses
3	Polyalthia longifolia	Nettilinkam	Tall and evergreen tree
4	Borassus Flabellifer	Palmyra Palm	Tall Wind breaker tree and its fruits are edible

Source: Proposed by FAE's & EIA Coordinator

10.9 Occupational safety & health management

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health impact in quarries are fugitive dust and noise. Safety of employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.9.1 Medical Surveillance and Examinations –

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline measures for determining changes in health.
- Evaluating the effect of noise on workers
- Enabling corrective actions to be taken when necessary
- Providing health education

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail medical examination at the time of employment. The medical examination covers the following tests under mines act 1952.

- General Physical Examination and Blood Pressure
- X-ray Chest and ECG
- Sputum test
- Detailed Routine Blood and Urine examination

The medical histories of all employees will be maintained in a standard format annually. Thereafter, the employees will be subject to medical examination annually. The below tests keep upgrading the database of medical history of the employees.

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Sl.No	Activities	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
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Medical Follow ups:- Work force will be divided into three targeted groups age wise as follows:-		
Age Group	PME as per Mines Rules 1955	Special Examination
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Above 40 Years	Once in a Three Years	In case of emergencies
Medical help on top priority immediately after diagnosis/ accident is the essence of preventive aspects.		

10.9.2 Proposed Occupational Health and Safety Measures –

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- Lightweight and loose fitting clothes having light colours will be preferred to wear.
- Noise exposure measurements will be taken to determine the need for noise control strategies.
- The personal protective equipment will be provided for mine workers.
- Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment.
- At noisy working activity, exposure time will be minimized.
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- The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centres. All personal protective equipment's will be provided to them.
- A safety committee meeting every month will be organized to discuss the safety of the mines and the persons employed.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.

FIGURE 10.1: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS – P3

10.9.3 Health and Safety Training Programme

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Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health & safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new-hire training	Yearly	One week	Required health and safety standards Transportation controls Communication systems Escape ways, emergency evacuations Fire warning Ground control hazards

				First aid Electrical hazards Accident prevention Explosives Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance Emergency evacuation procedures Health standards Safety rules Respiratory devices

Source: Proposed by FAE's & EIA Coordinator as per DGMS Norms

10.9.4 Budgetary Provision for Environmental Management –

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.11 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

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	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 3 Units	100000	10000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 2 Units	5000	250
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	29500
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0

	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	293023
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	14750	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	295000	10000
	3. Progressive Closure Activity Green belt development - 600 trees per one hectare - Proposal for 740Trees - (300 Inside Lease Area & 440 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendmets, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	60000	9000

		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	132000	13200
	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	58950	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	664936	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 19 Employees	76000	19000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	19000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	2950
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000

	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	73750	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			2231250	1392673

In order to implement the environmental protection measures, an amount of Rs.22.31 lakhs as capital cost and recurring cost as Rs. 13.92 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

Year Wise Break Up	
1st Year	₹3623923
2nd Year	₹1462306
3rd Year	₹1535422
4th Year	₹1612193
5th Year	₹1751752
Total	₹ 100 lakhs

10.10 CONCLUSION

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct a review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN – P4

10.0 General

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of Environmental Management plan will ensure to keep all the environmental parameters of the project in respect of Ambient Air quality, Water quality, Socio – economic improvement standards.

Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.1 ENVIRONMENTAL POLICY

The Project Proponent is committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent **Thiru.N. Thangavel** will –

- Allocate necessary resources to ensure the implementation of the environmental policy
- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts
- Implement monitoring programmes to provide early warning of any deficiency or unanticipated performance in environmental safeguards
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement

Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level of each Proposed Quarry.

The said team will be responsible for:

- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Analysis of the water and air samples collected through external laboratory
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme

- 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.

10.2 Land Environment Management –

Land degradation is one of the major adverse impacts of opencast mining in the form of excavated voids and contamination of soil affects the viability of the soil resource.

Soil contamination then has a number of flow-on effects like, Inhibition of plant growth, and death of existing plants in contaminated areas and contamination of soil also has potential to impact on a surface water quality and groundwater resources.

TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Re fueling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
Greenbelt development and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager
Thick plantation using native flora species will be carried out on the top benches.	Mines Manager
There will be formation of a small surface water body in the mined out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.3 Soil Management

Top Soil Management –

- There is no topsoil for this project site.

Overburden / Waste and Side Burden Management –

- 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.

TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Garland drains are to be paved around the quarry pit area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface water via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer
Empty sediment from sediment traps	Environment Officer

Maintain, repair or upgrade garland drain system	
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.4 Water Management

In the proposed quarrying project, no process is involved for the effluent generation, only oil & grease from the machinery wash is anticipated and domestic sewage from mine office.

The quarrying operation is restricted upto a depth of 40m as per the ToR, the water table in the area is 70m – 65m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT

CONTROL	RESPONSIBILITY
To maximize the reuse of pit water for water supply	Mines Foreman
Temporary and permanent garland drain will be constructed to contain the catchments of the mining area and to divert runoff from undisturbed areas through the mining areas	Mines Manager
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations	Mines Manager
Ensure there is no process effluent generation or discharge from the project area into water bodies	Mines Foreman
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Foreman
Monthly or after rainfall, inspection for performance of water management structures and systems	Mines Manager
Conduct ground water and surface water monitoring for parameters specified by CPCB	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

10.5 Air Quality Management

The existing and proposed mining activities would result in the increase of particulate matter concentrations due to fugitive dust. Water sprinkling twice per day on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements

TABLE 10.4: PROPOSED CONTROLS FOR AIR ENVIRONMENT

CONTROL	RESPONSIBILITY
Generation of dust during excavation is minimized by daily (twice) water sprinkling on working face and daily (twice) water sprinkling on haul road	Mines Manager
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself is implemented	Mines Manager
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution	Mines Manager
Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Mines Manager

Provision of Dust Mask to all workers	Mines Manager
Greenbelt development all along the periphery of the project area	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.6 Noise Management

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and other allied activities. No mining activities are planned during night time.

TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT

CONTROL	RESPONSIBILITY
Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Foreman
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Mines Manager
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Mining Mate
Provision of effective silencers for mining machinery and transport vehicles	Mines Manager
Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring shall be carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.7 Ground Vibration and Fly Rock Control

TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK

CONTROL	RESPONSIBILITY
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Suitable spacing and burden will be maintained to avoid misfire / fly rocks	Manager Mines
Number of blast holes will be restricted to control ground vibrations	Manager Mines
Blasting will be carried out only during noon time	Mining Mate
Undertake noise or vibration monitoring	Mines Manager
ensure blast holes are adequately stemmed for the depth of the hole and stemmed with	Mines Foreman

suitable angular material	
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Source: Proposed by FAE's & EIA Coordinator

10.8 Biological Environment Management

The proponent will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc.,

Following control measures are proposed for its management and will be the responsibility of the Mines Manager.

- Greenbelt development all along the safety barrier of the project area
- It is also proposed to implement the greenbelt development programme and post plantation status will be regularly checked for every season.
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
- Year wise greenbelt development will be recorded and monitored
 - Based on the area of plantation.
 - Period of plantation
 - Type of plantation
 - Spacing between the plants
 - Type of manuring and fertilizers and its periods
 - Lopping period, interval of watering
 - Survival rate
 - Density of plantation
- The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

10.8.1 Green Belt Development Plan

About 2300 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 10.7 PROPOSED GREENBELT ACTIVITIES FOR 5 YEAR PLAN PERIOD – P4

PROPOSAL – P3					
Year	No. of trees proposed to be planted	Survial %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	2300	80	Near 7.5m safety distance, panchayat road and village road	Neem, Pongamia Pinnata, Casuarina etc.,	1850

Source: Conceptual Plan of Approved Mining plan& proposed by FAE's & EIA Coordinator

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil, Conserve moisture for increasing ground water recharging,
- Restore the ecology of the area, restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community.

A well-planned Green Belt with multi rows (three tiers) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul roads to prevent air, dust noise propagation to undesired places and efforts will be taken for the enhancement of survival rate.

10.8.2 Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- Creating of bio-diversity.
- Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- Efficient in absorbing pollutants without major effects on natural growth

TABLE 10.8: RECOMMENDED SPECIES TO PLANT IN THE GREENBELT – P3

S.No	Botanical Name	Local Name	Importance
1	Azadirachta indica	Neem, Vembu	Neem oil & neem products
2	Tamarindus indica	Tamarind	Edible & Medicinal and other Uses
3	Polyalthia longifolia	Nettilinkam	Tall and evergreen tree
4	Borassus Flabellifer	Palmyra Palm	Tall Wind breaker tree and its fruits are edible

Source: Proposed by FAE's & EIA Coordinator

10.9 Occupational safety & health management

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health impact in quarries are fugitive dust and noise. Safety of employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.9.1 Medical Surveillance and Examinations –

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline measures for determining changes in health.
- Evaluating the effect of noise on workers
- Enabling corrective actions to be taken when necessary
- Providing health education

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail medical examination at the time of employment. The medical examination covers the following tests under mines act 1952.

- General Physical Examination and Blood Pressure
- X-ray Chest and ECG
- Sputum test
- Detailed Routine Blood and Urine examination

The medical histories of all employees will be maintained in a standard format annually. Thereafter, the employees will be subject to medical examination annually. The below tests keep upgrading the database of medical history of the employees.

TABLE 10.9: MEDICAL EXAMINATION SCHEDULE – P3

Sl.No	Activities	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
1	Initial Medical Examination (Mine Workers)					
A	Physical Check-up					

B	Psychological Test					
C	Audiometric Test					
D	Respiratory Test					
2	Periodical Medical Examination (Mine Workers)					
A	Physical Check – up					
B	Audiometric Test					
C	Eye Check – up					
D	Respiratory Test					
3	Medical Camp (Mine Workers & Nearby Villagers)					
4	Training (Mine Workers)					

Medical Follow ups:- Work force will be divided into three targeted groups age wise as follows:-		
Age Group	PME as per Mines Rules 1955	Special Examination
Less than 25 years	Once in a Three Years	In case of emergencies
Between 25 to 40 Years	Once in a Three Years	In case of emergencies
Above 40 Years	Once in a Three Years	In case of emergencies
Medical help on top priority immediately after diagnosis/ accident is the essence of preventive aspects.		

10.9.2 Proposed Occupational Health and Safety Measures –

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- Lightweight and loose-fitting clothes having light colours will be preferred to wear.
- Noise exposure measurements will be taken to determine the need for noise control strategies.
- The personal protective equipment will be provided for mine workers.
- Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment.
- At noisy working activity, exposure time will be minimized.
- Dust generating sources will be identified and proper control measure will be adopted.
- Periodic medical examinations will be provided for all workers.
- Strict observance of the provisions of DGMS Acts, Rules and Regulations in respect of safety both by management and the workers.
- The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centres. All personal protective equipment's will be provided to them.
- A safety committee meeting every month will be organized to discuss the safety of the mines and the persons employed.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.

FIGURE 10.1: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS – P3

10.9.3 Health and Safety Training Programme

The Proponents will provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centres in the State and engage Environmental Consultants to provide periodical training to all the employees to carry out the mining operation in and eco-friendly manner.

TABLE 10.10: LIST OF PERIODICAL TRAININGS PROPOSED FOR EMPLOYEES – P3

Course	Personnel	Frequency	Duration	Instruction
New-Employee Training	All new employees exposed to mine hazards	Once	One week	Employee rights Supervisor responsibilities Self-rescue Respiratory devices Transportation controls Communication systems Escape and emergency evacuation Ground control hazards Occupational health hazards Electrical hazards First aid Explosives
Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health & safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new-hire training	Yearly	One week	Required health and safety standards Transportation controls Communication systems Escape ways, emergency evacuations Fire warning Ground control hazards

				First aid Electrical hazards Accident prevention Explosives Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance Emergency evacuation procedures Health standards Safety rules Respiratory devices

Source: Proposed by FAE's & EIA Coordinator as per DGMS Norms

10.9.4 Budgetary Provision for Environmental Management –

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.11 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.11: EMP BUDGET FOR PROPOSED PROJECT – P4

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	46200	46200
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 3 Units	275000	27500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 4 Units	20000	1000
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	92400
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0

	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	1144741
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	46200	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	924000	10000
	3. Progressive Closure Activity Green belt development - 600 trees per one hectare - Proposal for 2300Trees - (300 Inside Lease Area & 2000 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	60000	9000

		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	600000	60000
	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	87000	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budget and not necessarily implemented in the Project Site	2597682	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 43 Employees	172000	43000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	43000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	9240
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000

	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	231000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			3834400	2458081

In order to implement the environmental protection measures, an amount of Rs.38.34 lakhs as capital cost and recurring cost as Rs. 24.58lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

Year Wise Break Up	
1st Year	₹6,292,481
2nd Year	₹25,80,985.1
3rd Year	₹2,71,0034.3
4th Year	₹28,45,536
5th Year	₹30,74,812.8
Total	₹ 175lakhs

10.10 CONCLUSION

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct a review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER – 11: SUMMARY AND CONCLUSIONS

Pachapalayam Rough Stone and Gravel Cluster Quarries (13.00.5ha) falls under “B” category as per MoEF & CC Notification (S.O. 3977 (E)).

Now, 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.

A detailed Draft EIA/ EMP Report is prepared for public and other stakeholders' suggestions and a Final EIA/ EMP Report will be prepared based on the outcome of Public Consultation.

Environmental monitoring and audit mechanism have been recommended before and after commencement of the project, where necessary, to verify the accuracy of the EIA predictions and the effectiveness of recommended mitigation measures.

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the months March to May 2022 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

The project proponent ensures to obtain necessary clearances and quarrying will be carried out as per rules and regulations. The Mining Activity will be carried out in a phased manner as per the approved mining plan after obtaining EC, CTO from TNPCB, execution of lease deed and obtaining DGMS Permission and working will be carried out under the supervision of Competent Persons employed.

Overall, the EIA report has predicted that the project will comply with all environment standards and legislation after commencement of the project and operational stage mitigation measures are implemented.

Mining operations has positive impact on environment and socio economy such as landscape improvement, water as by-product, economy development and better public services, providing and supply of Rough Stone & Gravel as per market demand.

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 91 people directly in the cluster and indirectly around 150 people.

As discussed, it is safe to say that the proposed quarries are not likely to cause any significant impact to the ecology of the area, as adequate preventive measures will be adopted to keep the various pollutants within the permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigate technique, as well as to serve as biological indicators for the pollutants released from the Pachapalayam Rough Stone and Gravel Cluster Quarries (13.00.5ha).

CHAPTER 12.0: DISCLOSURE OF CONSULTANTS

The Project Proponent's –

1. **Thiru.L. Thangarasu**
2. **Thiru.D. Karthikeyan**
3. **Thiru.S. Durairaj**
4. **Thiru.N.Thangavel**

have engaged M/s Geo Exploration and Mining Solutions, an Accredited Organization under Quality Council of India – National Accreditation Board for Education & Training, New Delhi, for carrying out the EIA Study as per the ToR Issued.

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004

Tamil Nadu, India

Email: infogeoexploration@gmail.com

Web: **www.gemssalem.com**

Phone: 0427 2431989.

The Accredited Experts and associated members who were engaged for this EIA study as given below

Sl.No.	Name of the expert	In house/ Empanelled	EIA Coordinator		FAE	
			Sector	Category	Sector	Category
1	Dr. M. Ifthikhar Ahmed	In-house	1	A	WP GEO SC	B A A
2	Dr. P. Thangaraju	In-house	-	-	HG GEO	A A
3	Mr. A. Jagannathan	In-house	-	-	AP NV SHW	B A B
4	Mr. N. Senthilkumar	Empanelled	38 28	B B	AQ WP RH	B B A
5	Mrs. Jisha parameswaran	In-house	-	-	SW	B
6	Mr. Govindasamy	In-house	-	-	WP	B
7	Mrs. K. Anitha	In-house	-	-	SE	A
8	Mrs. Amirtham	In-house	-	-	EB	B
9	Mr. Alagappa Moses	Empanelled	-	-	EB	A
10	Mr. A. Allimuthu	In-house	-	-	LU	B
11	Mr. S. Pavel	Empanelled	-	-	RH	B
12	Mr. J. R. Vikram Krishna	Empanelled	-	-	SHW RH	A A

Abbreviations	
EC	EIA Coordinator
AEC	Associate EIA Coordinator
FAE	Functional Area Expert
FAA	Functional Area Associates
TM	Team Member
GEO	Geology
WP	Water pollution monitoring, prevention and control
AP	Air pollution monitoring, prevention and control
LU	Land Use
AQ	Meteorology, air quality modeling, and prediction
EB	Ecology and bio-diversity
NV	Noise and vibration
SE	Socio economics
HG	Hydrology, ground water and water conservation
SC	Soil conservation
RH	Risk assessment and hazard management
SHW	Solid and hazardous wastes
MSW	Municipal Solid Wastes
ISW	Industrial Solid Wastes
HW	Hazardous Wastes

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

Declaration by experts contributing to the EIA/EMP for Pachapalayam Rough Stone and Gravel Cluster Quarries (13.00.5ha) in Pachapalayam Village of Suler Taluk, Coimbatore District of Tamil Nadu. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge.

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

Name: **Dr. M. Ifthikhar Ahmed**

Designation: **EIA Coordinator**

Date & Signature:




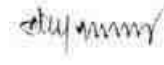

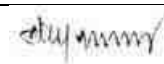












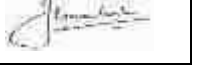
Period of Involvement: **January 2022 to till date**

Associated Team Member with EIA Coordinator:


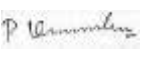

1. **Mr. S. Nagamani**
2. **Mr. Viswanathan**
3. **Mr. Santhoshkumar**
4. **Mr. S. Ilavarasan**

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No.	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	<ul style="list-style-type: none"> ▪ Identification of different sources of air pollution due to the proposed mine activity ▪ Prediction of air pollution and propose mitigation measures / control measures 	Mr. A. Jagannathan	
2	WP	<ul style="list-style-type: none"> ▪ Suggesting water treatment systems, drainage facilities ▪ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures. 	Dr. M. Ifthikhar Ahmed	
			Mr. N. Senthilkumar	
3	HG	<ul style="list-style-type: none"> ▪ Interpretation of ground water table and predict impact and propose mitigation measures. ▪ Analysis and description of aquifer Characteristics 	Dr. P. Thangaraju	
4	GEO	<ul style="list-style-type: none"> ▪ Field Survey for assessing the regional and local geology of the area. ▪ Preparation of mineral and geological maps. ▪ Geology and Geo morphological analysis/description and Stratigraphy/Lithology. 	Dr. M. Ifthikhar Ahmed	
			Dr. P. Thangaraju	
5	SE	<ul style="list-style-type: none"> ▪ Revision in secondary data as per Census of India, 2011. ▪ Impact Assessment & Preventive Management Plan ▪ Corporate Environment Responsibility. 	Mrs. K. Anitha	

6	EB	<ul style="list-style-type: none"> Collection of Baseline data of Flora and Fauna. Identification of species labelled as Rare, Endangered and threatened as per IUCN list. Impact of the project on flora and fauna. Suggesting species for greenbelt development. 	Mrs. Amirtham	
			Mr. Alagappa Moses	
7	RH	<ul style="list-style-type: none"> Identification of hazards and hazardous substances Risks and consequences analysis Vulnerability assessment Preparation of Emergency Preparedness Plan Management plan for safety. 	Mr. N. Senthilkumar	
			Mr. S. Pavel	
			Mr. J. R. Vikram Krishna	
8	LU	<ul style="list-style-type: none"> Construction of Land use Map Impact of project on surrounding land use Suggesting post closure sustainable land use and mitigative measures. 	Mr. A. Allimuthu	
9	NV	<ul style="list-style-type: none"> Identify impacts due to noise and vibrations Suggesting appropriate mitigation measures for EMP. 	Mr. A. Jagannathan	
10	AQ	<ul style="list-style-type: none"> Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. Recommending mitigations measures for EMP 	Mr. N. Senthilkumar	
11	SC	<ul style="list-style-type: none"> Assessing the impact on soil environment and proposed mitigation measures for soil conservation 	Dr. M. Ifthikhar Ahmed	
12	SHW	<ul style="list-style-type: none"> Identify source of generation of non-hazardous solid waste and hazardous waste. Suggesting measures for minimization of generation of waste and how it can be reused or recycled. 	Mr. A. Jagannathan	
			Mr. J. R. Vikram Krishna	

LIST OF TEAM MEMBERS ENGAGED IN THIS PROJECT

Sl.No.	Name	Functional Area	Involvement	Signature
1	Mr. S. Nagamani	AP; GEO; AQ	<ul style="list-style-type: none"> Site Visit with FAE Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures Provide inputs on Geological Aspects Analyse & provide inputs and assist FAE with meteorological data, emission estimation, AERMOD modelling and suggesting control measures 	
2	Mr. Viswanathan	AP; WP; LU	<ul style="list-style-type: none"> Site Visit with FAE Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures Assisting FAE on sources of water pollution, its impacts and suggest control measures Assisting FAE in preparation of land use maps 	
3	Mr. Santhoshkumar	GEO; SC	<ul style="list-style-type: none"> Site Visit with FAE Provide inputs on Geological Aspects Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan Provide inputs & Assisting FAE with soil 	

			conservation methods and identifying impacts	
4	Mr. Umamahesvaran	GEO	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs on Geological Aspects ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan 	<i>J. Chandrasekhar</i>
5	Mr. A. Allimuthu	SE	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of data's ▪ Provide inputs by analysing primary and secondary data 	<i>Allimuthu</i>
6	Mr. S. Ilavarasan	LU; SC	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assisting FAE in preparation of land use maps ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts 	<i>S. Ilavarasan</i>
7	Mr. E. Vadivel	HG	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE & provide inputs on aquifer characteristics, ground water level/table ▪ Assist with methods of ground water recharge and conduct pump test, flow rate 	<i>E. Vadivel</i>
8	Mr. D. Dinesh	NV	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE and provide inputs on impacts due to proposed mine activity and suggest mitigation measures ▪ Assist FAE with prediction modelling 	<i>D. Dinesh</i>
9	Mr. Panneer Selvam	EB	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	<i>P. Panneer Selvam</i>
10	Mrs. Nathiya	EB	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	<i>T. Anand</i>

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, Dr. M. Ifthikhar Ahmed, Managing Partner, Geo Exploration and Mining Solutions hereby, confirm that the above-mentioned Functional Area Experts and Team Members prepared the EIA/EMP for Pachapalayam Rough Stone and Gravel Cluster Quarries (**13.00.5ha**) in Pachapalayam Village of Sular Taluk, Coimbatore District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge.

Signature & Date:



Name:

Dr. M. Ifthikhar Ahmed

Designation:

Managing Partner

Name of the EIA Consultant Organization:

M/s. Geo Exploration and Mining Solutions

NABET Certificate No & Issue Date:

NABET/EIA/2225/RA 0276 Dated: 20-2-2023

Validity:

Valid till 06.08.2025

ANNEXURE

PACHAPALAYAM ROUGH STONE AND GRAVEL QUARRIES

Pachapalayam Village,
Sulur Taluk,
Coimbatore District,
Tamil Nadu State.

CLUSTER EXTENT = 13.00.5 Ha

Project Proponent

S.Nos.	Proponent Name	Extent (Ha)	ToR
1	Thiru. L.Thangarasu	1.81.5	Lr.No.SEIAA- TN/F.No.9538/SEAC/ToR-1322/2023 Dated:10.02.2023
2	Thiru.D.Karthikeyan	1.21.0	Lr.No.SEIAA- TN/F.No.8860/SEAC/ToR-1122/2021 Dated:23.03.2022
3	Thiru.S.Durairaj	1.47.5	Lr.No.SEIAA- TN/F.No.9172/SEAC/ToR-1186/2022 Dated:06.07.2022
4	Thiru. N. Thangavelu,	4.62.0	Lr No.SEIAA- /F.No.10099/ToR- 1515/2023 Dated: 01.08.2023.

LIST OF ANNEXURES

CODE	DESCRIPTION	PAGE NO.
PROPOSED QUARRIES		
P1	COPY OF TERMS OF REFERENCE	1A-24A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	25A – 26A
	COPY OF MINE PLAN APPROVED LETTER AND EXISTING PIT LETTER	27A- 30A
	COPY OF APPROVED MINING PLAN	31A – 109A
	COPY OF ADDITIONAL DOCUMENTS	110A-126A
P2	COPY OF TERMS OF REFERENCE	127A-143A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	144A-146A
	COPY OF MINE PLAN APPROVED LETTER AND EXISTING PIT LETTER	147A-151A
	COPY OF APPROVED MINING PLAN	152A-216A
P3	COPY OF TERMS OF REFERENCE	217A-237A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	238A-239A
	COPY OF MINE PLAN APPROVED LETTER AND EXISTING PIT LETTER	240A-243A
	COPY OF APPROVED MINING PLAN	244A-302A
	COPY OF ADDITIONAL DOCUMENTS	303A-320A

P4	COPY OF TERMS OF REFERENCE	321A-344A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	345A-346A
	COPY OF MINE PLAN APPROVED LETTER AND EXISTING PIT LETTER	347A-350A
	COPY OF APPROVED MINING PLAN	351A-421A
	COPY OF ADDITIONAL DOCUMENTS	422A-424A
NEAREST PROPOSED QUARRY		
P5	COPY OF MINE PLAN APPROVED LETTER	425A-427A
	COPY OF BASE LINE MONITORING DATA	428A-473A
	COPY OF NABET CERTIFICATE	474A



THIRU.DEEPAK S.BILGI, I.F.S.
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.9538/SEAC/ToR-1322/2023 Dated:10.02.2023

To

L.Thangarasu
S/o.R.Lakshmanasamy,
No.3/87, West Arasur,
Sulur Taluk,
Coimbatore District - 641 407

Sir / Madam,

Sub: SEIAA, Tamil Nadu - Terms of Reference with Public Hearing (ToR) for the Proposed Rough stone & Gravel quarry over an extent of 1.81.5 Ha (Patta land) at Survey No. 408/2B & 408/2C in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu by Thiru.L.Thangarasu - 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/403944/2022, Dated: 16.10.2022.
 2. Your application submitted for Terms of Reference dated: 03.11.2022
 3. Minutes of the 346th Meeting of SEAC held on 12.01.2023
 4. Minutes of the 591st meeting of Authority held on 10.02.2023.

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


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The proponent, Thiru.L.Thangarasu has submitted application for ToR, in Form-I, Pre-Feasibility report for the Proposed Rough stone & Gravel quarry over an extent of 1.81.5 Ha (Patta land) at Survey No. 408/2B & 408/2C in Pachapalayam Village, Sulur Taluk, Coimbatore District Tamil Nadu.

Discussion by SEAC and the Remarks:-

Proposed Rough stone & Gravel quarry over an extent of 1.81.5 Ha Patta land at Survey No. 408/2B & 408/2C in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu by Thiru.L.Thangarasu - for Terms of Reference (SIA/TN/MIN/403944/2022, Dated: 16.10.2022).

The proposal was placed in this 346th meeting of SEAC held on 12.01.2023. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

The SEAC noted the following

1. The Project Proponent, Thiru.L.Thangarasu has applied for Terms of Reference for the Proposed Rough stone & Gravel quarry over an extent of 1.81.5 Ha of Patta land at Survey No. 408/2B & 408/2C in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.
2. The proposed quarry/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. The precise area communication was issued for the period of 5 years. The approved mining plan is for the period of five years & production should not exceed 48572 cu.m of Rough Stone, 1152 cu.m of Weathered Rock & 1080 Cu.m of Gravel. The ultimate depth is 30m BGL (2m Gravel + 3m Weathered Rock + 25m Rough stone).

Based on the presentation made by the proponent, SEAC decided to recommend grant of **Terms of Reference (TOR) with Public Hearing** subject to the following additional TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The proponent must submit certified compliance report obtained from IRO of MoEF&CC as per OM IA3-22/10/2022-IA.III Dated 08.06.2022.
2. The proponent shall furnish photographs of adequate fencing, green belt along the


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- periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
3. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
 4. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
 5. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.
 6. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.
 7. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
 8. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
 9. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
 10. 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,


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- 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. Highest production achieved in any one year
 - d. Detail of approved depth of mining.
 - e. Actual depth of the mining achieved earlier.
 - f. Name of the person already mined in that leases area.
 - g. If EC and CTO already obtained, the copy of the same shall be submitted.
 - h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
11. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
12. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
13. The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the prosed quarry based on the volume of rock handled & area of excavation.
14. 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.
15. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
16. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.


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17. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
18. 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.
19. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
20. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
21. 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.
22. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
23. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining


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activities could be considered.

24. 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.
25. Impact on local transport infrastructure due to the Project should be indicated.
26. 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.
27. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
28. Public Hearing points raised and commitments 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 and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
29. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
30. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the **appendix-I** in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with


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- regard to site-specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
34. A Disaster Management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and Management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
42. The PP shall prepare the EMP for the entire life/lease of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.


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43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.




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Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Apple marmelos</i>	Vilvam	விவம்
2	<i>Adenanthera pavonina</i>	Manjaci	மஞ்சரி அகாழகாழி
3	<i>Albizia lebbek</i>	Vaagu	வாகு
4	<i>Albizia amara</i>	Uai	உ.ஈ
5	<i>Bauhinia purpurus</i>	Mantharai	மந்தரை
6	<i>Bauhinia racemosa</i>	Aathu	ஆது
7	<i>Bauhinia tomentosa</i>	Iruvattu	இருவட்டு
8	<i>Enchymema axillaris</i>	Kattuma	கட்டமா
9	<i>Sesuvium flabellifer</i>	Pana	பாண
10	<i>Butea monosperma</i>	Murukkamaran	முருக்கமரம்
11	<i>Bobax cebu</i>	Ilavu, Sevilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punna	புண்ண
13	<i>Cassia fistula</i>	Sarabandrai	சரபாந்தரை
14	<i>Cassia roxburghii</i>	Sengandrai	செங்காந்தரை
15	<i>Chloroxylon swietenia</i>	Purasamaran	புரசாமரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கொங்கு, மஞ்சல்லவு
17	<i>Cordia dichotoma</i>	Nannoli	நாந்லி
18	<i>Cretes adansonii</i>	Mavalungun	மாவலுங்குண்ட
19	<i>Dillenia indica</i>	Uva, Uzha	உ.வ
20	<i>Dillenia pentagyna</i>	SaruUva, Sitrucha	சீடு உ.வ
21	<i>Diospyros ebenum</i>	Karungali	கரங்கலி
22	<i>Diospyros schlotheimia</i>	Vagaru	வாகரம்
23	<i>Ficus amplissima</i>	Kalluchi	கல்சூசி
24	<i>Hibiscus tiliaceu</i>	Aatrupoovarasu	ஆத்ரபூவரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சு
26	<i>Heliconia integrifolia</i>	Aayila	ஆயிலா
27	<i>Linnæa ceylanica</i>	Oduam	ஒடும
28	<i>Laerstroemia speciosa</i>	Poo Marudhu	பூ மரூது
29	<i>Lepisanthus tetraphylla</i>	Nekkottaimaram	நெககோட்டைமரம்
30	<i>Linnaea acuminata</i>	Vila maram	வில்லாமரம்
31	<i>Litsea glutinosa</i>	Pitiripattai	பிதிரிபட்டை
32	<i>Madhuca longifolia</i>	Iluppai	இலுப்பை
33	<i>Mimikara hexandra</i>	UlakkaiPaalai	உலக்கைபாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழாமரம்
35	<i>Mitragyna parvifolia</i>	Kadamba	கடம்பா
36	<i>Morinda pubescens</i>	Nura	நூர்
37	<i>Morinda citrifolia</i>	Vellu Nura	வெல்லு நூர்
38	<i>Phoenix sylvestris</i>	Eachu	ஏச்சு
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்


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40	<i>Premna mollissima</i>	Murus	முருகு
41	<i>Premna serratifolia</i>	Narumunnai	நாரமுனை
42	<i>Premna tomentosa</i>	Malapootaram	மலபூதரம்
43	<i>Prosepe cuneata</i>	Vanni maram	வாணி மாறம்
44	<i>Pterocarpus marsipium</i>	Vengai	வேங்கை
45	<i>Pteropermium canescens</i>	Vennangu, Tada	வேண்டங்கு
46	<i>Pteropermium zyllocarpum</i>	Folava	புலா
47	<i>Pultanea ruzburghi</i>	Karpala	கர்பலா
48	<i>Salweenia persica</i>	Ugga Maram	உகா மாறம்
49	<i>Sapindus emarginatus</i>	Manipungai, Soapuka	மாண்புங்குடி, சோபுகா
50	<i>Sida acuta</i>	Asoca	அசோகா
51	<i>Strychnos asper</i>	Piray maram	பிராய் மாறம்
52	<i>Strychnos nuxvomica</i>	Yeth	யேதா
53	<i>Strychnos potatorum</i>	Theethang Kottai	தேத்தங்கு கோட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia bellaria</i>	Thundi	தாண்டி
56	<i>Terminalia arjuna</i>	Veni marudhu	வேணி மாறாடறு
57	<i>Toona ciliata</i>	Sandhana vembu	சாந்தாணா வெம்பு
58	<i>Thespesia populnea</i>	Pitavaru	பிதாவூர்
59	<i>Walsuratrifoliata</i>	valvura	வால்வூர்
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பலை
61	<i>Pythecolobium dulce</i>	Kodukkapuli	கொடுக்காபுளி

Discussion by SEIAA and the Remarks:-


The proposal was placed in the 591st Authority meeting held on 10.02.2023. The authority noted that this proposal was placed for appraisal in this 346th meeting of SEAC held on 12.01.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in 'Annexure B' of this minute.

Annexure 'B'

1. Cluster Management Committee, which must include all the proponents in the cluster as members including the existing as well as proposed quarry.


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2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & bio-diversity.
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - d) Possibilities of water contamination and impact on aquatic ecosystem health.
 - e) Agriculture, Forestry & Traditional practices.
 - f) Hydrothermal/Geothermal effect due to destruction in the Environment.


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- g) Bio-geochemical processes and its foot prints including environmental stress.
- h) Sediment geochemistry in the surface streams.
11. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
 12. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.
 13. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.
 14. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
 15. Impact on surrounding agricultural fields around the proposed mining Area.
 16. Erosion Control measures.
 17. Impact on soil flora & vegetation around the project site.
 18. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
 19. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.
 20. 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.
 21. 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.
 22. 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.
 23. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.


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24. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
26. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
27. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
28. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.
29. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
31. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
32. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.
33. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.
34. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
35. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.
36. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.


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37. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.
39. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.
40. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.
41. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

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.



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- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted.


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- Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
 - 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
 - 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
 - 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
 - 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
 - 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
 - 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
 - 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be


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


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

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

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- diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
 - 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
 - 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
 - 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
 - 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
 - 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
 - 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be


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detailed along with budgetary allocations.

- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by


MEMBER SECRETARY
SEIAA-TN



the Ministry shall also be filled and submitted.

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

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.


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SEIAA-TN

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


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

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared


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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.


MEMBER SECRETARY
SEIAA-TN

Copy to:

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

From
Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.L.Thangarasu,
S/o.R.Lashmanasamy,
3/87, West Arasur, Arasur,
Sulur,
Coimbatore.

Rc.No.239/Mines/2022 Dated: 11.07.2022

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Pachapalayam Village - Survey Nos.408/2B (0.95.5 Hec) and 408/2C (0.86.0 Hec) - over an extent of 1.81.5 hectares of patta land - Application preferred by Thiru.L.Thangarasu for quarrying Roughstone and Gravel – Precise area communicated - Details of quarries situated within 500 meter radial distance - Requested – furnished - reg.

- Ref. 1. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.239/Mines/2022, Dated: 22.06.2022.
2. Thiru.L.Thangarasu, Coimbatore letter dated: 04.07.2022.

I invite kind attention to the reference cited wherein Thiru.L.Thangarasu has been issued precise area for the grant of Rough Stone and Gravel quarry lease over an extent of 1.81.5 hectares of patta land in Survey Nos. 408/2B (0.95.5 Hec) and 408/2C (0.86.0 Hec) of Pachapalayam Village, Sulur Taluk, Coimbatore District.

In the reference 2nd cited of Thiru.L.Thangarasu has requested to furnish the details of quarries situated within 500 meter radial distance from the proposed area.

In this connection the details of abandoned, expired, existing and proposed quarries situated within 500 meter radial distance from the proposed area are furnished below.

i) Existing Quarries

Sl. No.	Name of the Owner	Village &S.F.Nos.	Extent in Hect.	Lease period	Remarks
1	A.Ayyasamy	Pachapalayam 407/1D	0.37.0	15.09.2017 to 14.09.2022	

2	N.Thangavel	Pachapalayam 407/2A & 407/2B	4.62.0	07.10.2017 to 06.10.2022	
3	M.Appusamy	Pachapalayam 408/1B, 408/2A & 408/3A	1.05.5	06.12.2017 to 05.12.2022	

ii) Expired Quarries

Sl. No.	Name of the Owner	Village &S.F.Nos.	Extent in Hect.	Lease period	Remarks
-NIL-					

iii) Abandoned quarries


Sl. No.	Name of the Owner	Village &S.F.Nos.	Extent in Hect.	Lease period	Remarks
1	E.Aanandhakumar	Pachapalayam 408/2E	1.28.5	11.05.2011 to 10.05.2016	

iv) Proposed quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Remarks
1	L.Thangarasu	Pachapalayam 408/2B & 408/2C	1.81.5	Subject area Precise area communicated
2	K.Ganesh	Pachapalayam 407/1F & 407/1G	2.46.0	Precise area communicated
3	D.Karthikeyan	Pachapalayam 409/1A1 (P), 409/1A2 (P), 409/1B1 & 409/1B2	1.21.0	Pending with SEIAA
4	S.Durairaj	Pachapalayam 408/3B & 408/3C	1.47.5	Pending with SEIAA

v) Future Proposed quarries

Sl. No.	Name of the Owner	Village &S.F.Nos.	Extent in Hect.	Remarks
---NIL---				


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

From
Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.L.Thangarasu,
S/o.R.Lashmanasamy,
3/87, West Arasur,
Arasur, Sulur,
Coimbatore.

Rc.No.239/Mines/2022 Dated: 11.07.2022

Sir,

Sub: Mines & Minerals - Minor Mineral - Coimbatore District - Sulur Taluk - Pachapalayam Village - Survey Nos.408/2B (0.95.5 Hec) and 408/2C (0.86.0 Hec) - over an extent of 1.81.5 hectares of patta land - Application preferred by Thiru.L.Thangarasu for quarrying Rough stone and Gravel - Submission of mining plan for approval - approved - regarding.

- Ref: 1. Quarry lease application dated 14.03.2022 preferred by Thiru.L.Thangarasu, Coimbatore.
2. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.239/Mines/2022, Dated: 22.06.2022.
3. Mining Plan submitted by Thiru.L.Thangarasu dated: 04.07.2022.

In response to the precise area communicated by the Assistant Director of Geology and Mining, Coimbatore the applicant Thiru.L.Thangarasu vide reference 3rd cited has submitted three copies of mining plan for the grant of Roughstone and Gravel quarry lease over an extent of 1.81.5 hectares of patta land in Survey Nos. 408/2B (0.95.5 Hec) and 408/2C (0.86.0 Hec) of Pachapalayam Village, Sulur Taluk, Coimbatore District.

2. The mining plan submitted for the grant of Rough stone and Gravel quarry lease over an extent of 1.81.5 hectares of patta land in Survey Nos. 408/2B (0.95.5 Hec) and 408/2C (0.86.0 Hec) of Pachapalayam Village, Sulur Taluk, Coimbatore District has been verified in detail.

3. As per the guidelines/instructions issued by the Commissioner of Geology and Mining, Chennai vide letter Rc.No.3868/LC/2012, dated 19.11.2012, the mining plan is hereby approved, subject to the following conditions:

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way imply the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Amended Act, 2015, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv) As per the Assistant Director, Dept. of Geology and Mining, Coimbatore letter Rc.No.239/Mines/2022, Dated: 22.06.2022 the following conditions have been incorporated in the Mining Plan.
- a) No hindrance should be caused to the adjacent pattadars and public.
- b) A safety distance of 7.5 meters should be provided for the adjacent patta lands from the lease applied area.
- c) DGPS survey should be done by the Government recognized agency and boundary stones should be erected along the entire boundary of the leased out area.
- d) Quarrying should be done in are seeking permission along after leaving proper safety distance.
- v) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

Encl: Two copies of Approved Mining Plan.


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

Copy submitted to:
The Director of Geology and Mining, Chennai-32.




From

Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To

Thiru.L.Thangarasu,
S/o.R.Lashmanasamy,
3/87, West Arasur,
Arasur, Suler,
Coimbatore.

Rc.No.239/Mines/2022 Dated: 11.07.2022

Sir,

Sub : Mines & Minerals – Minor Mineral – Coimbatore District – Suler Taluk – Pachapalayam Village – Survey Nos.408/2B (0.95.5 Hec) and 408/2C (0.86.0 Hec) - over an extent of 1.81.5 hectares of patta land - Application preferred by Thiru.L.Thangarasu for quarrying Rough stone and Gravel – Precise area communicated – Mining Plan – approved – further particulars called for – furnished – regarding.

- Ref: 1. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.239/Mines/2022, Dated: 22.06.2022.
2. Thiru.L.Thangarasu, Coimbatore letter dated: 04.07.2022.


In the reference 2nd cited Thiru.L.Thangarasu has requested to furnish certain particulars regarding the precise area granted in Survey Nos. 408/2B (0.95.5 Hec) and 408/2C (0.86.0 Hec) over an extent of 1.81.5 hectares of patta land in Pachapalayam Village, Suler Taluk, Coimbatore District. In this connection the following details are furnished.

The area was previously held under quarry lease and the details are as follows

Sl. No.	Name of the Exlessee	SF.No/ Extent	District Collector's proceedings No. & Date	Validity	Lease Period
1	A.Valliammal	408/2B & 408/2C 1.41.5 Hec	Rc.No.158181/ 93/L6 dt: 28.02.1994	5 Years	28.02.1994 to 27.02.1999
2	A.Valliammal	408/2B & 408/2C 1.41.5 Hec	Rc.No.1410/ 2000/MM2 dt: 21.03.2001	5 years	29.03.2001 to 28.03.2006

3.	A.Valliammal	408/2B & 408/2C 1.81.5 Hec	Rc.No.458/2006 /X1 dt: 21.04.2006	5 years	03.05.2006 to 02.05.2011
4.	A.Valliammal	408/2B & 408/2C 1.81.5 Hec	Rc.No.424/2011 /MM2 dt: 29.09.2011	3 Years	29.09.2011 to 28.09.2014
5	L.Thangarasu	408/2B & 408/2C 1.81.5 Hec	Rc.No.258/ Mines/2014 dt 07.08.2017	5 years	07.08.2017 to 06.08.2022

At the time of inspection, the quarry with a dimension of Pit I) 110 Meter (length) X 58 Meter (width) X 26 Meter depth and Pit II) 130 Meter (length) X 37 Meter (width) X 14 Meter depth are noticed in the applied area.

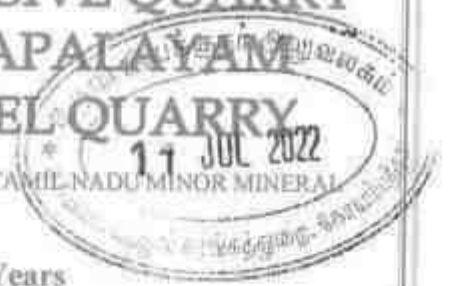

Assistant Director,
Dept. of Geology and Mining,
Coimbatore.


11/5/12


11/5/12

**MINING PLAN AND PROGRESSIVE QUARRY
CLOSURE PLAN FOR PACHAPALAYAM
ROUGH STONE AND GRAVEL QUARRY**

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERAL
CONCESSION RULES, 1959)



Patta Lands / Lease Period = Five Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 1.81.5 Ha
S.F.Nos : 408/2B and 408/2C
VILLAGE : PACHAPALAYAM
TALUK : SULUR
DISTRICT : COIMBATORE
STATE : TAMIL NADU

FOR

APPLICANT

Thiru. L. Thangarasu,
S/o. R. Lakshmanasamy,
No.3/87, West Arasur, Arasur,
Sulur Taluk, Coimbatore District,
Tamil Nadu State – 641 407.

PREPARED BY

Dr.P.Thangaraju, M.Sc., Ph.D.,

Qualified Person

No.17, Advaita Ashram Road,

Alagapuram, Salem - 636 004.

Cell: 94422 78601 & 94433 56539.

E-Mail: infogeoexploration@gmail.com

L. Thangarasu,
S/o. R. Lakshmanasamy,
No.3/87, West Arasur, Arasur,
Sulur Taluk, Coimbatore District,
Tamil Nadu State – 641 407.



CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Pachapalayam Rough Stone Quarry lease applied area over an extent of 1.81.5 Hectares of patta lands in S.F.Nos, 408/2B and 408/2C of Pachapalayam Village, Sulur Taluk, Coimbatore District and Tamil Nadu State has been prepared by

Dr.P.Thangaraju, M.Sc., Ph.D.,
Qualified Person

I request to the Assistant Director, Department of Geology and Mining, Coimbatore District to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address:

Dr.P.Thangaraju, M.Sc., Ph.D.,
No. 17, Advaita Ashram Road,
Alagapuram, Salem – 636 004.
Cell: 94422 78601 & 94433 56539.

I hereby undertake that all the modifications, if any made in the Mining Plan by the 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


L. Thangarasu

Place: Coimbatore
Date: 24.06.2022

L. Thangarasu,

S/o. R. Lakshmanasamy,

No.3/87, West Arasur, Arasur,

Sulur Taluk, Coimbatore District,

Tamil Nadu State – 641 407..



DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Pachapalayam Rough Stone Quarry lease applied area over an extent of 1.81.5 Hectares of patta lands in S.F.Nos. 408/2B and 408/2C of Pachapalayam Village, Sulur Taluk, Coimbatore District and 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

A handwritten signature in black ink, appearing to be 'L. Thangarasu'.

L. Thangarasu

Place: Coimbatore

Date: 24.06.2022

CERTIFICATE

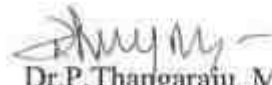


Certified that I am, **Dr.P.Thangaraju, M.Sc., Ph.D.**, having an office at Regd. Off. No.17, Advaita Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate Degree in Geology (M.Sc. Geology) from Madras University, Salem and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 stipulates the eligibility for preparing Mining plans as “(I)(a) a post graduate degree in Geology granted by a university established” and (I)(b) “Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree”. Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly, I am prepared this Mining Plan and Progressive Quarry Closure Plan in Respect of Pachapalayam Rough Stone Quarry lease applied area over an extent of 1.81.5 Hectares of patta lands in S.F.Nos. 408/2B and 408/2C of Pachapalayam Village, Suler Taluk, Coimbatore District and Tamilnadu State for **Thiru. L. Thangarasu**, S/o. R. Lakshmanasamy, residing at No.3/87, West Arasur, Arasur, Suler Taluk Coimbatore District, Tamil Nadu State – 641 407. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person


Dr.P.Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date:29.06.2022

Dr.P.Thangaraju, M.Sc., Ph.D.,
No. 17, Advaita Ashram Road,
Alagapuram, Salem – 636 004.
Cell: 94422 78601 & 94433 56539.



CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Prepared under Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959. The preparation of Mining Plan and Progressive Quarry Closure Plan for Pachapalayam Rough Stone Quarry lease applied area over an extent of 1.81.5 Hectares of patta lands in S.F.Nos. 408/2B and 408/2C of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Thiru. L. Thangarasu,
S/o. R. Lakshmanasamy,
No.3/87, West Arasur, Arasur,
Sulur Taluk, Coimbatore District,
Tamil Nadu State – 641 407..

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the Assistant Director, Department of Geology and Mining, Coimbatore District, 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 Qualified Person


Dr.P.Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 29.06.2022

Dr.P.Thangaraju, M.Sc., Ph.D.,

No. 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004.

Cell: 94422 78601 & 94433 56539..



CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations or Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Pachapalayam Rough Stone Quarry lease applied area over an extent of 1.81.5 Hectares of patta lands in S.F.Nos. 408/2B and 408/2C of Pachapalayam Village, Sulur Taluk, Coimbatore District and Tamil Nadu State has been prepared for

Thiru. L. Thangarasu,

S/o. R. Lakshmanasamy,

No.3/87, West Arasur, Arasur,

Sulur Taluk, Coimbatore District,

Tamil Nadu State – 641 407..

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, II 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 Qualified Person


Dr.P.Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 29.06.2022



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**MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN
FOR PACHAPALAYAM ROUGH STONE QUARRY OVER AN EXTENT OF
1.81.5 Ha IN PACHAPALAYAM VILLAGE, SULUR TALUK,
COIMBATORE 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. L. Thangarasu**, S/o. R. Lakshmanasamy, residing at No.3/87, West Arasur, Arasur, Sulur Taluk Coimbatore District, Tamil Nadu State – 641 407.

The applicant applied for Rough Stone quarry over an extent of 1.81.5 Hectares of patta lands in S.F.Nos. 408/2B and 408/2C of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State under Rule 19(1) and 20 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the Assistant Director, Department of Geology and Mining, Coimbatore District and passed a Precise area Communication letter vide **Re.No.239/Mines/2022, Dated:22.06.2022** to submit an approved Mining Plan and obtain Environmental Clearance from the SEIAA, Tamil Nadu with the conditions to provide:

1. No hindrance shall be caused to the Patta lands and Public while carrying out Rough stone and Gravel quarrying operations.
2. Quarrying should be left a safety distance of 7.5m to the adjacent Patta lands.
3. Each boundary pillar should be planted via inspected by a government approved company in accordance with DGPS (Differential Global Positioning System) in the lease area.
4. Quarrying should be done only in the remaining areas leaving a safety distance in the area of the field survey numbers seeking permission. Penalties will be levied and action will be taken to cancel the lease if quarrying is found to be beyond the boundaries of the leasing areas.
5. Quarrying should not be employed Child labor.

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12-13 of 2011 in Special Leave Petition SLP (C) No 19628-19629/2009, it has

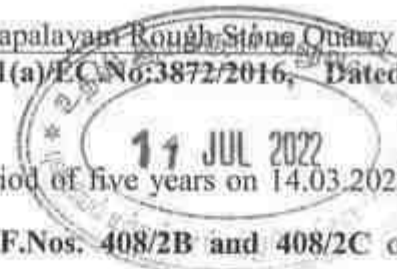
been now decided that all mining projects of minor minerals including their renewal irrespective of sizes of the lease would hence forth require prior environmental clearance mining project within the lease applied area up to less than 100Ha including projects or minor mineral with lease applied area less then 5Ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state notified by MoEF as prescribed procedure 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, Tamil Nadu, Rough Stone 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 - Pachapalayam
- b. Panchayat Union - Sulur
- c. The Geological Resources are **1,94,001m³** of Rough Stone, **4,530m³** of Weathered formation and **3,020m³** of Gravel in the entire area.
- d. The Total Mineable Reserves are **48,572m³** of Rough Stone, **1,152m³** of Weathered formation and **1080m³** of Gravel.
- e. The proposed quantity of reserves/ (level of production) to be mined are **48,572m³** of Rough Stone, **1152m³** of Weathered formation and **1080m³** of Gravel for five years in the entire area.
- f. Total extent of the lease applied area is about 1.81.5 Ha.
- g. Topography of the area = The area is flat topography
- h. Proposed Depth of mining = 30m (2m Gravel + 3m Weathered foramtion + 25m 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 previously granted in favour of Tmt. Valliammal, for quarrying roughstone and Gravel for three times (5+5+3 years), Previous quarry lease of three years granted by collector's proceeding vide **Rc.No.424/2011/MM2, dated: 29.09.2011** for the period of three years lease expired on 31.10.2014. Subsequently The quarry lease was granted in favour of Thiru. L. Thangarasu, for quarrying roughstone and Gravel and quarry lease of three years granted by collector's proceeding vide **Rc.No.258/Mines/2014, dated: 07.08.2017** for the period of five years from 07.08.2017 to 06.08.2022 and The applicant has obtained Environmental Clearance from the SEIAA,

Tamil Nadu vide Lr. No. SEIAA-TN/F.No.3605/1(a)/EC.No:3872/2016, Dated: 07.06.2017 for quarrying of Rough stone and Gravel.



k. Now the applicant has applied a quarry lease for the period of five years on 14.03.2022 over an extent of 1.81.5 Hectares of patta lands in S.F.Nos. 408/2B and 408/2C of Pachapalayam Village, Sulur Taluk, Coimbatore District. The application was meritoriously processed by the Assistant Director, Department of Geology and Mining, Coimbatore District and recommended the quarry lease for the period of five years.

l. The maximum dimension of the **existing quarry pit** is given table below (Refer Plate No. II and III).

Table - 1

Pits	Length (m) (Max)	Width (m) (Max)	Depth(m) (Max)
I	110	58	26m below ground level
II	130	37	14m below ground level

m. Method of mining / level of mechanization.

Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.

n. 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).

o. No trees will be uprooted due to this quarry operation.

p. The approach road from the main road to quarry is already in existence and same will be maintained in a good condition for the haulage of quarry materials and machineries.

q. There is No Export of this Rough Stone.

r. 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, archaeological importance, places of worships is marked and enclosed as Plate No. IA and IB.

s. The lease applied area is about 1.81.5Ha bounded by nine corners; the corners are designated as 1-9 clock-wise from the Southwestern corner and the Co - ordinates for all the corners are clearly marked in the Quarry Lease Plan and Surface Plan enclosed as Plate No.II.

- t. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are and marked in the topography, Geological Plan and section enclosed as Plate No. III.
- u. General conditions will not applicable for the proposed area. The area applied for lease is 10Km away from the,
- Interstate Boundary.
 - Protected area under wild life protection ACT 1972,
 - Critically polluted areas as identified by CPCB,
 - Notified Eco sensitive areas.
- v. There is no wastage anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- w. Around 11 employees are deploying in the quarrying operation.
- x. Total Cost of the project is about **Rs.60,16,000/-**.
- y. Infrastructures around the quarry lease applied area:

Table - 2

Particulars	Location	Approximate aerial distance from lease applied area.
Nearest Post Office	Idaiyalaiyam	3km - NE
Nearest School	Idaiyalaiyam	3km - NE
Nearest Dispensary	Chettipalayam	6km - NW
Nearest Town	Kinathukadavu	11km - SW
Nearest Police Station	Chettipalayam	6km - NW
Nearest Govt. Hospital	Kinathukadavu	11km - SW
Nearest D.S.P. Office	Coimbatore	19km - NW
Nearest Railway Station	Chettipalayam	6km - NW
Nearest Airport	Coimbatore	19km - NW
Nearest Seaport	Kochi	138km - SW
District Head quarters	Coimbatore	19km - NW

2.0 GENERAL INFORMATION

2.1 a) Name of the Applicant : Thiru. L. Thangarasu,
S/o. R. Lakshmanasamy,

b) Address of the Applicant (With Phone No and Aadhaar No.)

Address : No.3/87, West Arasur,
Arasur, Sulur Taluk
Coimbatore District

Pin Code : 641 407

Mobile No : +91 99447 75735

Aadhaar No : 9959 6832 7888

E-mail : thangarasu649@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 only.

b) Precise area communication letter details received from the Competent Authority of the Government:

The precise area communication letter was received from the Assistant Director, Department of Geology and Mining, Coimbatore District vide **Rc.No.239/Mines/2022, Dated:22.06.2022** to submit an approved mining plan and Environmental Clearance from the SEIAA, Tamil Nadu.

c) Period of permission / lease to be granted:

Five years.

d) Name and address of the Qualified Person preparing the mining plan:

Name : **Dr.P.Thangaraju, M.Sc., Ph.D.,**
Qualified Person

Address : No.17, Advaita Ashram Road,
Alagapuram, Salem - 636 004.

Mobile : 94422 78601 & 94433 56539

Telephone No. : 0427- 2431989

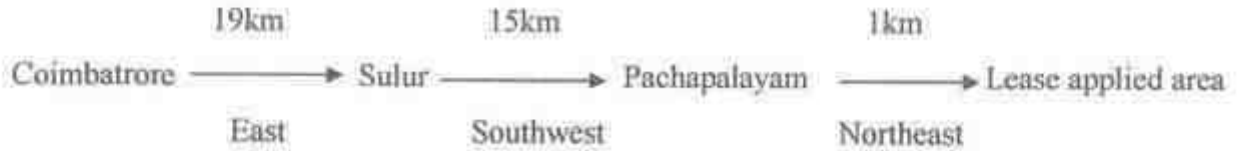
Email : infogeoexploration@gmail.com



3.0 LOCATION

a) Details of the area with location map:

The lease applied area is located about 19km Southeast of Coimbatore, 14km Southwest of Sulur and 1km Northeast side of Pachapalayam Village.



Location Map of the Lease Applied area

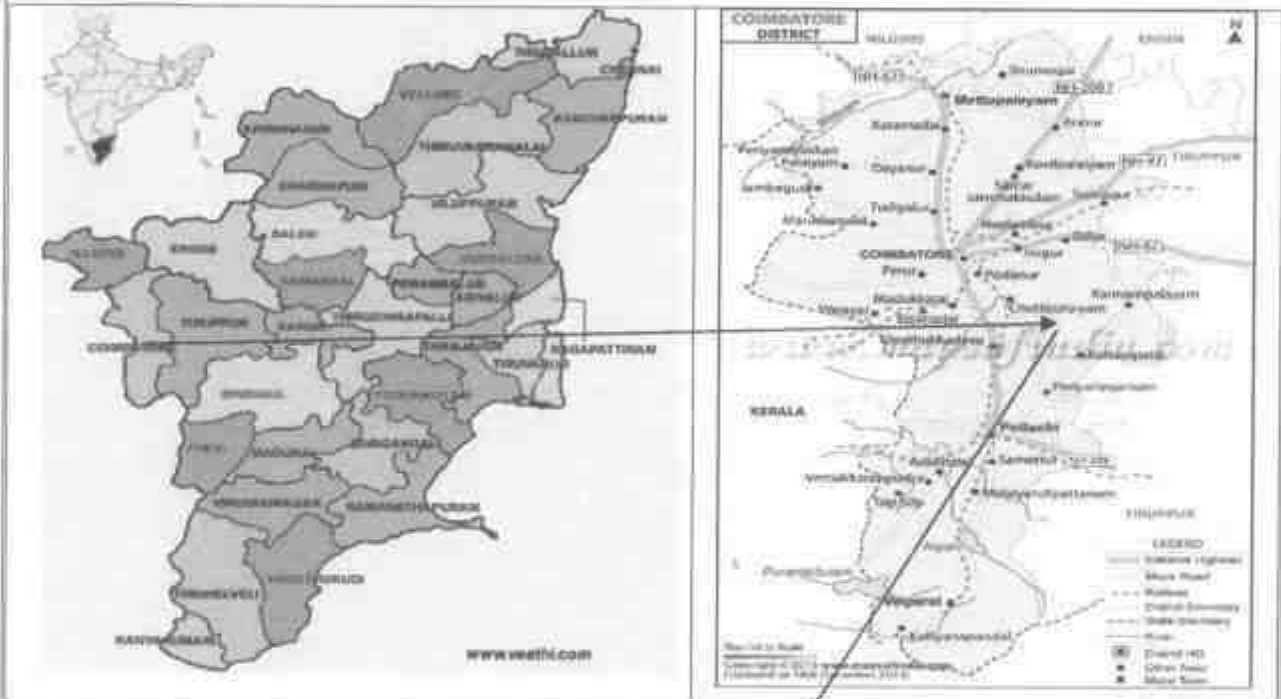


Table - 3

District	Taluk	Village	S.F. No.	Area in Hha.	Patta No.
Coimbatore	Sulur	Pachapalayam	408/2B	0.95.5	1437
			408/2C	0.86.0	
Total Extent				1.81.5	

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. Jointly registered in the name of the Thiru.S.Jagadesh and Tmt. L.Deivamani vide Patta No.1437. The applicant has obtained consent from the pattadars for the period of ten years. Refer the Patta copy and Consent Document as Annexure Nos. IV & VII.

d) Toposheet No. with latitude and longitude:

The lease applied area falls in the Toposheet No: **58 - F/01** Latitude between: **10°54'02.97"N to 10°54'07.85"N** and Longitude between: **77°05'13.59"E to 77°05'20.62"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 road (Earth road) is situated on the Northern side of the area which connects to the Periyakuyili - Edayarpalayam Road located on the Northern side of the area.

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.

The approach road from the quarry is already in existence, the same will be utilized for haulage and maintained during the entire lease period, tree sapling will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

The Nearest Railway line is Coimbatore – Pollachi which is located about 6km on the western side of the area.

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 flat terrain. The area has gentle sloping towards Southern side and altitude of the area is 407m above from Mean sea level. The area is covered by 2m thickness of Gravel, 3m thickness of weathered formation followed by Massive Charnockite which is clearly inferred from the existing quarry pit.

The Water level in the surrounding area is 70m in summer and at 65m in rainy seasons below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 689mm.

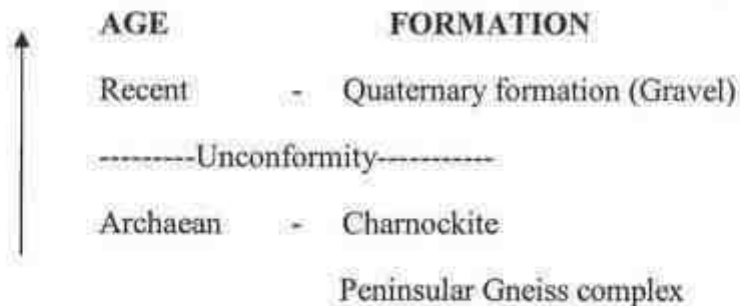
Topographical View of Pachapalayam Rough Stone Quarry lease applied area

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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 of the Charnockite body is $N30^{\circ}E - S30^{\circ}W$ with dipping towards $SE60^{\circ}$.

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



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 Coimbatore District. Besides, the 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 four sections have been drawn, two section is along the strike direction as (A-B & C - D) Width wise and other two cross section is drawn perpendicular to strike as (X-Y & X1-Y1) Length wise to cover the maximum area considered for 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 are calculated up to a maximum depth of 30m [2m Gravel + 3m Weathered formation + 25m Rough Stone] below from the general ground level. The total Geological Resources are calculated in cross section method and the geological resource calculated after depletion of the existing pit.

Table - 4

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Geological Resources of Rough Stone (m ³)	Weathered formation (m ³)	Gravel (m ³)
XY-AB	I	9	8	2	-	-	144
	II	9	8	3	-	216	-
	III	9	8	5	360	-	-
	IV	9	8	5	360	-	-
	V	9	8	5	360	-	-
	VI	9	8	5	360	-	-
	VII	9	8	1	72	-	-
	VII	64	119	4	30464	-	-
Total					31976	216	144
X1Y1-AB	I	71	18	2	-	-	2556
	II	71	18	3	-	3834	-
	III	71	19	5	6745	-	-
	IV	71	19	5	6745	-	-
	V	71	19	5	6745	-	-
	VI	71	19	5	6745	-	-
	VII	71	19	5	6745	-	-
Total					33725	3834	2556
XY-CD	I	10	16	2	-	-	320
	II	10	16	3	-	480	-
	III	10	16	5	800	-	-
	IV	20	21	4	1680	-	-
	IV	145	54	1	7830	-	-
	V	145	54	5	39150	-	-
	VI	146	54	5	39420	-	-
	VII	146	54	5	39420	-	-
Total					128300	480	320
Grand Total					194001	4530	3020

The Geological Resources of Gravel : 3,020m³

The Geological Resources of Weathered Froamtion : 4,530m³

The Geological Resources of Rough Stone : 1,94,001m³

Existing Pit Dimension:

The lease applied area has been quarried in earlier the existing pit dimensions are follows:

Table-5

Pits	Length (m) (Max)	Width (m) (Max)	Depth(m) (Max)
I	110	58	26m below ground level
II	130	37	14m below ground level

Mineable Reserves:

The mineable reserves are calculated after leaving the safety distance and Bench loss.

Table- 6

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Mineable Reserve of Rough Stone (m ³)	Weathered formation (m ³)	Gravel (m ³)
XY-AB	VII	50	100	4	20000	-	-
	Total				20000	0	0
XIYI-AB	I	54	10	2	-	-	1080
	II	48	8	3	-	1152	-
	III	42	4	5	840	-	-
	IV	32	4	5	640	-	-
	Total				1480	1152	1080
XY-CD	IV	121	27	1	3267	-	-
	V	121	25	5	15125	-	-
	VI	116	15	5	8700	-	-
	Total				27092	0	0
Grand Total					48572	1152	1080

The Mineable reserves have been computed as **48,572m³** of Rough Stone, **1152m³** of Weathered formation and **1080m³** of Gravel at the rate of 100% recovery up to a depth of 30m [2m Gravel + 3m Weathered formation + 25m Rough Stone] below from the general ground level for 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):

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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 pits 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 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 and weathered formation will be directly loaded into tippers for the filling and levelling of low lying areas, this will be transported 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 Nos. III..

Year wise Development and Production

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Table-7

Section	Year	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserves of Rough stone in (m ³)100%	Weathered Rock (m ³)	Gravel (m ³)
X1Y1-AB	I	I	54	10	2	-	-	1080
		II	48	8	3	-	1152	-
		III	42	4	5	840	-	-
		IV	32	4	5	640	-	-
		IV	50	27	1	1350	-	-
XY-CD	I	V	50	25	5	6250	-	-
		Total			9080	1152	1080	
		II	IV	71	27	1	1917	-
	II	V	71	25	5	8875	-	-
		Total			10792	0	0	
	III	VI	116	15	5	8700	-	-
		Total			8700	0	0	
XY-AB	IV	VII	25	100	4	10000	-	-
		Total			10000			
	V	VII	25	100	4	10000	-	-
Total			10000					
Grand Total						48572	1152	1080

The Recoverable reserves have been computed as **48,572m³** of Rough Stone, **1152m³** of Weathered formation and **1080m³** of Gravel at the rate of 100% recovery up to a depth of 30m [2m Gravel + 3m Weathered formation + 25m Rough Stone] below ground level for 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 = 6m³ (approx.)
 Total No of Working days = 300 Days per year

Roughstone:

Total quantity to be removed in this five years plan period = 48,572m³
 Hence total Lorry loads per day = 48,572m³/6m³
 = 8,095 Lorry loads
 = 8,095/5 years
 = 1,619/300 days
 Rough Stone = 5 Lorry loads per day

Weathered Formation:

Total quantity to be removed in this five years plan period	=	1,152m ³
Hence total Lorry loads per day	=	1,152m ³ /6m ³
	=	192 Lorry loads
	=	192/1 years
	=	192/300 days
Weathered Formation	=	1 Lorry loads per day

Gravel:

Total quantity to be removed in this five years plan period	=	1080m ³
Hence total Lorry loads per day	=	1080m ³ /6m ³
	=	180 Lorry loads
	=	180/1 years
	=	180/300 days
Gravel	=	1 Lorry loads per day

Working hours = 8.00 am to 5.00 pm (with 12.00-1.00 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 – 8

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	2	30-35	1.2m to 2.0m	Compressed air
2	Compressor	1	-	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	Tipplers	1	20 tonnes	Diesel Drive

5.6. Disposal of Overburden/Waste:

The overburden is in the form of Gravel and weathered formation, the Gravel and Weathered formation was removed previous quarrying lease period. 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 - 9

Length (m) (Max)	Width (m) (Max)	Depth(m) (Max)
110	58	30m below ground level
130	37	25m below ground level

Greenbelt has proposed on the Panchayat roads by planting native species of Neem, Casuarina and Pongamia pinnata, etc., tree sapling. 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. 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).

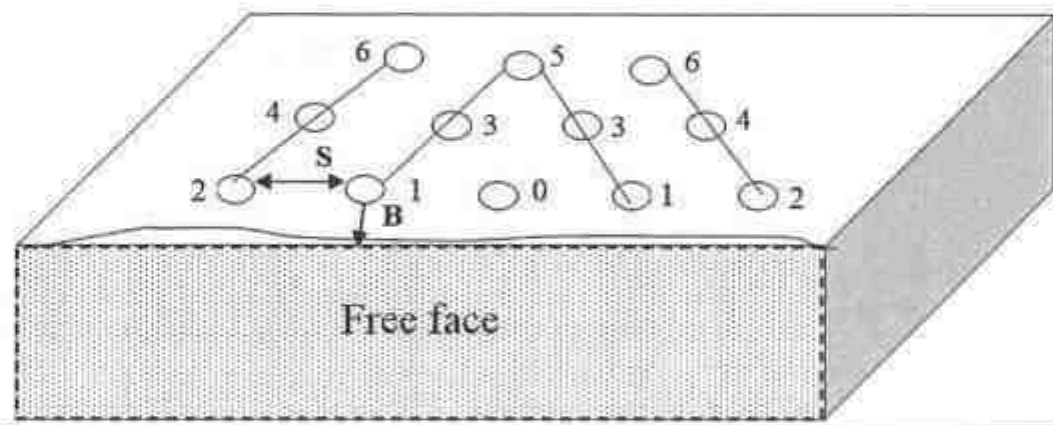
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6.0 BLASTING**6.1 Blasting pattern:**

The quarrying operation is proposed to be carried out by Mechanized Opencast Method in conjunction with conventional method of mining using Jack hammer drilling and blasting of shattering effect for loosening 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° 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	=	28 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 adopted 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	= 28 Holes
Yield	= 84 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 14 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30 P.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 having 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.

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 70m in summer season and 65m in Rainy season which is observed from the 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 – 10

Type	Distance & Direction	Location
Bore Well	150m Northwestern side	10°54'12.45"N 77° 05'13.17"E

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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 Power Lines (HT/LT) within 300m radius from the lease applied area.

8.3 Water bodies (river, pond, lake, odai, canal, etc.):

There is no River, Pond, Lake, Odai, Canal, Reservoir located within 50m radius of the lease applied area.

8.4 Archaeological / historical monuments:

There is no Archaeological / historical monuments within 500m radius of the area.

8.5 Road (NH, SH):

The Nearest National Highway (NH - 83) Dindigul – Coimbatore road is situated about 9km on the Southwestern side of the lease applied area.

The State Highway (SH-163) Othakalmandapam – Palladam Road is about 5km on the Northwestern side of the lease applied area.

8.6 Places of worships:

There is no other 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 1km radius of the lease applied area.

SALIENT FEATURES

Table – 11

S. No.	Salient Features Present around the site	Prescribed safety distance	If any present within Prescribed distance - Actual Distance and direction from the site																				
1.	Railways, Highways, Reservoirs or Canal	50m	None of the above situated within 50m radius.																				
2.	Village Road	10m	There is no village road located within 10m radius of the lease applied area.																				
3.	Habitation / Village	300m	There is no approved habitation within 300m radius from the lease applied area.																				
4.	Adjacent Patta/Govt. Land	7.5m/10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>S.F.No.</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>408/2A, 408/3B & 408/3C</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>East</td> <td>409</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>South</td> <td>408/2E, 408/2D & 408/2F</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>West</td> <td>407</td> <td>Patta land</td> <td>7.5m</td> </tr> </tbody> </table> <p>(Refer Plate No. II).</p>	Direction	S.F.No.	Classification	Safety Distance	North	408/2A, 408/3B & 408/3C	Patta land	7.5m	East	409	Patta land	7.5m	South	408/2E, 408/2D & 408/2F	Patta land	7.5m	West	407	Patta land	7.5m
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East	409	Patta land	7.5m																				
South	408/2E, 408/2D & 408/2F	Patta land	7.5m																				
West	407	Patta land	7.5m																				
5.	Power House, EB line (HT & LT Line)	50m	There is no EB (LT/HT) line situated within 50m radius of the lease applied area.																				
6.	Boundaries of the permitted area	7.5m/10m	<p>The boundaries of the permitted areas as follows:</p> <p>North – S.F.Nos. 408/2A, 408/3B and 408/3C</p> <p>East – S.F.No. 409</p> <p>South – S.F.No. 408/2E, 408/2D and 408/2F</p> <p>West – S.F.No. 407</p> <p>(Refer Plate No. II).</p>																				
7.	Reserve forest / protected area / ECO sensitive area	1Km	There is no reserved forest located within the radius of 1Km from the lease applied area.																				
8.	Protected area / ECO sensitive area/ Wild Life Sanctuary/ Interstate Border	10km	There is no ECO sensitive Zone / Wild Life Sanctuary / Interstate Border / Critically Polluted Area / HACA / CRZ located within 10km radius of the area.																				

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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. Mine official & Competent Persons:

Mines Manager/Mines Foreman	:	1
Mate/Blaster	:	1

b. Machinery Operators

Jack hammer operator	:	4
Excavator Operator	:	1
Tippers Driver	:	1

c. Ordinary Employee

Helper	:	1
Cleaner & Co-Operator	:	1
Security	:	1
Total	:	11

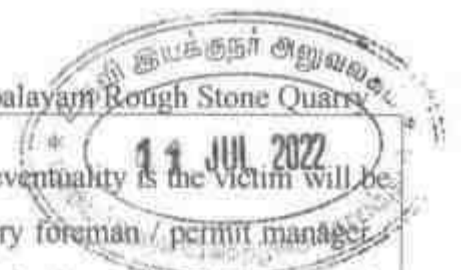
The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations. It is been ensured that the labour will not be employed less than 18 years, **No child labour** will 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 Chettipalayam which is located about 6km on the Northwestern side of the lease applied area.

b) Sanitary Facilities:

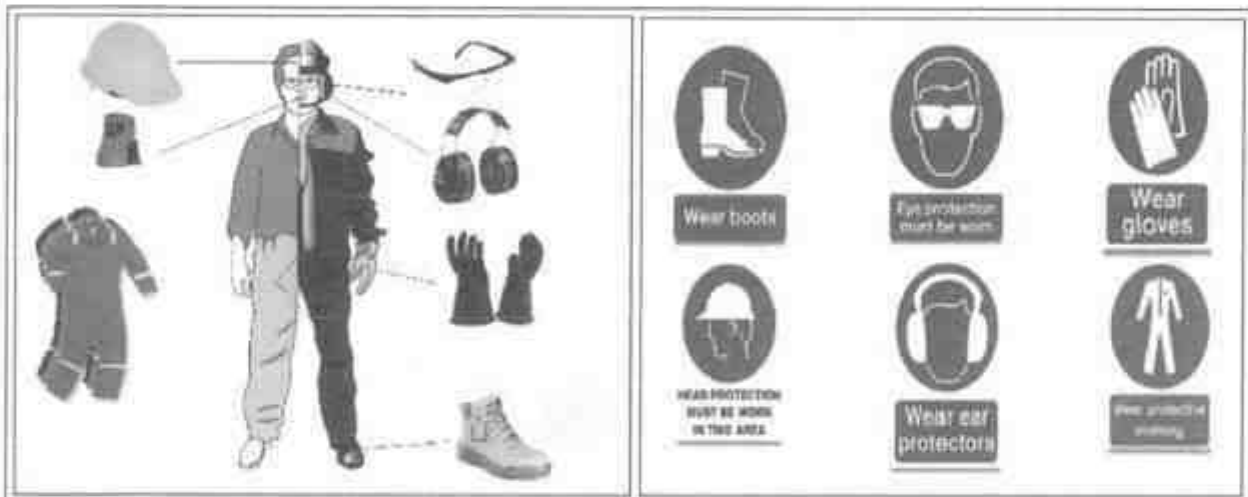
Hygienic modern Sanitary Facilities already constructed in the safety area as semi permanent structure and it will be maintained periodically.

**e) First aid facility:**

First aid kits are kept in Mines office room, in case of such eventuality if the victim will be given first aid immediately at the site by the competent and statutory foreman / permit manager. He 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 Kinathukadavu located at a distance of 11km on the Southwestern 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 personnel protective devices will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic Rough Stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men and machinery and to create awareness about conventional opencast quarrying operations.

PART – B**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 land is not used for any specific vegetation.

LAND USE PATTERN

Table – 12

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area under quarrying	1.05.8	1.12.3
Infrastructure	Nil	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.17.0
Unutilized Area	0.73.7	0.49.2
Grand Total	1.81.5	1.81.5

10.2 Water Regime:


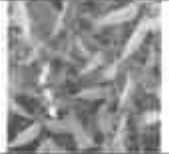




It is a simple opencast quarry operation. The quality of water will not be affected due to this quarrying operation. However, mitigation measures will be carried out like Garland drains constructed on all sides of quarry pit to avoid surface run-off rain water entering into the pit.

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 Climate change.


10.3 Flora and Fauna:

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Table - 13

S.No	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Prosopis juliflora</i>	Fabaceae	Seemai karuvelam	Tree	
2.	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree	
3.	<i>Cocos nucifera</i>	Areaceae	Thennai	Tree	
4.	<i>Aloe vera</i>	Asphodelaceae	Katralai	Shrub	
5.	<i>Borassus flabellifer</i>	Areaceae	Panai	Tree	
6.	<i>Cissus quadrangularis</i>	Vitaceae	Pirandai	Shrub	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	<i>Capra aegagrus hircus</i>	Goat	
2.	<i>Funambulus palmarum</i>	Squirrel	
3.	<i>Bos taurus</i>	Cow	
4.	<i>Danaus plexippus</i>	Striped tiger	
5.	<i>Corvus leuiscantii</i>	Crow	
6.	<i>Agrion sp & Petalura sp</i>	Dragon fly	

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10.4 Climatic Conditions:

The area receives rainfall of about 689mm/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 21°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 – 14

S.No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Periyakuyili	1km – West	2,300
2.	Edayapalayam	3km – NE	2,300
3.	Bogampatti	4km – East	2,500
4.	Panappati	3km – SE	2,700

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Kinathukadavu located at a distance of 11km on the Southwestern 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.

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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 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 30m [2m Gravel + 3m Weathered formation + 25m Rough Stone] has been envisaged as workable depth for safe & economic mining during entire lease applied area. The quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. There is no waste hence, no proposal for backfilling. The barbed wire fencing cost would be around **Rs.2,01,000/-**.

10.11 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):

The safety zone all along the boundary barrier 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 – 15

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 grown
I	40	80%	340	Neem, Pongamia pinnata, Casuarina, etc.,	32
II	40	80%	340		32
III	40	80%	340		32
IV	40	80%	340		32
V	40	80%	340		32

Nearly 1,700 sq.m area is proposed to use under Greenbelt by planting 200 Numbers of trees during mining plan period 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. 20,000/- for the period of five years.

The Greenbelt Development will be formed in around the quarried out top benches, Approach and Panchayat road. The cost would be around Rs. 20,000/-.

10.12 Proposed financial estimate / budget for (EMP) environment management:
Budget Provision for the Mining Plan period:

Table – 16

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 is about, Rs.19,87,000/ha, hence the total land cost is calculated about 1.81.5haX Rs.19,87,000/- = Rs.36,06,405/- i.e., Rs.36,07,000/- (source: https://tnreginet.gov.in/portal/)	Rs. 36,07,000/-
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.10,00,000/-
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattle cost would be around	Rs.2,01,000/-
iv) Labourers shed	Labour sheds already constructed as semi permanent structure. The cost is around	Rs. 1,00,000/-
v) Sanitary facility	Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around	Rs. 60,000/-
vi) Others items	First aid room & accessories	Rs. 40,000/-
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	Rs.1,00,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	Rs. 50,000/-
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.80,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	Rs.60,000/-
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. 1,80,000/-
xii) Greenbelt etc.	Greenbelt development and maintenance will be carried out in the boundary barriers the cost would be around	Rs.20,000/-
	Greenbelt development and maintenance will be carried out in the quarried out top benches, approach and Panchayat road	Rs.20,000/-
Total Project Cost		Rs.55,18,000/-



B. EMP Cost :- (Per year)		11 JUL 2022
Air Quality monitoring		Rs. 52,000/-
Water Quality Sampling		Rs. 18,000/-
Noise Monitoring		Rs. 2,000/-
Ground vibration test		Rs. 4,000/-
	Total	Rs. 76,000/-
Cost		
Total EMP Cost for the five years period is Rs.3,80,000/- .		
Description	Amount (Rs.)	
A. Operational Cost	55,18,000	
B. EMP Cost	3,80,000	
Total Project Cost (A+ B)	58,98,000	
The applicant Indents to involve corporate environment responsibilities (CER) activity like Water Purifier, Medicine Storage rack facilities to the nearby Dispensary and Water Purifier and Table facilities to the nearby Government school at 2.0% from the total project cost. The Cost would be around Rs.1,18,000/- .	1,18,000	
Total Cost	60,16,000	
The Total cost would be around Sixty lakh and Sixteen thousand only.		

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11.0 PROGRESSIVE QUARRY CLOSURE PLAN**11.1 Introduction:**

The Progressive Quarry Closure Plan for Rough Stone quarry lease applied area over an extent of 1.81.5 Hectares of patta lands in S.F.Nos. 408/2B and 408/2C of Pachapalayam Village, Sular Taluk, Coimbatore District, Tamil Nadu State has been prepared for **Thiru. L. Thangarasu**, S/o. R. Lakshmanasamy, residing at No.3/87, West Arasur, Arasur, Sular Taluk Coimbatore District, Tamil Nadu State – 641 407.

11.2 Present Land use pattern:Land Use Table – 17

Description	Present area (Ha)
Quarrying Pit	1.05.8
Infrastructure	Nil
Roads	0.02.0
Green Belt	Nil
Unutilized Area	0.73.7
Grand Total	1.81.5

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 Rough Stone.

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 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.

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11.6 Statutory obligations:

The applicant ensures to comply all the conditions stipulated in the precise area communication letter before grant of quarry lease and during the course of quarry operations.

11.7 Progressive quarry closure plan preparation:

Name and address of the 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.

Dr.P.Thangaraju, M.Sc., Ph.D.,

Qualified Person

No.17, Advaita 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:

There is no waste generated during entire life of quarry, hence backfilling is not possible in the quarried out pit. The entire quarry area is an active also no proposal given for Progressive quarry closure plan in the previous mining plan hence, the applicant has not taken any action for progressive quarry closure. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure plan during this plan period, it will be discussing in the ensuing Mining Plan.

11.9 Closure Plan:**(i) Mined Out Land:**

At the end of mining plan period, about 1.12.3 Ha of area will be mined out. Land use at various stages is given in the table below.

Land Use Table – 18

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area under quarrying	1.05.8	1.12.3
Infrastructure	Nil	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.17.0
Unutilized Area	0.73.7	0.49.2
Grand Total	1.81.5	1.81.5

The Greenbelt Development will be formed in around the quarried out top benches, approach and Panchayat road of the lease applied area.

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(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 Rough Stone is utilized (100%). Hence, waste management does not arise.

(v) Disposal of mining machinery:

All the Machineries will be engaged on rental basis. 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 to unauthorized 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 and proper signal by siren alarm will be given to the public before blasting to prevent accident.
- 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 Greenbelt Development will be formed in around the quarried out top benches and Panchayat road of the lease applied area.

(viii) Care and Maintenance during Temporary Discontinuance:

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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:
 - Quarry roads and approach roads,
 - Fencing on approach roads,
 - Checking and maintenance of machines and equipment,
 - Drinking water arrangements,
 - Quarry 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 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 – 19

ACTIVITY		YEAR					RATE	AMOUNT (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	40	40	40	40	40	@100 Rs	20,000
	Cost	4000	4000	4000	4000	4000		
Plantation in the quarried out top benches, approach & Panchayat road	Nos.	40	40	40	40	40	Per sapling	20,000
	Cost	4,000	4,000	4,000	4,000	4,000		
Wire Fencing (In Mtrs) 670		2,01,000					@300 Rs Per Meter	2,01,000
Garland drain (In Mtrs) 600		1,80,000					@300 Rs Per Meter	1,80,000
TOTAL								4,21,000

12 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

This Mining plan for Rough Stone (Charnockite) 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


Dr.P.Thangaraju, M.Sc., Ph.D.,
Qualified Person

Place: Salem

Date: 29.06.2022

DONATE RED

SPREAD GREEN

SAVE BLUE

This Mining Plan is Approved
subject to the conditions / stipulation
& indicated in the Mining Plan Approval
Letter No: 239/mines/2022 dt 11-2-22
office of the A.D, Geology & Mining, Coimbatore

This Mining Plan is Approved based on the
incorporation of the particulars specified
in the letter of the commissioner of Geology
and Mining, Chennai ref No: 3563/LC/2012
Dated 19.11.2012 and subjected to further
fulfillment of the condition laid down under
Tamilnadu Minor Mineral Concession Rules 1959.


ASSISTANT DIRECTOR
DEPARTMENT OF GEOLOGY & MINING
COIMBATORE DISTRICT

11/11/22

11 JUL 2022

உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
மாவட்ட ஆட்சியர் அலுவலக வளாகம்,
கோயம்புத்தூர் - 18.

ந.க.எண்.239/கனிமம்/2022

நாள்: 22.06.2022

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - பச்சாபாளையம் கிராமம் - புல எண்கள். 408/2B-ல் 0.95.5 ஹெக்டேர் மற்றும் 408/2C-ல் 0.86.0 ஹெக்டேர் ஆக மொத்தம் 1.81.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு.ட.தங்கராசு என்பவருக்கு - குவாரி குத்தகை அனுமதி வழங்குவது - தொடர்பாக.

- பார்வை:**
1. திரு.ட.தங்கராசு, த/பெ.ர.லட்சுமணசாமி, 3/87, மேற்கு அரதூர், அரதூர், சூலூர் வட்டம், கோயம்புத்தூர் மாவட்டம் என்பவரது விண்ணப்ப நாள்: 14.03.2022.
 2. இவ்வலுவலக கடிதம் இதே எண். நாள்: 22.03.2022.
 3. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு அவர்களின் கடித ந.க.எண். 1846/2022/அ2 நாள்: 13.05.2022.
 4. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் அவர்களின் தணிக்கை அறிக்கை நாள்: 07.06.2022.
 5. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை கடிதம் எண். 1870/எம்.எம்-1/2020 நாள்: 12.08.2020.

பார்வை 1-ல் கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், 3/87, மேற்கு அரதூர் என்ற முகவரியில் வசிக்கும் திரு.ர.லட்சுமணசாமி என்பவரின் மகன் திரு.ட.தங்கராசு என்பவர் கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள். 408/2B-ல் 0.95.5 ஹெக்டேர் மற்றும் 408/2C-ல் 0.86.0 ஹெக்டேர் ஆக மொத்தம் 1.81.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரி உரிய ஆவணங்களுடன் விண்ணப்பித்துள்ளார்.

மேற்படி மனு தொடர்பாக, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு மற்றும் கோயம்புத்தூர் புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், 3/87, மேற்கு அரதூர் என்ற முகவரியில் வசிக்கும் திரு.ர.லட்சுமணசாமி என்பவரின் மகன் திரு.ட.தங்கராசு என்பவருக்கு கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள். 408/2B-ல் 0.95.5 ஹெக்டேர் மற்றும் 408/2C-ல் 0.86.0 ஹெக்டேர் ஆக

மொத்தம் 1.81.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க சில நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளார்கள்.

அனுமதி கோரும் புல எண்கள் 408/2B மற்றும் 408/2C ஆகியவை பட்டா எண் 1437-ன் படி கருப்பாத்தாள் (1), தெய்வமணி (2), ஜெகதீஷ் (3) மற்றும் கவாதி (4) ஆகியோர்கள் பெயரில் கூட்டுப்பட்டாவாக கிராம கணக்கில் தக்கலாகியுள்ளது. மேற்படி பூமியில் திரு.ட.தங்கராசு என்பவர் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுத்துக்கொள்ள தங்களுக்கு எவ்வித ஆட்சேபணையும் இல்லையென கூட்டுப்பட்டாதாரர்கள் இணைந்து சம்மத கடிதம் அளித்துள்ளார்கள். எனவே மேற்படி பூமியில் மனுதாரர் குவாரி குத்தகை உரிமம் பெற தகுதியுடையவர் ஆவார்.

எனவே, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு மற்றும் உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் ஆகியோரின் பரிந்துரைகளின் அடிப்படையில் கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், 3/87, மேற்கு அரதூர் என்ற முகவரியில் வசிக்கும் திரு. R.லட்சுமணசாமி என்பவரின் மகன் திரு. ட.தங்கராசு என்பவருக்கு கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள். 408/2B-ல் 0.95.5 ஹெக்டேர் மற்றும் 408/2C-ல் 0.86.0 ஹெக்டேர் ஆக மொத்தம் 1.81.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 1959-ஆம் ஆண்டு தமிழ்நாடு சிறுகணிம சலுகை விதிகளில் விதி 19(1) மற்றும் 20-ன் படி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றும் நாளிலிருந்து 5 (ஐந்து) ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு குவாரி குத்தகை வழங்குவதற்குரிய நிலப்பரப்பாக (Precise Area Communication) கருதப்படுகிறது.

நிபந்தனைகள்

1. அருகிலுள்ள பட்டா நிலங்களுக்கும் மற்றும் பொது மக்களுக்கும், எவ்வித இடையூறும் இன்றி சாதாரண கல் மற்றும் கிராவல் குவாரி மேற்கொள்ள வேண்டும்.
2. அருகில் உள்ள பட்டா நிலத்திற்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
3. அனுமதி கோரும் புலத்தினை அரசு அங்கீகாரம் பெற்ற நிறுவனத்தினரால் DGPS (Differential Global Positioning System)-ன் படி ஆய்வு செய்யப்பட்டு ஒவ்வொரு எல்லைத் தூண்களும் நடப்படவேண்டும்.
4. அனுமதி கோரும் புல எண்களுக்குரிய விஸ்திரணத்தில் பாதுகாப்பு இடைவெளி விட்டு மீதமுள்ள பகுதிகளில் மட்டுமே



குவாரிப்பணி மேற்கொள்ள வேண்டும்.
5. குழந்தை தொழிலாளர்களை வேலைக்கு அமர்த்தல் கூடாது.

மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள்-1959 விதி எண். 41 மற்றும் 42-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு அதிகார அமைப்பின் அனுமதியினை பெற்று சமர்ப்பிக்கவும் மனுதாரரை கேட்டுக் கொள்ளப்படுகிறது.

~~சுரங்க~~ 22/07/22
உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை
கோயம்புத்தூர்.

பெறுநர்:
திரு. L. தங்கராசு,
த/பெ. R. லட்சுமணசாமி,
3/87, மேற்கு அரதூர்,
அரதூர், சூலூர் வட்டம்,
கோயம்புத்தூர் மாவட்டம் - 641407

6/8/22

11 JUL 2022

கோயமுத்துார்
உருவாக்கிடுதல்

சுலூர்

43, பச்சாபாண்டய

சுலூர்

கிராமம்

408

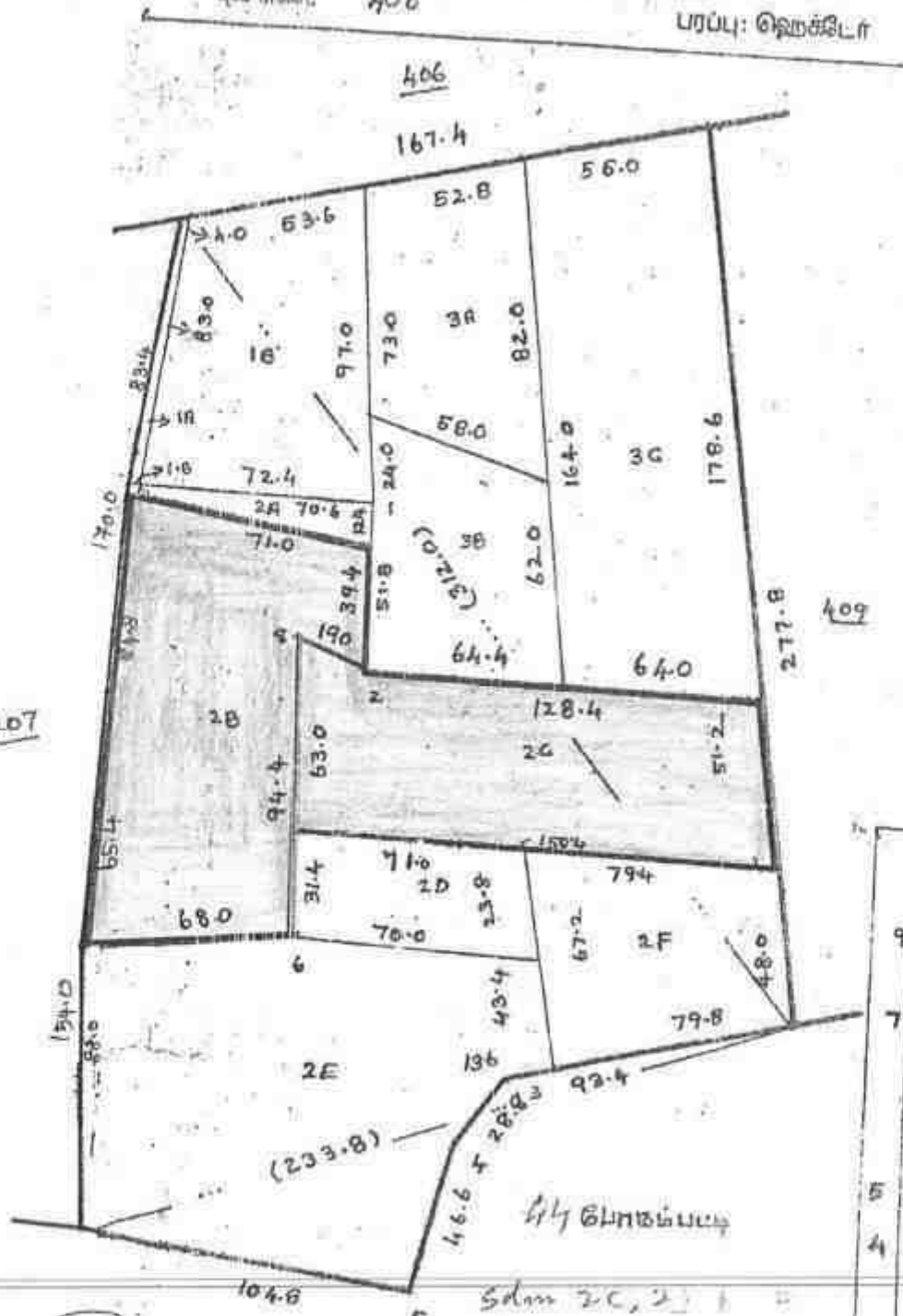
பரப்பு: ஹெக்டேர்

406

167.4

407

409



9	50	A	(312.6)		
			129.4		
			190.6	500	8
7	152		152.6		
			97.4	580	8
		D	(233.8)		
5	458		140.8		
4	76		114.0		
			92.0	94	3
		C	(312.0)		
			144.0	39.6	2
			104.2	64	1
		B			

Sdm 2C, 2D
Corrected with
petition no 580/89

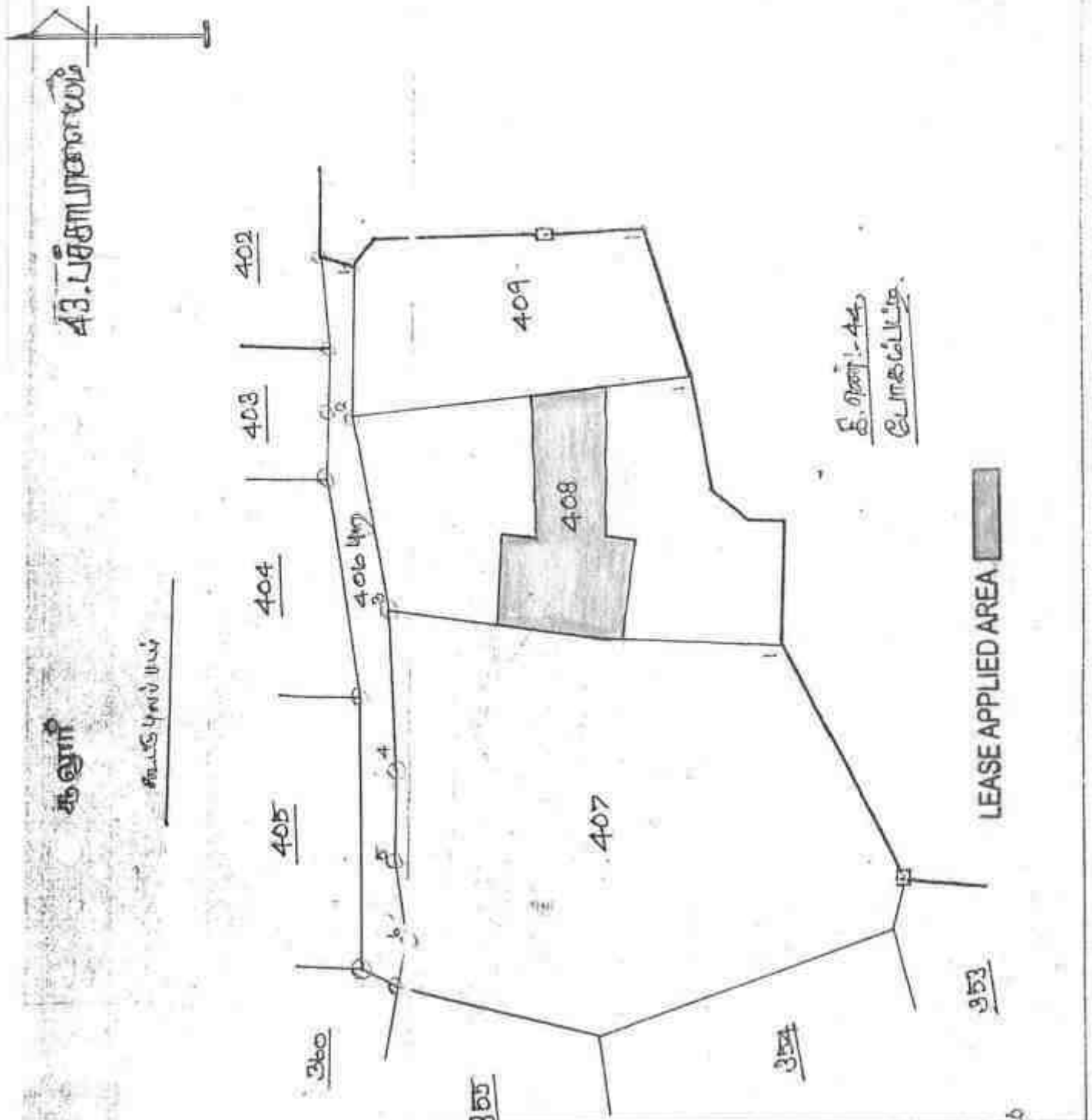
1: 2000

LEASE APPLIED AREA 77A

சுலூர் கிராமம்

செயற்குறி விவரம் 33

14 JUL 2022



சு. ஜார்ஜ் - 43
உட்கட்டு


LEASE APPLIED AREA

43 பச்சையாணையம்

சுஜார்

கூட்டு

கோயமுத்தூர்


 23/5/22
 கிராம நிர்வாக அலுவலர்
 43, பச்சையாணையம் கிராமம்
 சுஜார் வட்டம்

சுஜார் வட்டம்



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : குலூர்

வருவாய் கிராமம் : பச்சாபாளையம்

பட்டா எண் : 1437

உரிமையாளர்கள் பெயர்

1.	ராமசாமி	மனைவி	கறப்பாத்தாள்	
2.	லட்சுமணசாமி	மனைவி	தெய்வமணி	
3.	சென்னியப்பன்	மகன்	ஜெகதீஷ்	
4.	சென்னியப்பன்	மகன்	கவாதி	

புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றளவு		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - ரூப	ஹெக்ட - ஏர்	ரூ - ரூப	ஹெக்ட - ஏர்	ரூ - ரூப	
408	1A	0 - 3.00	0.06	--	--	--	--	2018/0103/12/090246- -- -- 16-03-2018
408	2B	0 - 95.50	1.91	--	--	--	--	2018/0103/12/090246- -- -- 16-03-2018
408	2C	0 - 86.00	1.73	--	--	--	--	2018/0103/12/090246- -- -- 16-03-2018
		1 - 84.50	3.70					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/025/01437/30575 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 09-03-2022 அன்று 11:16:37 AM நேரத்தில் அச்சிடக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

அ-பதிவேடு விவரங்கள்



ாவட்டம் : கோயம்புத்தூர்

வட்டம் : குலூர்

கிராமம் : பச்சாபாளையம்

1. புல எண்	408	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	2B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-2P	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 95.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - டை)	1.91
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1437
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	1	16. பெயர்	கருப்பாத்தாளம்மற்றும் 36பர்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60575 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்

வட்டம் : கோயம்புத்தூர்

வட்டம் : குலூர்

கிராமம் : பச்சாபாளையம்

1. புல எண்	408	9. மண் வயனமும் ரகமும்	B - 3
2. உட்பிரிவு எண்	2C	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-2P	11. தீர்வை (ரூ - ரெஸ்)	2.00
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 86.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - ரெஸ்)	1.73
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	1437
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	1	16. பெயர்	கருப்பாத்தாள்மற்றும் 3பேர்

குறிப்பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60575 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



தமிழ்நாடு தமிழ்நாடு TAMILNADU
கி. எண் 5827 தேதி 12/7/22

S.V. கண்ணன்
முத்திரைத்தாள் விற்பனையாளர்
க. எண் 15129/ஆ/2014-7
குடார்

BA 727740

L. சந்திராசி
செந்திராசி



உ

குற்றை பத்திரம்

2022 (இரண்டாயிரத்து இருபத்து இரண்டு)-ம் வருஷம் ஜூலை மாதம் 12-ம் தேதி, கோயம்புத்தூர் (மாவட்டம்)-641407, தலூர் வட்டம், அரதூர் கிராமம், மஜரா மேற்கு அரதூர், 3/87 நெ. விலாசத்தில் வசிக்கும் காலஞ்சென்ற A.ராமசாமி அவர்கள் குமாரத்தியும், லட்சுமணசாமி அவர்கள் மனைவியுமாணி தெய்வமணி-(1) (ஆதார் எண்.6632 3181 2668) (Cell No.9715147535) கோயம்புத்தூர் (மாவட்டம்)-641401, தலூர் வட்டம், காடாம்பாடி கிராமம், செங்கத்துறை, 3/87A நெ. விலாசத்தில் வசிக்கும்

1. [தெய்வமணி]

3. []

2. [தெய்வமணி]

1 புத்தகம் 2022-ம் வருடத்திய 11938ம்
ஆவணம் 1டி தாங்களாகக் கொண்டது
1 வது தாள்
பதிவு செய்தவர்





தமிழ்நாடு தமிழ்நாடு TAMILNADU
5828 தேதி 12/7/22
கண்ணன்
முத்திரைத்தாள் விற்பனையாளர்
உ. எண் 15129/ஆ.1/2014-7
சுவர்

L. குங்கராசு
மேற்கு சுவர்

-2-

கை காலஞ்சென்ற A.ராமசாமி அவர்கள் குமாரர் காலஞ்சென்
சென்னியப்பன் - காலஞ்சென்ற தமிழ்செல்வி ஆகியோரது குமா
S.ஜெகதீஷ்-(2) (ஆதார் எண்.5444 0140 4250) (Cell No.9524462535)
கோயம்புத்தூர் (மாவட்டம்)-641407, துலூர் வட்டம், அரதூர் கிராமம்
மஜரா மேற்கு அரதூர், 3/87 நெ. விலாசத்தில் வசிக்கும் லட்சுமணசாமி
அவர்கள் குமாரர் L.தங்கராசு-(3) (ஆதார் எண்.9959 6832 7888) (Cell
No.9944775735) ஆகிய நாம் மூவரும் சேர்ந்து எழுதி வைத்துக் கொண்ட
குத்தகைப் பத்திரம்.

1. உ. ஜெயலக்ஷ்மி

3. [Signature]

2. [Signature]

1 புத்தகம் 2022 ம் வருடத்தில் 11938 ம்
ஆவணம் 11 தாள்களைக்கொண்டது
2 வகுதாள்
[Signature]



11 JUL 2022



தமிழ்நாடு தமிழ்நாடு TAMILNADU

வ. எண்: 5829 தேதி: 12/7/22

S.V. கண்ணலாள்
முத்திரைத்தாள் விரிபனையாளர்
வ. எண்: 15129/ஆ1/2014-7

குலர்

500
AH 090009

L. குலவாசி
குலவாசி

-3-

நம்மளில் 1 லக்கமிட்டவருக்கு 04-07-2022 தேதிய குலர் சார் பதிவாளர் அலுவலகம் 1 புத்தகம் 11391/2022-ம் எண்ணாக பதிவு செய்யப்பட்டுள்ள பாகசாசனப்படி B பாகமாக பாத்தியப்பட்டும்,

நம்மளில் 2 லக்கமிட்டவருக்கும், ஷையாரின் உடன்பிறந்த சகோதரி S.சுவாதி ஆகிய இருவருக்கும் ஷை 11391/2022-ம் எண்ணாக பதிவு செய்யப்பட்டுள்ள பாகசாசனப்படி C பாகமாக பொதுவாகவும், கூட்பாகவும் பாத்தியப்பட்டும், நம்மளில் 2

1. L. குலவாசி

3.

2. A. J. குலவாசி

1 புத்தகம் 2022 ம் வருடத்தில் 11938ம்

ஆவணம் 14 தாள்களைக்கொண்டது.

3 வது தாள்

ப. அ. குலவாசி





-4-

லக்கமிட்டவர் ஷை S.சுவாதி அவர்களுக்கு பாத்தியப்பட்ட பொதுவில் 1/2 பங்கு சொத்துக்களை ஷையாரிடமிருந்து 08-07-2022 தேதியில் எழுதி வாங்கியதும், துரை சார்பதிவாளர் அலுவலகம் 1 புத்தம் 11739/2022 எண்ணாக பதிவு செய்யப்பட்டுள்ளதுமான பாகபாத்திய விடுதலை பத்திரப்படி 2 லக்கமிட்டவருக்கு முழுவதுமாக பாத்தியப்பட்டும்,

ஆக மேலே கண்ட விபரப்படி நம்மளில் 1,2 லக்கமிட்டவர்களுக்கு பாத்தியப்பட்டு, ஷையார்கள் சர்வ சுதந்திரத்துடன் ஆண்டு அனுபவித்து வருகின்ற சொத்துக்களை நம்மளில் 1, 2 லக்கமிட்டவர்கள் நம்மளில் 3 லக்கமிட்டவருக்கு இன்று முதல் வருடம் ஒன்றுக்கு ரூபாய். 20,000-00 (இருபதாயிரம்) வீதம் (10) பத்து வருட கால கெடுவிற்கு குத்தகைக்கு கொடுப்பதாக ஒப்புக் கொண்டு,

கீழ்காணும் ஷரத்துக்களுக்கு நாம் மனப்பூர்வமாக சம்மதித்து இந்தக் குத்தகைப்பத்திரம் எழுதி வைத்துக்கொண்டோம்,

கீழ்காணும் சொத்தை ஷை 1, 2 லக்கமிட்டவர்கள் நம்மளில் 3 லக்கமிட்டவருக்கு ஷை வீதம் (10) பத்து வருடங்களுக்கு குத்தகைக்கு கொடுப்பதற்கு ஷை 1, 2 லக்கமிட்டவர்கள் மனப்பூர்வமாக சம்மதித்து கீழ்காணும் பூமியையும், நாளது தேதியில் ஷை 3 லக்கமிட்டவருக்கு சுவாதீனம் செய்து கொடுத்துள்ளார்கள்.

1. டி.ஜெய்லக்ஷ்மி

3.

2. A. J. J. J. J. J.

1 புத்தம் 2022 ம் வருட கீரிய 11933 ம்
ஆவணம் 14 தாள்களைக் கொண்டு
4 வது தாளில்
பதிவு செய்து
பதிவு செய்து





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நாளது தேதி முதல் கீழ்காணும் பூமியை 3 லக்கமிட்டவர் சுவாதீனம் செய்து கொண்டு கீழ்காணும் பூமியில் அரசு சட்டதிட்டங்களுக்குட்பட்டு கல்குவாரி அமைத்து தொழில் செய்து அனுபவித்து வரவேண்டியது.

ஷை தொழில் சம்பந்தமாக அரசு சார்ந்த துறைகளில் 3 லக்கமிட்டவர் தனது சொந்த செலவில் தனது பெயரிலேயே உரிமம் மற்றும் அங்கீகாரம் பெற்றுக்கொள்ள வேண்டியது. அதற்கு ஆகும் செலவுகளை 3 லக்கமிட்டவரே செய்து கொள்ள வேண்டியது.

வருடா வருட குத்தகை தொகையை பிரதி ஒவ்வொரு வருடமும் டிசம்பர் மாதம் கடைசி தேதிக்குள் நம்மளில் 1, 2 லக்கமிட்டவர்களுக்கு 3 லக்கமிட்டவர் ரொக்கமாய் செலுத்தி ரசீது பெற்றுக் கொள்ள வேண்டியது.

ஷை குத்தகை காலகெடுவு முடிந்ததும் கீழ்காணும் பூமியை 3 லக்கமிட்டவர், 1, 2 லக்கமிட்டவர்களுக்கு திரும்ப ஒப்படைத்து விடவேண்டியது.

தொழில் சம்பந்தமாக ஏற்படும் லாபங்களும், நஷ்டங்களும் 3 லக்கமிட்டவரையே சார்ந்தது.

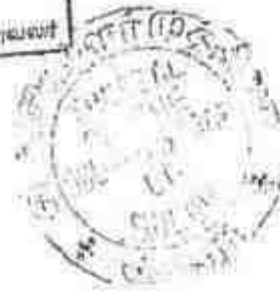
குத்தகை காலங்களில் கீழ்காணும் பூமியின் நாற்பாங்கு டிமார்க்கேஷன் கற்களையும், பொளிக்கால் ஹத்துக்களையும், பக்கக் காலைக்காரர்கள் தள்ளி வராமல் பாதுகாப்பது நம்மளில் 3 லக்கமிட்டவரையே சேர்த்து.

1. டி. ஜி. சுவாமிநாதன்

3.

2. டி. ஜி. சுவாமிநாதன்

புத்தகம் 2022 ம் வருடத்திய 1998 ம்
ஆவணம் 114 தாள்களை கொண்டது.
5 வது அட்டை
பதிவு ஆவண





-6-

கீழ்க்காணும் பூமிக்குண்டான சர்க்கார், கந்தாயம் வகையறாக்களை 1, 2 லக்கமிட்டவர்கள் செலுத்திக் கொள்ள வேண்டியது, தொழில் சம்பந்தமான அனைத்து வரிகளையும், மின்கட்டணங்களையும், 3 லக்கமிட்டவரே செலுத்திக்கொள்ள வேண்டியது.

இந்த குத்தகை ஒப்பந்தத்திற்கு முன் பணமாக ரூபாய்.10,000-00 (பத்தாயிரம்) மட்டும் 3 லக்கமிட்டவர், 1, 2 லக்கமிட்டவர்களுக்கு ரொக்கமாக செலுத்தியுள்ளார்.

ஷை முன்பண தொகைக்கு 3 லக்கமிட்டவர் எவ்வித வட்டியும் கோரக்கூடாது. குத்தகை காலக்கெடு முடிவில் 3 லக்கமிட்டவர் பூமியை திரும்ப 1, 2 லக்கமிட்டவர்கள் சுவாதீனத்தில் ஒப்படைத்து ஷை முன்பண தொகையை 1, 2 லக்கமிட்டவர்களிடமிருந்து திரும்ப பெற்றுக்கொள்ள வேண்டியது.

இதன்படிக்கு நாம் இருவரும் சோந்து மனப்பூர்வமாக சம்மதித்து எழுதி வைத்துக்கொண்ட குத்தகைப் பத்திரம்.

இந்த குத்தகை பத்திரத்தின் அசைவ நம்மளில் 3 லக்கமிட்டவரும், அதன் ஜெராக்ஸ் காப்பியை நம்மளில் 1, 2 லக்கமிட்டவர்களும் வைத்துக்கொள்ள வேண்டியது.

1. முடிவானை!

2.

2.

புத்தகம் 2022 ம் வருடத்தில் 11938ம் ஆவணம் 11 தாள்களைக் கொண்டது. 6 வது தாள் ப. அ. குமாரசாமி



14 JUL 2022

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சொத்தின் விபரம்

கோயம்புத்தூர் பதிவு மாவட்டம், தூலூர் துணைப்பதிவு மாவட்டம், தூலூர் வட்டம், பச்சாபாளையம் கிராமம் -பட்டா எண்.1437ன்படி

க.ச.408/2B நெ.காலை ஏ.2.36 (பு.ஹெ.0.95.50)க்குத் தரம் ரூ.1.91 இந்த விஸ்தீரணமுள்ள பூமியும்,

பின்னும் க.ச.408/2C நெ.காலை ஏ.2.12 (பு.ஹெ.0.86.00)க்குத் தரம் ரூ.1.73 இந்த விஸ்தீரணமுள்ள பூமியும்,

பின்னும் க.ச.408/1A நெ.காலை தென்வடல் தடம் ஏ.0.07 (பு.ஹெ.0.03.00)க்குத் தரம் ரூ.0.06இந்த விஸ்தீரணமுள்ள பூமியும்,

ஆக ஷை மூன்று காலைகளிலும் சேர்ந்து ஒட்டு பு.ஏ.4.55 இந்த விஸ்தீரணமுள்ள பூமியும், ஷை பூமிக்குண்டான மாமூல் தடபாத்தியமும் சகிதம்.

ஷை சொத்து பச்சாபாளையம் ஊராட்சி மற்றும் சல்தான்பேட்டை ஊராட்சி ஒன்றிய எல்லைக்குட்பட்டது.

1. 

3. 

2. 

புத்தகம் 2022 ம் வருடத்திய 11998ம் ஆவணம் 11 தாள்களைக்கொண்டது. 7 வது தாள் L.பி.புலவலர்





-8-

இந்த ஆவணத்தில் கண்ட சொத்தானது நீர்நிலைகள், நீர்வழிப்பாதைகள், நீர்ப்பிடிப்பு பகுதிகளில் கட்டுப்படவில்லை என சான்றளிக்கிறோம். மேலும், இதனில் தங்களுக்கு தவறான தகவல் அல்லது சான்று அளிக்கப்பட்டதாக பின்னாளில் கண்டுபிடிக்கப்பட்டால் அதனால் நான் / நாங்கள் சட்ட பூர்வ நடவடிக்கைகளுக்கு உட்படுத்தப்படுவோம் என்பதையும் அறிவேன் / அறிவோம்.

1. லக்ஷ்மணன்

3.

2. A. J. J. J.

சாட்சிகள்-

1. R. N. R. R.

(லட்சுமணசாமி) (ஆதார் எண்.6233 7337 4278)
(Cell No.9715147535) த/பெ. ராமசாமி, 3/87,
மேற்கு அரதூர், அரதூர், கோவை-641407.

2. S. S.

(S.சுவாதி) (ஆதார் எண்.5005 5531 4248)
(Cell No.9842834335) த/பெ. லேட்.சென்னியப்பன்,
3/87A, செங்கத்துறை, காடாம்பாடி,
கோவை-641401.

பத்திரம் தயாரித்தவர்-



S. V. SIVARUMAR

S/o.S.Velusamy

176, Trichy Road, Sulur,

L.No.A/16/CBE/1994.

Cell No.9842467137

புத்தகம் 2022 ம் வருடத்தில் 11938 ம் ஆவணம் 14 நாள் கணக்கொண்டது. 8 வருடிகள் படுவோன்





தமிழக அரசு

வருவாய்த் துறை

நிர்வாகண விபரங்கள் : இ. எண் 10(1) பி/14

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : நடுவூர்

வருவாய் திணைக்கட்சி : பச்சையலையம்

பட்டா எண் : 1437

உரிமையாளர்கள் பெயர்

1.	லட்சுமணசாமி	மனைவி	தேவலகாசி	-
2.	சாமையி	மனைவி	கருப்பத்தூர்	-
3.	செளரியப்பன்	மகன்	தேவதீர்த்தி	-
4.	செளரியப்பன்	மகன்	சுவாமி	-

பூர்வ எண்	உட்பிரிவு	புகள்கொடு		தரகொடு		மற்றவை		குறிப்புகள்
		பரப்பு	திசை	பரப்பு	திசை	பரப்பு	திசை	
		நெற்க - ஏர்	கு - மை	நெற்க - ஏர்	கு - மை	நெற்க - ஏர்	கு - மை	
406	1A	0 - 3.00	0.06	--	--	--	--	2018/0103 /12/090246--- -- 16-03-2018
408	2B	0 - 95.50	1.91	--	--	--	--	2018/0103 /12/090246--- -- 16-03-2018
408	2C	0 - 86.00	1.73	--	--	--	--	2018/0103 /12/090246--- -- 16-03-2018
		1 - 84.50	3.70					

குறிப்பு 2 :



1. தென்மேல் தகவல் / சான்றிதழ் தகவல் விவரங்கள் பின்பு பதிவேட்டில் குறிப்பிட்டு பெறப்பட்டவை. இவற்றை தகவல் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/025/01437/30575 என்ற குறிப்பு எண்ணை உள்நீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இது தகவல்கள் 12-07-2022 ஆகிய 12:07:24 PM நேரத்தில் ஆசைபெறப்பட்டது.
3. மகப்பேரி சென்சைட்டிவ் 2D Barcode படிப்பதற்கு மூலம் பயிற்சி 3G/GPRS வழி இணையதளத்தில் விபரங்கொடுக்கப்படும்.

1 புத்தகம் 2022 ம் வருடத்திய 1938 ம் ஆவணம் 11 தாள்களையாகக் கொண்டது.
9 வருட தகவல்
பதிவு செய்தவர்



17 JUL 2022

இந்திய அரசாங்கம்
Government of India

அதிகாரம்
Dehavment



பிறந்த நாள் - DOB: 30/12/1996
பாலினம் - Female

6632 3181 2668

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

இந்திய அரசாங்கம்
Unique Identification Authority of India

அதிகாரம்

முகவரி: ஸ்ரீமதி சுகந்தி லக்ஷ்மணசாமி
11, டாக்டர் லக்ஷ்மணசாமி
அவர்ஸ், கோம்பேட்டர், காமராசு நகர்
நாடு, 641407

Address: W/O
Lakshmanasamy, 3/87,
WESTARASUR, Arasur,
Coimbatore, Arasur, Tamil
Nadu, 641407

6632 3181 2668

1800 200 1947 help@uidai.gov.in www.uidai.gov.in

உறுதிப்படுத்துதல்

இந்திய அரசாங்கம்
Government of India

அதிகாரம்
Dehavment



பிறந்த நாள் - DOB: 24/09/2000
பாலினம் - Male

5444 0140 4250

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

இந்திய அரசாங்கம்
Unique Identification Authority of India

அதிகாரம்

முகவரி:
தேவா / தாய் குடியேற்ற
கோம்பேட்டர், காமராசு நகர்
கோம்பேட்டர், காமராசு நகர்
காமராசு நகர், காமராசு நகர்
நாடு, 641401

Address:
S/O: Senniappan, 3/87A,
BENGADURAI, Kadampadi,
Coimbatore, Kadampadi, Tamil
Nadu, 641401

5444 0140 4250

1800 200 1947 help@uidai.gov.in www.uidai.gov.in

Dr. J. J. J.

1 புத்தகம் 2022 ம் வருடத்திய 11938ம்
ஆவணம் 14 நாட்களளங்கொண்டது.
10 வருடம்
Dr. J. J. J.



11 JUL 2022


 தங்கராசு ல
 Thangarasu L
 பிறந்த நாள்/DOB: 24/03/1989
 ஆண்/ MALE

9959 6832 7888
 VID : 9136 3216 7724 0104

என்னது அடையாளம். என்னது அங்கீகரிக்கப்பட்டது


 Ministry of India

(Passport)
 புகை / அங்கு குடியேறும் இடம், 3 / 87,
 அரசு அலுவலகம் - அரஸ்லர், கோவை, தமிழ்நாடு,
 தஞ்சை - 641407

Address:
 S/O: Lakshminarasany, 3 / 87, WEST
 ARASLAR, Arasur, Coimbatore,
 Tamil Nadu - 641407

9959 6832 7888
 VID : 9136 3216 7724 0104

1987 | 2022 | www.india.gov.in

[Handwritten signature]

1 புத்தகம் 2022 ம் வருடத்தில் 1938 ம்
 ஆவணம் 14 தயார் செய்து கொண்டு
 11 வது தாள்
 பதிவு செய்தவர்



1.7 JUL 2022

இந்திய அரசாங்கம்
Government of India

ம. லக்ஷ்மணம்
Lakshmanasamy
பிறந்த நாள் / DOB : 01/07/1957
ஆண்கள் / Male




6233 7337 4278

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

Unique Identification Authority of India

முகவரி
தலை : எல். குமார் ராமசாமி
3 / 87, மேற்கு அரசூர், அரசூர்
கொம்பட்டை, அரசூர், தமிழ்
நாடு 641407

Address
S/O. Ramasamy, 3 / 87, WEST
ARASUR, Arsur, Coimbatore,
Arasur, Tamil Nadu, 641407

6233 7337 4278

1947 1000 200 1947 help@uidai.gov.in www.uidai.gov.in

f n o k h

இந்திய அரசாங்கம்
Government of India

சுவாமி சென்னியப்பன்
Swathi Senniyappan
பிறந்த நாள் / DOB : 06/10/2002
பெண்கள் / Female




5005 5531 4248

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

Unique Identification Authority of India

முகவரி
D/O: சென்னியப்பன், 3/87A,
பில்லையர் கோவில் வீடு,
செவ்வழி, கட்டம்படி,
கொம்பட்டை, அரசூர், தமிழ்
நாடு 641401

Address
D/O: Senniyappan, 3/87A,
PILLAYAR KOVIL STREET,
SENGATHURAI, Kadampadi,
Kadampadi, Coimbatore, Tamil
Nadu, 641401

5005 5531 4248

1947 1000 200 1947 help@uidai.gov.in www.uidai.gov.in

v. swathi

1 புக்கம் 2022 11936
ஆவணம் 14
19 வ.நா.க.க.
பதிவு செய்தவர்



R/தலூர்/புத்தகம்-1/11938/2022

2022 ஆம் ஆண்டு ஜூலை மாதம் 12ம் தேதி பி.ய. 01:16 மணியளவில் தலூர் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 2,710/- செலுத்தியவர்.

<p>இடது பெருவிரல்</p> 				
<p>எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்</p> 			<p style="font-size: 1.2em; text-align: center;">உருஷ்மணி</p> <p>“சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்” என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:1642489a1f3f008a3d4a428f1e842a8f306d2d (Details from UIDAI : Delvamanl W/O: Lakshmanesamy, 30-12-1968, xxxxxxxx2898)</p>	
<p>எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்</p> 			<p style="font-size: 1.2em; text-align: center;">ஜெகதீஷ்</p> <p>“சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்” என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:982709d9bc8541672a401185ba1471fc1231fd (Details from UIDAI : Jagadeesh Sennappan S/O: Sennappan, 24-05-2000, xxxxxxxx4250)</p>	
<p>எழுதி வாங்கியதாக ஒப்புக் கொண்டவர் இடது பெருவிரல்</p> 				

14.10.2022 ம் தலூர் 11938ம்
ஆவணம் 14 தலூர் அலுவலகம்
13 வது தளம்
பதிவு அலுவலர் 1/2

R/தூலார்/புத்தகம்-1/11938/2022

14 JUL 2022

2022 ஆம் ஆண்டு ஜூலை மாதம் 12ம் நாள்



ராஜேஸ்வரி ந
சார்பதிவாளர்

தூலார்
சார்பதிவாளர்

R/தூலார்/புத்தகம்-1/11938/2022 எண்ணாகப் பதிவு செய்யப்பட்டது.

நாள்: 12/07/2022

தூலார்



ராஜேஸ்வரி ந
சார்பதிவாளர்

சார்பதிவாளர்

தூலார்



புத்தகம் 2022 ம் ஆண்டு தி. 11938 ம்
ஆவணம் 14 தபாலகளைக் கொண்டது.
14 வது நாள்
பதிவு செய்யப்பட்டது



R/தலூர்/புத்தகம்-1/11938/2022

பதிவு செய்யப்பட்டிருக்கிறது
1.1 JUL 2022

2022 ஆம் ஆண்டு ஜூலை மாதம் 12ம் நாள்


ராஜேஸ்வரி ந
சார்பதிவாளர்
தலூர்
சார்பதிவாளர்

R/தலூர்/புத்தகம்-1/11938/2022 எண்ணாகப் பதிவு செய்யப்பட்டது.

நாள்: 12/07/2022
தலூர்


ராஜேஸ்வரி ந
சார்பதிவாளர்

சார்பதிவாளர்
தலூர்



புத்தகம் 2022 ம் ஆண்டு திசம்பர் 11938 ம்
ஆவணம் 4 நம்புகளைக் கொண்டது.
14 வது நாள்
பதிவு செய்யப்பட்டது



செய்திகளும் கடிப்புகளும்
17 JUL 2022

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

THANGARASU L
LAKSHMANASAMY
24/03/1989

Permanent Account Number
AUAPT3503D


Signature



In case this card is lost / found, kindly inform / return to :
Income Tax PAN Services Unit, UPIITSL,
Plot No. 3, Sector 11, CBD Belapur,
Navi Mumbai - 400 614.

இது கார்ட் இல்லை / காணப்பட்டால் கீழ்க்கண்ட முகவரிக்கு / திரும்பி கொடுக்கவும் :
ஆயுத வரி பிஎன் சேவா யூனிட், UPIITSL,
புளட் நெ. 3, சக்தர் 11, சி.பி.டி.பெலூர்,
நவீ மும்பை - 400 614.



19 JUL 2022




மார்ச் 2016: 14/03/2016


Thangarasu L
 பிறந்த நாள்/DOB: 24/03/1989
 பாலினம்/ MALE

9959 6832 7888
 VID : 9136 3216 7724 0104

எண்து அலுவலகம், எண்து அமைச்சரவை



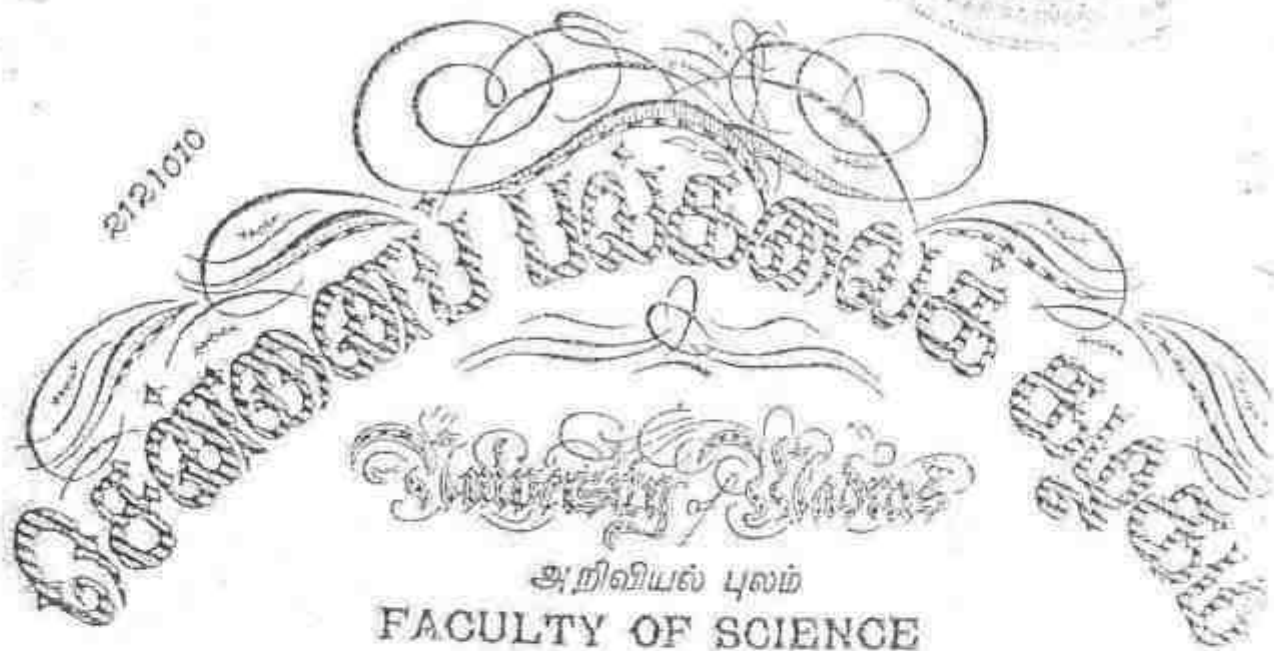

மார்ச் 2016: 14/03/2016
 Government of Tamil Nadu
 Government of India

மார்ச் 2016: 14/03/2016
 Address:
 S/O: Lakshmanasamy, 3 / 87, WEST
 ARASUR, Arasar, Coimbatore,
 Tamil Nadu - 641407



9959 6832 7888
 VID : 9136 3216 7724 0104

1967 | help@tamil.gov.in | www.tamil.gov.in



சென்னைப் பல்கலைக் கழகப் பேரவை 1994

ஆண்டு..... துறை..... மாநாடு நடந்த..... கூடுதலியல்.....
 வி. சங்கரநாதன்..... எம். பி. எஸ்..... இ. சி. என்.....
 இவரின் உயரநிலை எல்லை நக்க இயல்பான சான்றிதழை அறிவியல் நிகழ்ச்சி
 என்றும் பட்டத்தை அவருக்குப் பல்கலைக் கழக பேரவை தர உரிமை செய்துள்ளது.

The Senate of the UNIVERSITY OF MADRAS hereby makes known that... *Dr. Sranganatha*... has been admitted to the Degree of Master of Science, his/her having been certified by duly appointed Examiners to be qualified to receive the same in... *Geology*... and was placed in the... *First*... Class, at the Examination held in April 1994.



Given under the seal of the University,

சென்னை, சிப்பந்தி
 சென்னை, மாடிரா
 25-07-1994

F. T. Jeyaraj
 தலைவர் பேரவை
 செ. மா.




GOVERNMENT OF TAMIL NADU
 MINISTRY OF LABOUR AND REHABILITATION
 OFFICE OF THE DIRECTOR GENERAL OF MINES SAFETY

Certificate of Practical experience granted by the Manager to a candidate for a Manager's / Surveyor's / Foreman's / Overman's / Sirdar's / Miner's / Shunt free's / Blaster's Certificate of competency (Restricted) examination under the Metalliferous Mines Regulations 1961.

I, T.VENKATARAJAGOPALAN being the Mines Agent of M/S. LIMENAPH CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thermal Limestone Mine) do hereby certify that Thiru P.THANGARAJU, son of S.PERIASAMY (whose signature is appended) worked as a Geologist in the above mine from 02.05.1994 to 30.12.1999. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for Certificate of Competency.

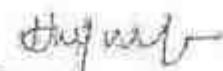

 (Signature with date and official Seal)
 [T.VENKATARAJAGOPALAN]

Mines Agent:

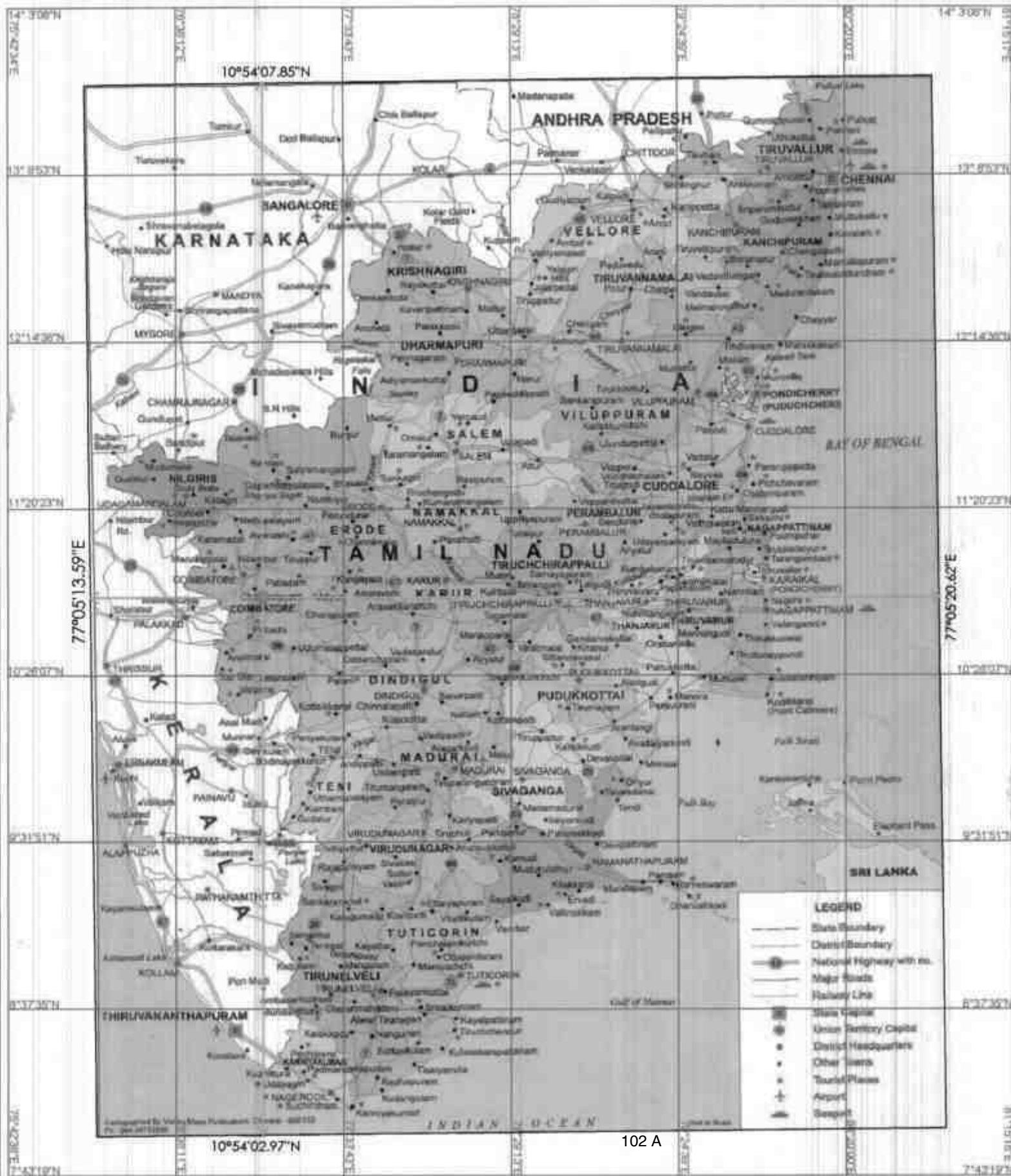
P.O. : ARUKANGULAM

District : TIRUNELVELI

State : TAMIL NADU


 (Signature of Candidate)

(State name of Mineral) : LIMESTONE



INDEX

Q.L.APPLIED AREA : ●

TOPO SHEET NO. : 58 F/01

LATITUDE : 10°54'02.97"N to 10°54'07.85"N
 LONGITUDE : 77°05'13.59"E to 77°05'20.62"E

APPLICANT :

Thiru.L. THANGARASU,
 S/o. R. LAKSHMANASAMY,
 No. 3/ 87, WEST ARASUR,
 ARASUR, SULUR TALUK,
 COIMBATORE DISTRICT - 641 407.

LOCATION OF Q.L. APPLIED AREA:

S.F.Nos : 408/ 2B & 408/ 2C,
 EXTENT : 1.81,5 Ha,
 VILLAGE : PACHAPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

PLATE NO - I

DATE OF SURVEY : 27.06.2022

LOCATION PLAN

SCALE. 1:24,00,000

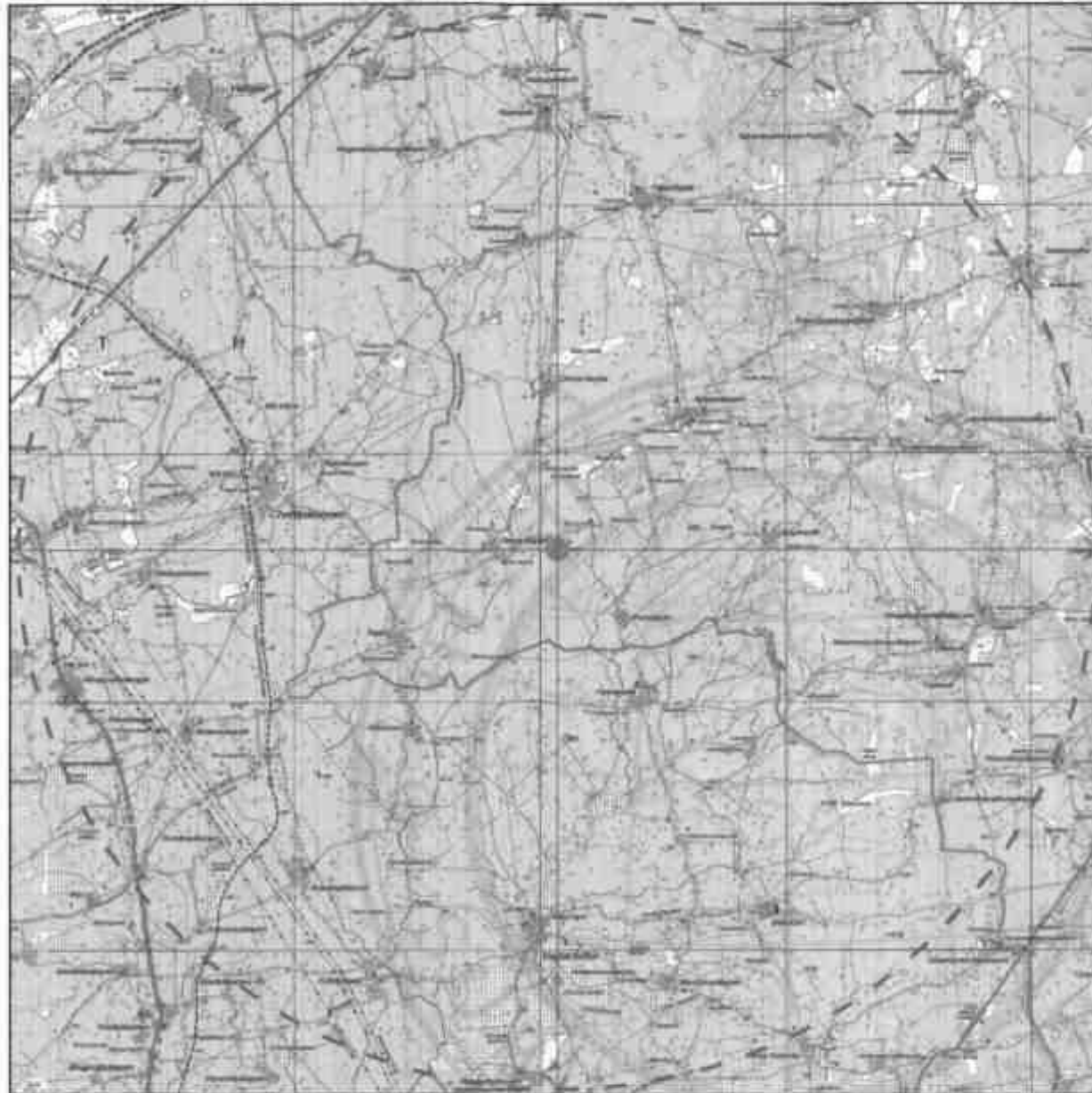
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

Dr. P. Thangarasu
 Dr.P. THANGARASU, M.Sc., Ph.D.,
 QUALIFIED PERSON



10° 59' 33.22"N



76° 59' 44.36"E

77° 10' 49.82"E

10° 48' 37.60"N

TOPO SHEET NO. : 58 F/01

 LATITUDE : 10°54'02.97"N to 10°54'07.85"N
 LONGITUDE : 77°05'13.59"E to 77°05'20.62"E
10km RADIUS : Q.L. APPLIED AREA 103 A : 

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

11 JUL 2022

APPLICANT :
 Thiru. L. THANGARASU,
 S/o. P. LAKSHMANASAMY,
 No. 3/ 87, WEST ARASUR,
 ARASUR, SULUR TALUK,
 COIMBATORE DISTRICT - 641 407.
LOCATION OF Q.L. APPLIED AREA:
 S.F.Nos : 408/ 2B & 408/ 2C,
 EXTENT : 1.81.5 Hq,
 VILLAGE: PACHAPALAYAM,
 TALUK : SULUR,
 DISTRICT COIMBATORE,
 STATE : TAMIL NADU.
PLATE NO - I-A

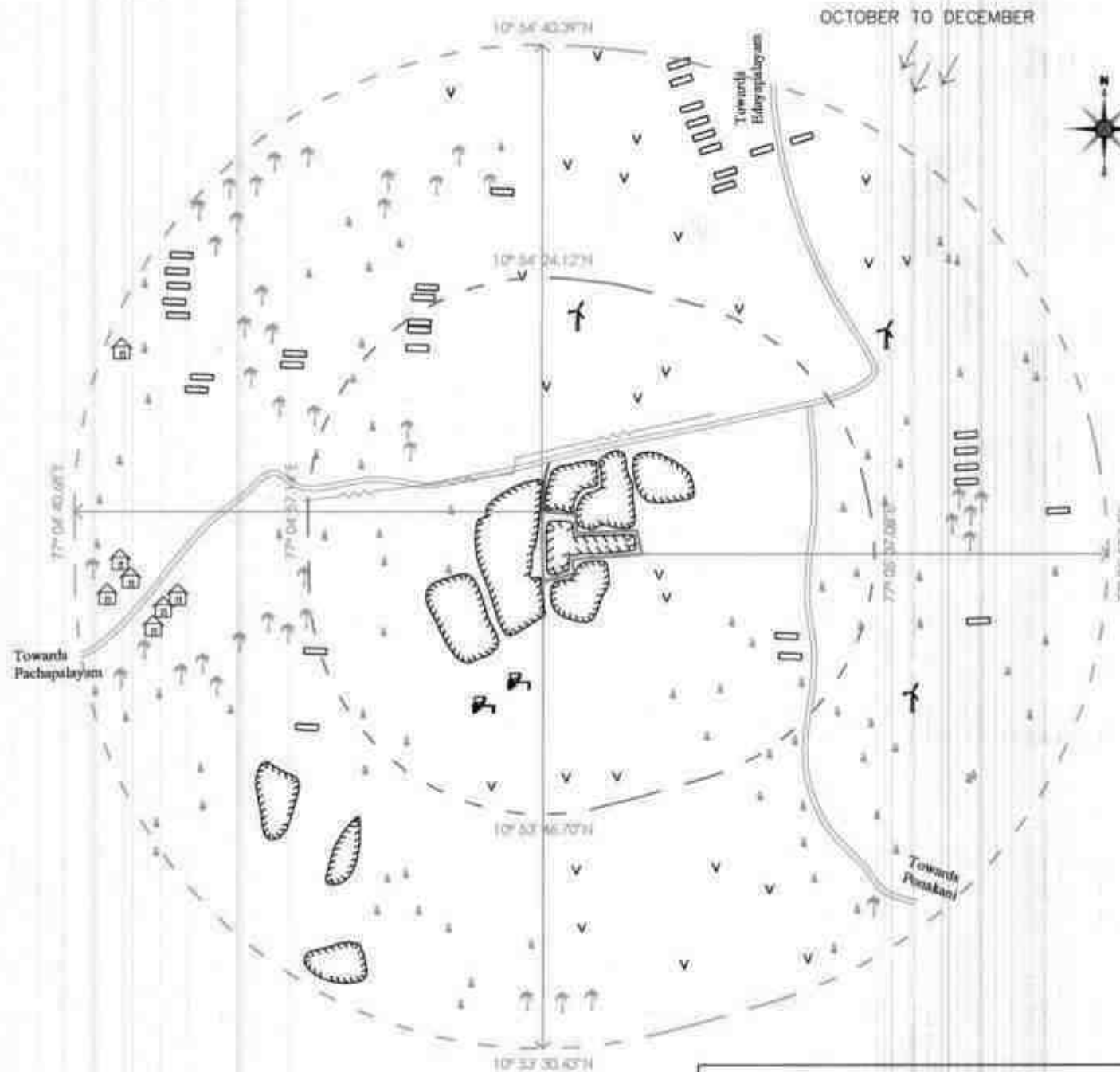
DATE OF SURVEY : 27.06.2022

**TOPO SKETCH OF QUARRY LEASE
APPLIED AREA FOR 10Km RADIUS**

SCALE: 1:1,00,000

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 LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT


 Dr. P. THANGARA J. M. S. Ph.D.,
 QUALIFIED PERSON



JULY TO SEPTEMBER

TOPO SHEET NO. : 58 F/01
 LATITUDE : 10°54'02.97"N to 10°54'07.85"N
 LONGITUDE : 77°05'13.59"E to 77°05'20.62"E

104A

LAND USE PATTERN		
DESCRIPTION	PERCENTAGE	INDEX
OLD PITS/ CRUSHER	(18%)	
TREES	(08%)	
ROADS	(05%)	
HABITATION&INFRASTRUCTURE	(11%)	
AGRICULTURE LAND	(38%)	
BARREN LAND	(20%)	
TOTAL	100%	

INDEX

- Q.L. APPLIED AREA
- 1 Km RADIUS
- 500m RADIUS
- SEASONAL AGRICULTURE LAND
- TREES
- HABITATION & INFRASTRUCTURE
- WIND DIRECTION
- PANCHAYAT ROAD
- APPROACH ROAD
- QUARRY PIT & CRUSHER
- BARREN LAND
- WINDMILL
- E.B. LINE

APPLICANT :

Thiru.L THANGARASU,
 S/o. R. LAKSHMANASAMY,
 No. 3/ 87, WEST ARASUR,
 ARASUR, SULUR TALUK,
 COIMBATORE DISTRICT - 641 407.

LOCATION OF Q.L. APPLIED AREA:

S.F.No. : 408/ 2B & 408/ 2C,
 EXTENT : 1.81.5 Ha,
 VILLAGE : PACHAPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

PLATE NO - I-B

DATE OF SURVEY : 27.06.2022

ENVIRONMENTAL & LAND USE PLAN

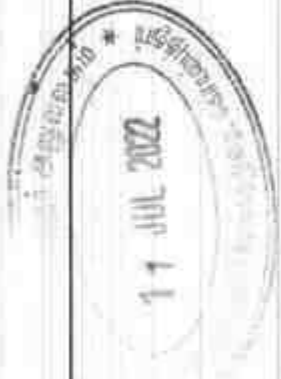
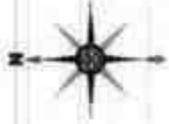
SCALE : 1:10,000

PREPARED BY :

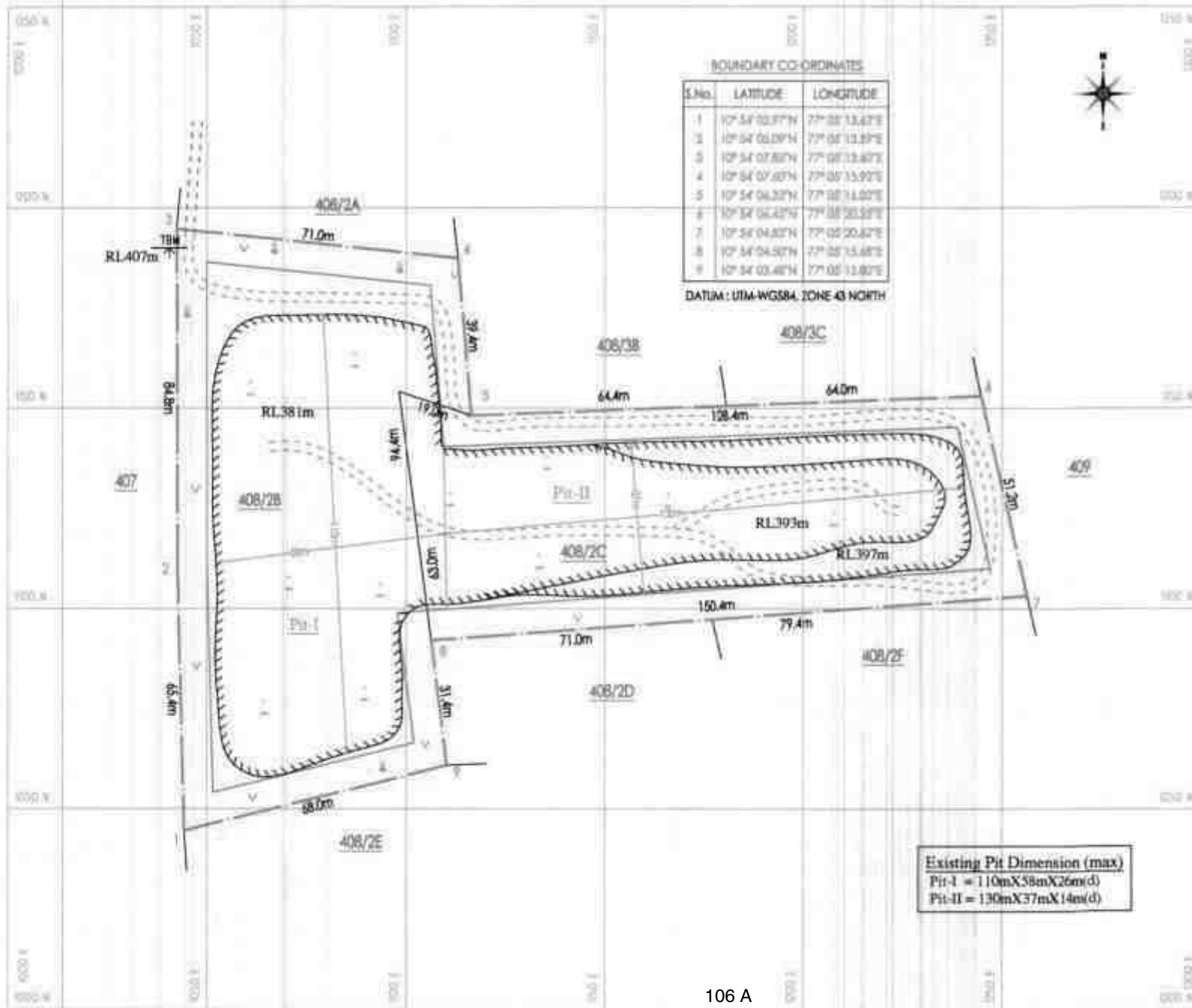
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLAN IS TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE BASED UPON THE LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT

D.P. THANGARAJ, M.S., P.L.D.,
 QUALIFIED PERSON

PLATE NO : I-C
ROUTE MAP



<p><u>INDEX</u></p> <p>LEASE APPLIED AREA <input type="checkbox"/></p> <p>SH ROAD <input type="checkbox"/></p> <p>PANCHAYAT ROAD <input type="checkbox"/></p> <p>APPROACH ROAD <input type="checkbox"/></p>	<p><u>APPLICANT :</u> Thiru.L. THANGARASU, S/o. R. LAKSHMANASAMY, No. 3/ 87, WEST ARASUR, ARASUR, SULUR TALUK, COIMBATORE DISTRICT - 641 407.</p> <p><u>LOCATION OF Q.L. A. AREA:</u> S.F.Nos : 408/ 2B & 408/ 2C, EXTENT : 1.81.5 Hq, VILLAGE : PACHAPALAYAM, TALUK : SULUR, DISTRICT : COIMBATORE, STATE : TAMIL NADU.</p>	<p><u>SCALE :</u> NOT TO SCALE.</p> <p><u>PREPARED BY :</u></p> <p>THIS IS TO CERTIFY THAT THE INFORMATION IN THE PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT</p> <p><i>(Signature)</i> DR.P.THANGARAJU, J. Sc., P.R.D., QUALIFIED PERSON</p>
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INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- ROUGHSTONE
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD

APPLICANT :

THIRU.L THANGARASU,
 S/o. R. LAKSHMANASAMY,
 No. 3/ 87, WEST ARASUR,
 ARASUR, SULLUR TALUK,
 COIMBATORE DISTRICT - 641 407.

LOCATION OF Q.L. APPLIED AREA:

S.F.No. : 408/ 2B & 408/ 2C,
 EXTENT : 1.81.5 Hc.,
 VILLAGE : PACHAPALAYAM,
 TALUK : SULLUR,
 DISTRICT : COIMBATORE,
 STATE : TAMILNADU.

PLATE NO - II

DATE OF SURVEY : 27.06.2022

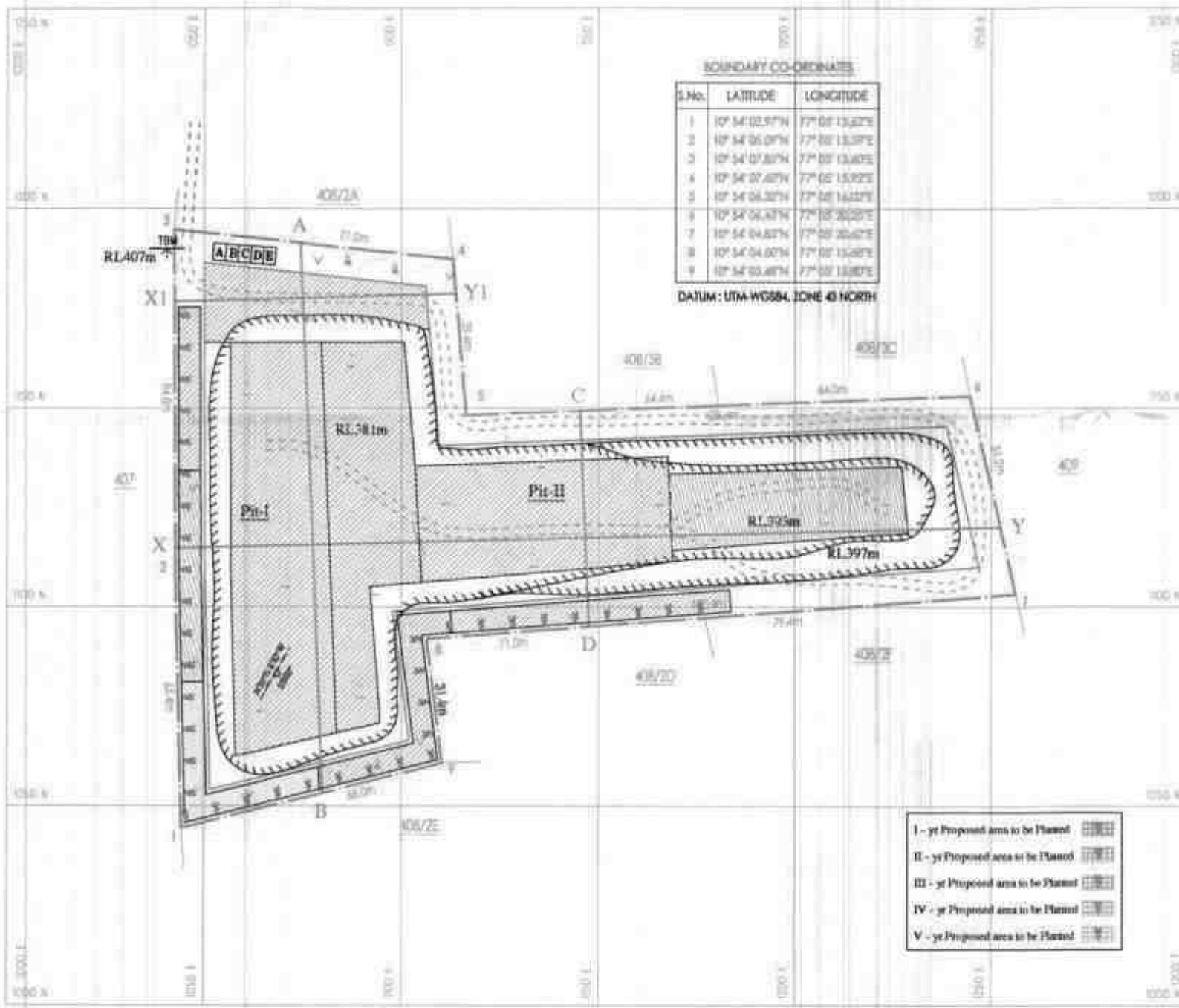
QUARRY LEASE PLAN & SURFACE PLAN

SCALE : 1:1000

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 LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

Thangarasu M.S.
 D.Y. THANGARASU, M.Sc., P.A.D.,
 QUALIFIED PERSON



Existing Pit Dimension (max)
 Pit-I = 110mX58mX26m(d)
 Pit-II = 130mX37mX14m(d)

INDEX	
	Q.L. APPLIED AREA BOUNDARY
	7.5m SAFETY DISTANCE
	TEMPORARY BENCH MARK
	GRAVEL
	WEATHERED FORMATION
	ROUGHSTONE
	STRIKE & DIP
	QUARRY PIT
	SHRUBS
	QUARRY ROAD
	APPROACH ROAD
	D.O.E DEPTH OF ESTIMATION

	1 - yr Proposed area to be Flatted
	II - yr Proposed area to be Flatted
	III - yr Proposed area to be Flatted
	IV - yr Proposed area to be Flatted
	V - yr Proposed area to be Flatted

APPLICANT :
 Thiru. L. THANGARASU,
 S/o: R. LAKSHMANASAMY,
 No. 3/B7, WEST ARASUR,
 ARASUR, SULLUR TALUK,
 COIMBATORE DISTRICT - 641 407.

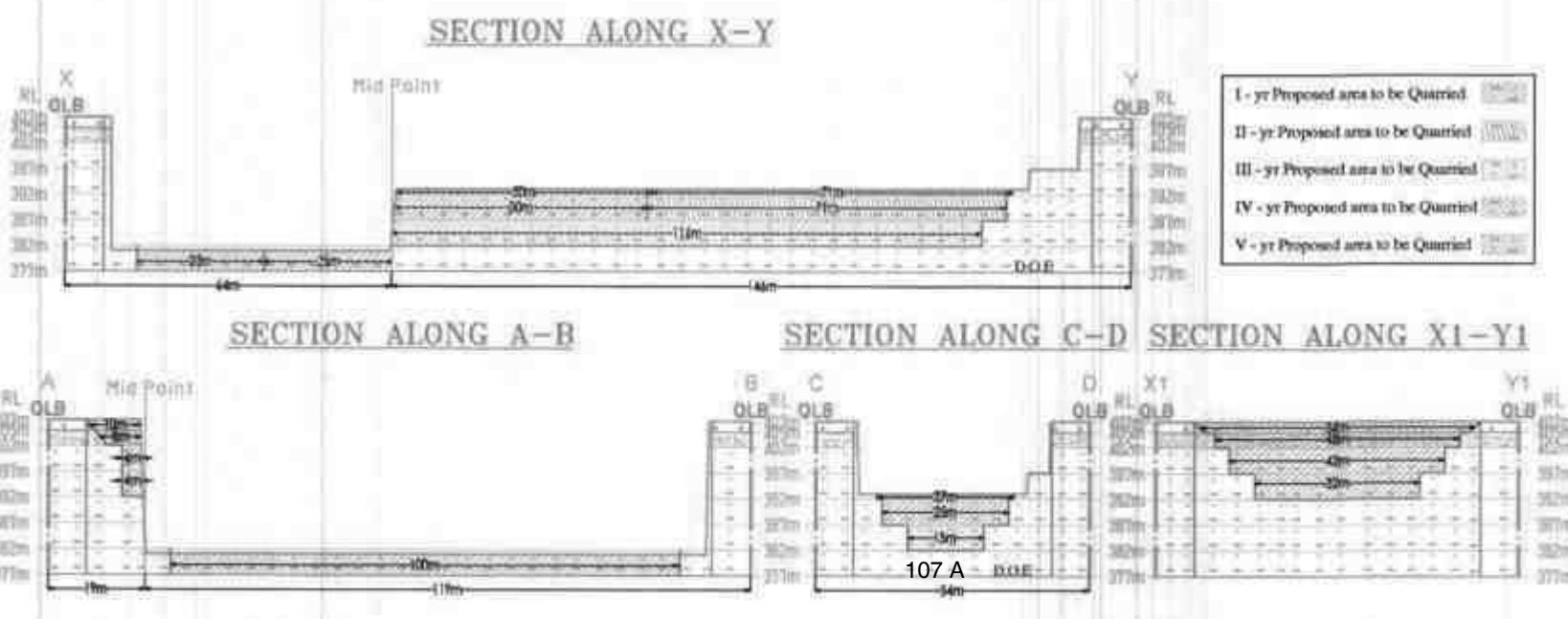
LOCATION OF Q.L. APPLIED AREA:
 S.F. Nos : 408/ 2B & 408/ 2C,
 EXTENT : 1.81.5 Ha,
 VILLAGE : PACHAPALAYAM,
 TALUK : SULLUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

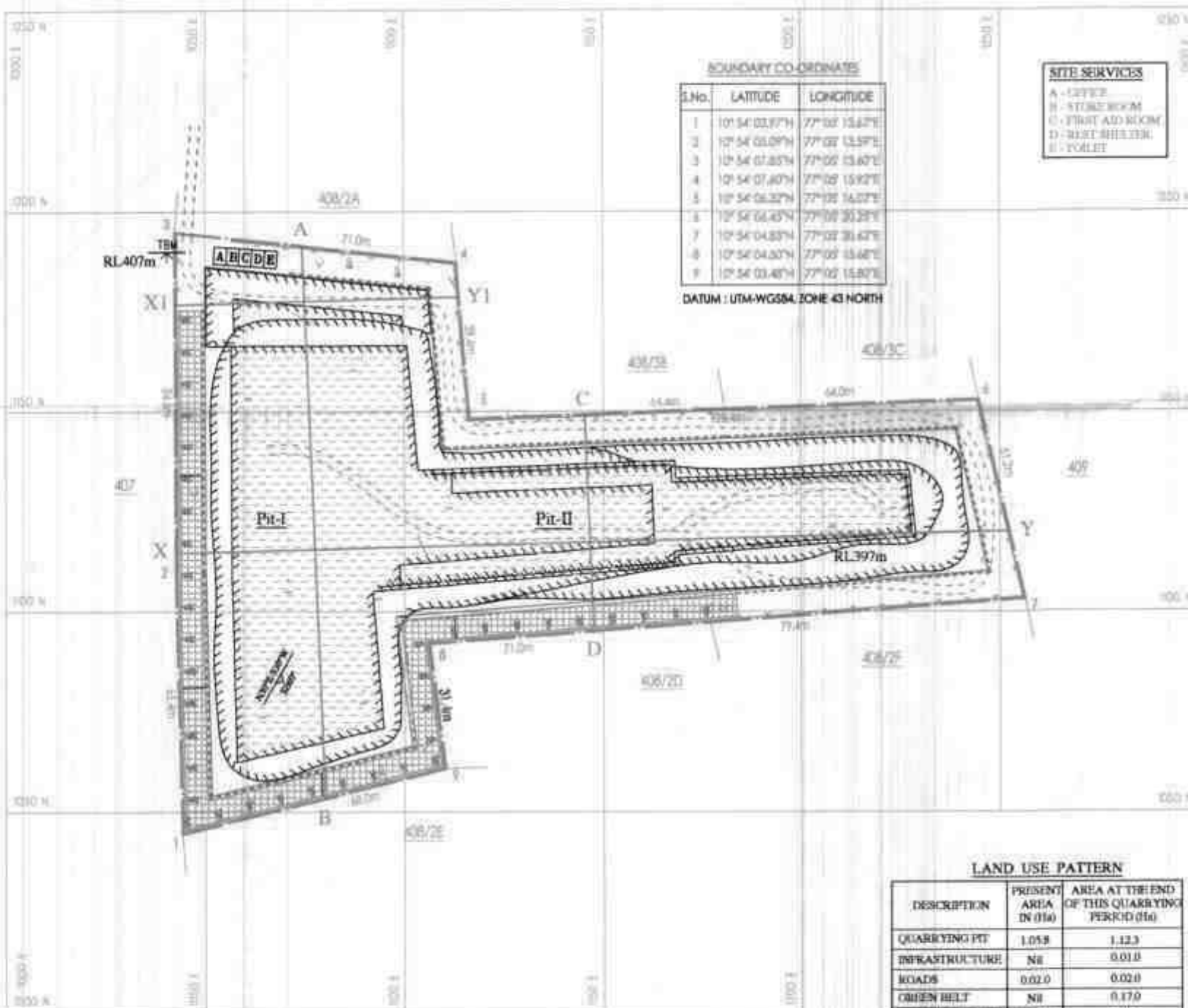
PLATE NO - III
 DATE OF SURVEY : 27.06.2022

**TOPOGRAPHY, GEOLOGICAL PLAN,
 YEARWISE DEVELOPMENT &
 PRODUCTION PLAN & SECTIONS**
 SCALE, 1:1000

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 LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT

D.P. THANGABALAM, P.L.D.,
 QUALIFIER PERSON





BOUNDARY CO-ORDINATE

S.No.	LATITUDE	LONGITUDE
1	10° 54' 03.87"N	77° 00' 13.67"E
2	10° 54' 03.09"N	77° 00' 13.59"E
3	10° 54' 07.85"N	77° 00' 13.67"E
4	10° 54' 07.80"N	77° 00' 13.92"E
5	10° 54' 06.32"N	77° 00' 16.02"E
6	10° 54' 06.45"N	77° 00' 20.23"E
7	10° 54' 04.83"N	77° 00' 20.42"E
8	10° 54' 04.07"N	77° 00' 13.67"E
9	10° 54' 03.48"N	77° 00' 13.87"E

DATUM : UTM-WGS84, ZONE 43 NORTH

SITE SERVICES

A - OFFICE
B - STORE ROOM
C - FIRST AID ROOM
D - REST SHEDD
E - TOILET



11 JUL 2022

INDEX

-  Q.L. APPLIED AREA BOUNDARY
-  7.5m SAFETY DISTANCE
-  TEMPORARY BENCH MARK
-  GRAVEL
-  WEATHERED FORMATION
-  ROUGHSTONE
-  STRIKE & DIP
-  QUARRY PIT
-  SHRUBS
-  QUARRY ROAD
-  APPROACH ROAD
-  FV YI PLANTATION
-  BARBED WIRE FENCING
-  EXISTING LAND FORM
-  PROPOSED GARLAND DRAIN
-  OLD SURFACE LEVEL
-  FINISHED SURFACE LEVEL
-  RAIN WATER STORAGE

LAND USE PATTERN

DESCRIPTION	PRESENT AREA IN (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
QUARRYING PIT	1.058	1.123
INFRASTRUCTURE	NIL	0.010
ROADS	0.020	0.020
GREEN BELT	NIL	0.170
UN-UTILIZED AREA	0.737	0.492
TOTAL	1.815	1.815


APPLICANT :
 Thiru. L. THANGARASU,
 S/o. P. LAKSHMANASAMY,
 No. 3/87, WEST ARASUR,
 ARASUR, SULUR TALUK,
 COIMBATORE DISTRICT - 641 407.

LOCATION OF Q.L. APPLIED AREA:
 S.F.No. : 408/ 2B & 408/ 2C,
 EXTENT : 1.81.5 Ha,
 VILLAGE : PACHAPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

PLATE NO - IV
 DATE OF SURVEY : 27.06.2022

PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS
 SCALE : 1:1000

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 LEASE MAP AUTHENTICATED BY STATE GOVERNMENT


 Dr. P. THANGARAJU, M.Sc., Ph.D.,
 QUALIFIED PERSON

SECTION ALONG X-Y

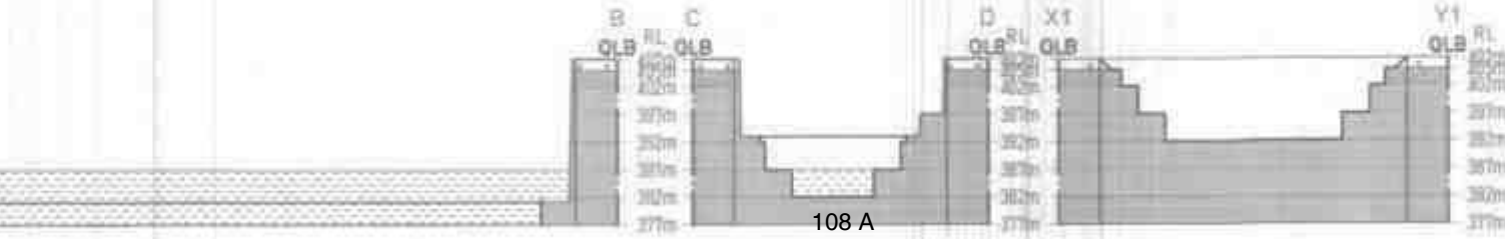


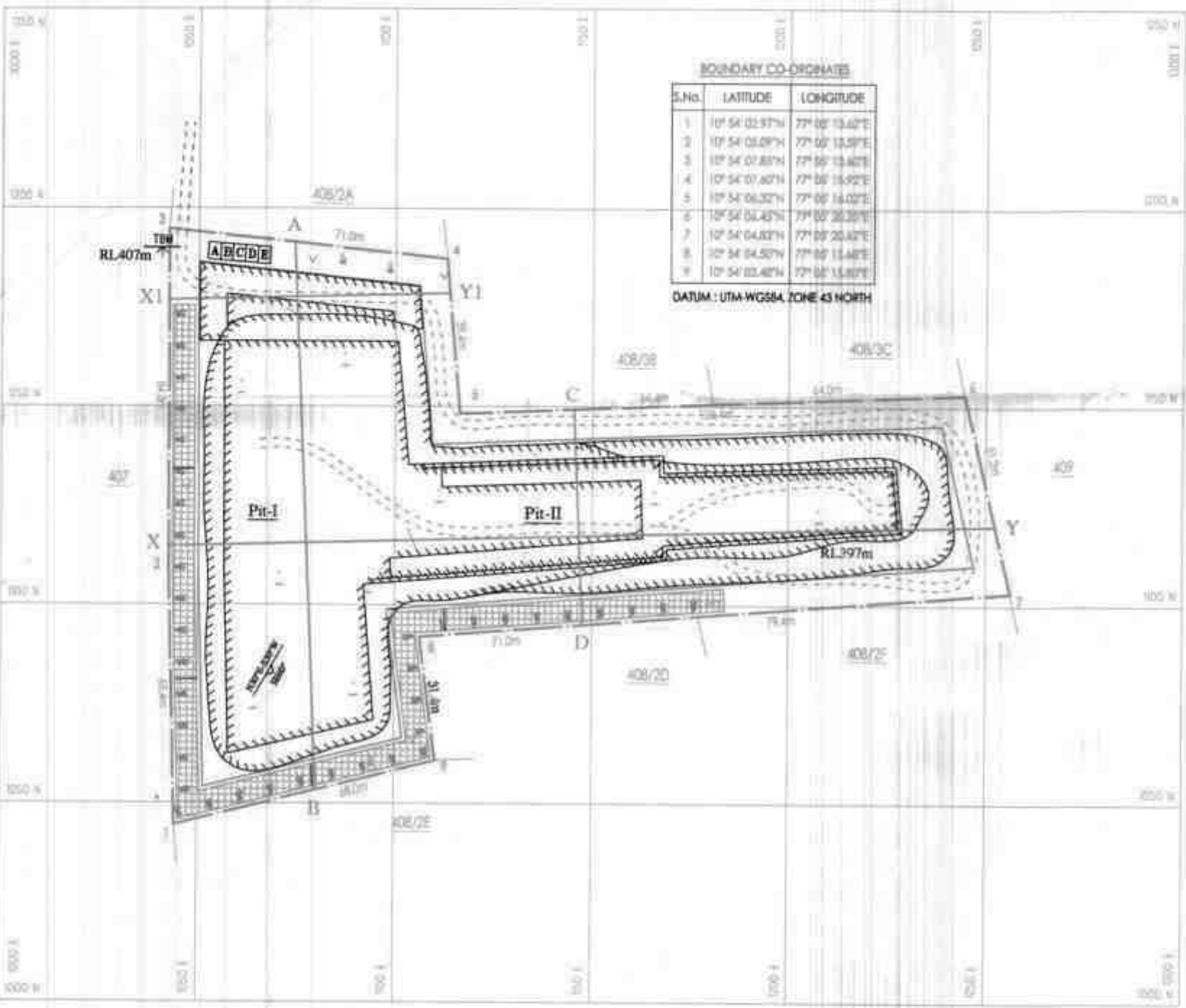
Proposed Pit Dimension (max)
 Pit-I = 120mX58mX30m(d)
 Pit-II = 130mX37mX25m(d)

SECTION ALONG A-B



SECTION ALONG C-D SECTION ALONG X1-Y1





BOUNDARY CO-ORDINATES

S.No.	LATITUDE	LONGITUDE
1	10° 54' 02.97"N	77° 00' 13.62"E
2	10° 54' 03.07"N	77° 00' 13.59"E
3	10° 54' 03.85"N	77° 00' 13.62"E
4	10° 54' 03.80"N	77° 00' 13.92"E
5	10° 54' 06.32"N	77° 00' 14.02"E
6	10° 54' 06.45"N	77° 00' 20.39"E
7	10° 54' 04.83"N	77° 00' 20.82"E
8	10° 54' 04.50"N	77° 00' 13.48"E
9	10° 54' 03.48"N	77° 00' 13.82"E

DATUM : UTM-WGS84, ZONE 43 NORTH



- INDEX**
- Q.L. APPLIED AREA BOUNDARY
 - 7.5m SAFETY DISTANCE
 - TEMPORARY BENCH MARK
 - GRAVEL
 - WEATHERED FORMATION
 - ROUGHSTONE
 - STRIKE & DIP
 - QUARRY PIT
 - SHRUBS
 - QUARRY ROAD
 - APPROACH ROAD
 - IV Y1 PLANTATION

APPLICANT :
 Thru. L. THANGARASU,
 S/o. R. LAKSHMANASAMY,
 No. 3/ B7, WEST ARASUR,
 ARASUR, SULLUR TALUK,
 COIMBATORE DISTRICT - 641 407.

LOCATION OF Q.L. APPLIED AREA:
 S.F.Nos : 408/ 28 & 408/ 2C,
 EXTENT : 1.81.5 Ha,
 VILLAGE : PACHAPALAYAM,
 TALUK : SULLUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

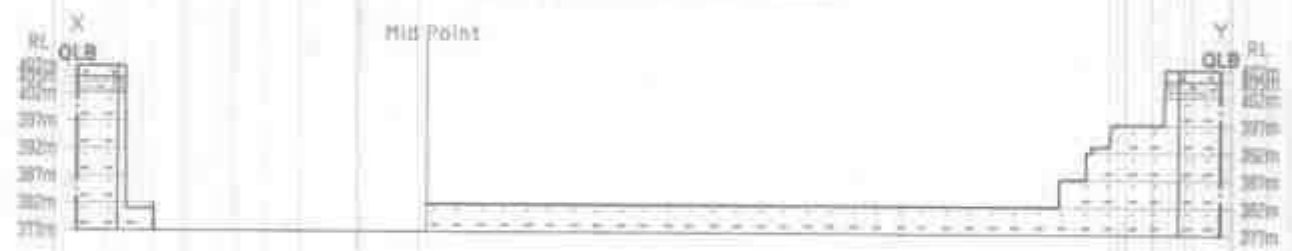
PLATE NO - V
 DATE OF SURVEY : 27.06.2022

CONCEPTUAL PLAN & SECTIONS
 SCALE, 1:1000

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 LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT

D.P. THANGARAJULU, P.H.E.,
 QUALIFIED PERSON.

SECTION ALONG X-Y



Ultimate Pit Dimension (max)
 Pit-I = 120mX58mX30m(d)
 Pit-II = 130mX37mX25m(d)

SECTION ALONG A-B



SECTION ALONG C-D SECTION ALONG X1-Y1



தோண்டி மாவட்டம் தூயர் வட்டம்

அரசூர் கிராமம் கதவு எண் 3/87 மேற்கு

அரசூர் என்ற முகவரியில் வசதிக்கும் தங்கராசு த/ப
வடகமணசாமி என்பவர் கல்கொர் உரிமம்
உபய மனு உதவித்ததன் உபயாசி விசாரணை
மற்றும் 4லத்தணிதகை ரசய்தி அறிக்கை சமர்ப்பிக்கப்பட்டு

தோண்டி மாவட்டம் தூயர் வட்டம்

பச்சாபாளையம் கிராமம் 4ல எண்கள் 408/2B

உந. காணையல் 4. ஏறு 0.95.50 (4. ஏ 2.36) மற்றும்

408/2C உந. காணையல் 4. ஏறு 0.86.00 (4. ஏ 2.12)

ஆக மொத்தம் 4. ஏ 4.48 என்பதற்கான சூழியத்து

தூயர் சார்பதவணி அயுவலக பங்கசாத பத்திர எண்

11391/2022 நாள் 4.7.2022 ப் உதய்வுமணி

என்பவருக்கும் பங்கபத்திய வரவிதண்பத்திர எண் 11739/2022

நாள் 8.7.2022 ப் உதய்வு என்பவருக்கும் கட்டக

பத்தியப்பட்ட சூழிய மேற்கண்ட மனுதரர் தங்கராசுக்கு

மேற்பு காணையல் கிவாநி அமைப்பதற்கு. உதய்வு

மற்றும் உதய்வுமணி ஆகிய கிவாநி தூயர் சார்பதவணி

அயுவல சித்தகை பத்திர எண் 11938/2022 நாள் 12.7.2022

ப் 10 உருவங்களுக்கு குத்தகைக்கு ரசுத்திகொடுத்திந்தனிதர

மேற்பு காணையல் கல்கொர் அமைக்க

மனுதரர் உத்தேசிக்கப்பட்ட உபத்தியகிட்டு 300 ரூபி

சுற்றளவுத் தத்தம் 4றம் உபக்கு சூழியப்புகளை, அங்க்கரிப்ப

மணைகளை, பள்ளி மற்றும் கவலாக்களை, மயானகை,

4ரநதான சிண்காங்களை ரசும் சிவ்ண என்பதை உதய்வுக்கு

உதய்வுக்கு

V. Jayaram 25.7.2022
கிராம நிர்வாக அலுவலர்
43, பச்சாபாளையம்,
தூயர் வட்டம்

**TOPOGRAPHICAL VIEW OF PACHAPALAYAM ROGH STONE
QUARRY LEASE APPLIED AREA**



Name of the Applicant : L. Thangarasu,
S/o. R. Lakshmanasamy,
Address : No.3/87, West Arasur, Arasur,
Sulur Taluk, Coimbatore District,
Tamil Nadu State – 641 407..

Location:

S.F.Nos. : 408/2B and 408/2C
Extent : 1.81.5 Ha
Village : Pachapalayam
Taluk : Sulur
District : Coimbatore

Signature of the Applicant


L. Thangarasu

V. Jayaraman 25.7.2022
கிராம நிர்வாக அலுவலர்
43, பச்சாபாளையம் (Village Administration Officer)
சுலூர்-வடகாடு

அனுப்புநர்
திரு.வை.இளங்கோ B.Sc.,
வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் தெற்கு.

பெறுநர்
மாவட்ட ஆட்சித் தலைவர்
கோயம்புத்தூர்

மு.மு.எண் : 1846/2022/அ2,

நாள் : 13.05.2022

அய்யா,

பொருள் : கனிமங்களும் சுரங்கங்களும் - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - பச்சாபாளையம் கிராமம் - புல எண்கள். 408/2B-ல் 0.95.50 ஹெக்டேர் மற்றும் 408/2C-ல் 0.86.0 ஹெக்டேர் ஆக மொத்தம் 1.81.50 ஹெக்டேர் பரப்புள்ள பட்டாபூமி - திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி என்பவர் சாதாரண கற்கள் மற்றும் கிராவல் சுவாரி குத்தகை உரிமம் கோருதல் - அறிக்கை அனுப்புதல் - தொடர்பாக.

பார்வை : 1. திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி 3/87, மேற்கு அரகூர், சூலூர் வட்டம், கோயம்புத்தூர் மாவட்டம், என்பவர் விண்ணப்பம் நாள்:14.03.2022.
2. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர், ந.க.எண்.239/கனிமம்/2022, நாள்:22.03.2022.
3. இவ்வலுவலக ந.க.எண்.1846/2022/அ2, நாள்:19.04.2022.
4. வட்டாட்சியர், சூலூர், ந.க.1686/2022/அ7, நாள்:06.05.2022.

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், அரகூர் மேற்கு கதவு எண்.3/87 என்ற முகவரியில் வசித்து வரும் திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி என்பவர், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள் 408/2B-ல் 0.95.50 பு.ஹெக்டேர் மற்றும் 408/2C-ல் 0.86.0 பு.ஹெக்டேர் ஆக மொத்தம் 1.81.50 பு.ஹெக்டேர் பரப்புள்ள பட்டா பூமியில், சாதாரண கற்கள் மற்றும் கிராவல் மண் வெண்டியெடுக்க கல்குவாரி குத்தகை உரிமம் கோரிய திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி என்பவர் பார்வை 1-இல் விண்ணப்பித்துள்ளது தொடர்பாக, பார்வை 4-இல் காணும் சூலூர் வட்டாட்சியரின் அறிக்கை வரப்பெற்றுள்ளதையடுத்து, புலத்தணிக்கை மேற்கொண்டு எனது அறிக்கையினைப் பின்வருமாறு சமர்ப்பித்துக் கொள்கிறேன்.

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள் 408/2B-ல் 0.95.50 பு.ஹெக்டேர் மற்றும் 408/2C-ல் 0.86.0 பு.ஹெக்டேர் ஆக மொத்தம் 1.81.50 பு.ஹெக்டேர் பரப்புள்ள பூமியானது சூலூர் சார்பதிவாளர் அலுவலக கிரையபத்திர எண்கள்.217/1982, 1700/1984 மற்றும் 8896/2012 ஆகியவையின்படியும் கிராம பட்டா எண்.1437-ன்படியும் கருப்பாத்தாள், தெய்வமணி, ஜெகதீஷ் மற்றும் சுவாதி ஆகியோருக்கு கூட்டாக

பாத்தியப்பட்டதாகும். மேற்படி பூமியில் கல்தவாரி குத்தகை உரிமம் பெற மனுதாரராக திரு.ல.தங்கராசு என்பவருக்கு சம்மதக் கடிதம் அளித்துள்ளனர்.

மேற்படி காலையிலிருந்து வடக்கில் 80 மீட்டர் தொலைவில் இடையாற்பாளையம் முதல் பெரிய சூயிலை செல்லும் சாலை உள்ளது. குவாரியிலிருந்து சுமார் 120 மீட்டர் தொலைவில் உயர் மின்னழுத்த கம்பி உள்ளது. மேற்படி குவாரியிலிருந்து சுமார் 400 மீட்டர் தொலைவில் வடமேற்கில் உயர் மின்கோபுரம் உள்ளது. சுமார் 300 மீட்டர் தொலைவில் தென்கிழக்கில் உயர் மின் கோபுரம் உள்ளது.

மேற்படி பிரஸ்தாப புலத்தின் எல்லைகள்:

கிழக்கில்: க.ச.எண்.409/3 நெ.காலையும் உள்ளது.

மேற்க்கில்: க.ச.எண்.407/2B நெ.காலையும் உள்ளது.

வடக்கில்: க.ச.எண்.408/2A, 408/3B மற்றும் 408/3C நெ.காலையுள் உள்ளது.

தேற்கில்: க.ச.எண்.408/2E, 408/2D மற்றும் 408/2F நெ.காலையுள் உள்ளது.

புலத்தில் உள்ள நான்கு எல்லைகள் சரிபார்க்கப்பட்டதில் சரியாக உள்ளது.

விண்ணப்பதாரர் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குத்தகை உரிமம் கோரியுள்ள புலத்தில்,

1. மேற்படி பூமியில் அரசு புறம்போக்கு நிலம் ஏதும் இல்லை.
2. மேற்படி பூமியானது நகர்ப்புற உச்சவரம்பு சட்டம் 1978-ன் கீழ் கவரப்படவில்லை.
3. மேற்படி பூமியானது நில சீர்த்திருத்த சட்டம் 1961-ன் கீழ் கவரப்படவில்லை.
4. நிலம் கையகப்படுத்தும் சட்டம் 1984 பிரிவு 4(1)-ன் கீழ் இதுவரை அறிவிப்பு ஏதும் செய்யப்படவில்லை.
5. மேற்படி பூமியில் விலையுயர்ந்த மரங்கல் மற்றும் புராதானச் சின்னங்களோ ஏதும் இல்லை.
6. மேற்படி புலத்தில் உயர்/தாழ் அழுத்த மின்கம்பிகள் ஏதும் செல்லவில்லை.
7. மேற்படி புலத்தில் மாநில மற்றும் தேசிய நெடுஞ்சலைகள் ஏதுமில்லை.
8. மேற்படி புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகளோ, நத்தம் குடியிருப்புகளோ ஏதும் இல்லை.
9. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் கோவில், மசூதி, தேவாலயம் போன்ற மத வழிபாட்டுத்தளங்கள் ஏதுமில்லை.
10. மனுதாரர் அரசுக்கு செலுத்த வேண்டிய கனிம வரி நிலுவை இல்லை என்பதற்கான உறுதிமொழி, வழங்குரைஞர் முன்னிலையில் கையொப்பம் இட்டுள்ளார் அதன் நகல் இணைக்கப்பட்டுள்ளது.

கோயம்புத்தூர்
கிராமம்
புல எண்கள்
பட்டா

கோயம்புத்தூர் மாவட்டம், குலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள் 408/2B-ல் 0.95.50 பு.ஹெக் மற்றும் 408/2C-ல் 0.86.0 பு.ஹெக் ஆக மொத்தம் 1.81.50 பு.ஹெக் விஸ்தீரணமுள்ள பட்டா பூமியில், சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி என்பவருக்கு அனுமதி வழங்கலாம் என்பதைப் பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு: தொடர்புடைய ஆவணங்கள்

தங்கள் உண்மையுள்ள,

வருவாய் கோட்டாட்சியர்
கோயம்புத்தூர் தெற்கு

Ami
13.05.2022

பு
லில்
சுன்று
ரன்.
லைவில்
மது

பு
பவர்

புலத்தணிக்கைக் குறிப்பு

தணிக்கை அலுவலர்	: வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு
தணிக்கை நாள்	: 10.05.2022
தணிக்கை கிராமம்	: பச்சாபாளையம் கிராமம்
தணிக்கை புலங்கள்	: 408/2B மற்றும் 408/2C
தணிக்கையின் நோக்கம்	: கனிமங்களும் கரங்கங்களும் - கோயம்புத்தூர் மாவட்டம் - குலூர் வட்டம் - பச்சாபாளையம் கிராமம் - புல எண்கள். 408/2B-ல் 0.95.50 ஹெக்டேர் மற்றும் 408/2C-ல் 0.86.0 ஹெக்டேர் ஆக மொத்தம் 1.81.50 ஹெக்டேர் பரப்புள்ள பட்டாபூமி - திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி என்பவர் சாதாரண கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோருதல் - அறிக்கை அனுப்புதல் - தொடர்பாக.
தணிக்கையின் போது உடனிருந்தவர்கள்	: 1. வட்டாட்சியர், குலூர். 2. உள்வட்ட நிலவருவாய் ஆய்வாளர், செலக்கரிச்சல். 3. கிராம நிர்வாக அலுவலர், பச்சாபாளையம் கிராமம்

கோயம்புத்தூர் மாவட்டம், குலூர் வட்டம், அரகூர் மேற்கு கதவு எண்.3/87 என்ற முகவரியில் வசித்து வரும் திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி என்பவர், குலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள் 408/2B-ல் 0.95.50 பு.ஹெக்டேர் மற்றும் 408/2C-ல் 0.86.0 பு.ஹெக்டேர் ஆக மொத்தம் 1.81.50 பு.ஹெக்டேர் பரப்புள்ள பட்டாபூமியில், சாதாரண கற்கள் மற்றும் கிராவல் மண் வெண்டியெடுக்க கல்குவாரி குத்தகை உரிமம் கோரிய திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி என்பவர் பார்வை 1-இல் விண்ணப்பித்துள்ளது தொடர்பாக, பார்வை 4-இல் காணும் குலூர் வட்டாட்சியரின் அறிக்கை வரப்பெற்றுள்ளதையடுத்து, 10.05.2022 அன்று புலத்தணிக்கை மேற்கொண்டு எனதறிக்கையினைப் பின்வருமாறு சமர்ப்பித்துக் கொள்கிறேன்.

மேற்படி காலையிலிருந்து வடக்கில் 80 மீட்டர் தொலைவில் இடையார்பாளையம் முதல் பெரிய குயிலை செல்லும் சாலை உள்ளது. குவாரியிலிருந்து சுமார் 120 மீட்டர் தொலைவில் உயர் மின்னழுத்த கம்பி உள்ளது. மேற்படி குவாரியிலிருந்து சுமார் 400 மீட்டர் தொலைவில் வடமேற்கில் உயர் மின்கோபுரம் உள்ளது. சுமார் 300 மீட்டர் தொலைவில் தென்கிழக்கில் உயர் மின் கோபுரம் உள்ளது.

மேற்படி பிரஸ்தாப புலத்தின் எல்லைகள்:

கிழக்கில்: க.ச.எண்.409/3 நெ.காலையும் உள்ளது.

மேற்கில்: க.ச.எண்.407/2B நெ.காலையும் உள்ளது.

வடக்கில்: க.ச.எண்.408/2A, 408/3B மற்றும் 408/3C நெ.காலையுள் உள்ளது.

தேற்கில்: க.ச.எண்.408/2E, 408/2D மற்றும் 408/2F நெ.காலையுள் உள்ளது.

புலத்தில் உள்ள நான்கு எல்லைகள் சரிபார்க்கப்பட்டதில் சரியாக உள்ளது.

விண்ணப்பதாரர் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குத்தகை உரிய கோரியுள்ள புலத்தில்,

1. மேற்படி பூமியில் அரசு புறம்போக்கு நிலம் ஏதும் இல்லை.
2. மேற்படி பூமியானது நகர்ப்புற உச்சவரம்பு சட்டம் 1978-ன் கீழ் கவரப்படவில்லை.
3. மேற்படி பூமியானது நில சீர்திருத்த சட்டம் 1961-ன் கீழ் கவரப்படவில்லை.
4. நிலம் கையகப்படுத்தும் சட்டம் 1984 பிரிவு 4(1)-ன் கீழ் இதுவரை அறிவிப்பு ஏதும் செய்யப்படவில்லை.
5. மேற்படி பூமியில் விலையுயர்ந்த மரங்கல் மற்றும் புராதானச் சின்னங்களோ ஏதும் இல்லை.
6. மேற்படி புலத்தில் உயர்/தாழ் அழுத்த மின்கம்பிகள் ஏதும் செல்லவில்லை.
7. மேற்படி புலத்தில் மாநில மற்றும் தேசிய நெடுஞ்சலைகள் ஏதுமில்லை.
8. மேற்படி புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகளோ, நத்தம் குடியிருப்புகளோ ஏதும் இல்லை.
9. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் கோவில், மசூதி, தேவாலயம் போன்ற மத வழிபாட்டுத்தளங்கள் ஏதுமில்லை.
10. மனுதாரர் அரசுக்கு செலுத்த வேண்டிய கனிம வரி நிலுவை இல்லை என்பதற்கான உறுதிமொழி, வழங்குரைஞர் முன்னிலையில் கையொப்பம் இட்டுள்ளார் அதன் நகல் இணைக்கப்பட்டுள்ளது.

கோயம்புத்தூர் மாவட்டம், குலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள் 408/2B-ல் 0.95.50 பு.ஹெக்டர் மற்றும் 408/2C-ல் 0.86.0 பு.ஹெக்டர் ஆக மொத்தம் 1.81.50 பு.ஹெக்டர் விஸ்திரணமுள்ள பட்டா பூமியில், சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி என்பவருக்கு அனுமதி வழங்கலாம் என்பதைப் எனத் தெரிவித்து, கோயம்புத்தூர் மாவட்ட ஆட்சியருக்குக் கடித வரைவு வைக்கவும்.

வருவாய் கோட்டாட்சியர்
கோயம்புத்தூர் தெற்கு

அனுப்புநர்

மு.சுகுணா,
வட்டாட்சியர்,
சூலூர்.

பெறுநர்

வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் (தெற்கு).

ந.க.1686/2022/அ7

நாள்: 06.05.2022.

அய்யா.,

பொருள்: கனிமங்கள் மற்றும் சுரங்கங்கள் - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - பச்சாபாளையம் கிராமம் - புல எண்கள்.408/2B-இல் பு.ஹெக் 0.95.5 மற்றும் 408/2C-இல் பு.ஹெக் 0.86.0 ஆக மொத்தம் பு.ஹெக் 1.81.50 பரப்புள்ள பட்டா பூமியில் திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி சாதாரண கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோரியது - அறிக்கை அனுப்புதல் - தொடர்பாக.

- பார்வை:
1. திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி என்பவரின் விண்ணப்பம், நாள்:14.03.2022
 2. கோயம்புத்தூர் புவியியல் மற்றும் சுரங்கத்துறை உதவி இயக்குநர் அவர்களின் கடித ந.க.239/கனிமம்/2022 நாள்:22.03.2022
 3. வருவாய் கோட்டாட்சியர் கோயம்புத்தூர் (தெற்கு) அவர்களின் கடித ந.க.1846/2022/அ2 நாள்:19.04.2022.
 4. கிராம நிர்வாக அலுவலர், பச்சாபாளையம் அறிக்கை நாள்:02.05.2022
 5. நில வருவாய் ஆய்வாளர் செலக்கரிச்சல் அறிக்கை நாள்:05.05.2022

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள்.408/2B-இல் பு.ஹெக் 0.95.5 மற்றும் 408/2C-இல் பு.ஹெக் 0.86.0 ஆக மொத்தம் பு.ஹெக் 1.81.50 பரப்புள்ள பட்டா பூமியில் திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி என்பவர் சாதாரண கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோரியது தொடர்பாக பிரஸ்தாப புலம் தணிக்கை செய்து எனதறிக்கையினை கிழ்கண்டவாறு சமர்ப்பித்துக்கொள்கிறேன்.

சூலூர் வட்டம், பச்சாபாளையம் கிராமம் புல எண்கள்.408/2B-இல் பு.ஹெக் 0.95.5 மற்றும் 408/2C-இல் பு.ஹெக் 0.86.0 ஆக மொத்தம் பு.ஹெக் 1.81.50 பரப்புள்ள பூமியானது சூலூர் சார்பதிவாளர் அலுவலக எண்கள்.217/1982, 1700/1984, 8896/2012 ஆகியவையின்படியும் கிராம பட்டா எண்.1437-இன்படியும் கருப்பாத்தாள், தெய்வமணி, ஜெகதீஷ், சுவாதி ஆகியோருக்கு கூட்டாக பாத்தியப்பட்டதாகும். மேற்படி பூமியில் கல்குவாரி குத்தகை உரிமம் பெற மனுதாரரான தங்கராசு என்பவர் பட்டாதாரர்களிடம் இருந்து சம்மதக் கடிதம் பெற்றுள்ளார்.

மேற்படி காலையிலிருந்து வடக்கில் 80 மீட்டர் தொலைவில் இடையர்ப்பாளையம் முதல் பெரிய குயிலை ஸெல்லும் சாலை உள்ளது. குவாரியிலிருந்து சுமார் 120 மீட்டர் தொலைவில் உயர் மின்னழுத்த கம்பி உள்ளது. மேற்படி குவாரியிலிருந்து சுமார் 400 மீட்டர் தொலைவில் வடமேற்கில் உயர் மின்கோபுரம் உள்ளது. சுமார் 300 மீட்டர் தொலைவில் தென் கிழக்கில் உயர் மின் கோபுரம் உள்ளது.

மேற்படி பூமிகளுக்கு க.ச.எண்.408/2A, 408/3B,3C நெ.காலையானது வடக்கு பகுதியிலும், க.ச.எண்.408/2E,2D,2F காலையானது தெற்கு பகுதியிலும், க.ச.எண்.409/3 நெ.காலையானது கிழக்கு பகுதியிலும், க.ச.எண்.407/2B காலையானது மேற்கு பகுதியிலும் புல எல்லைகளாக அமைந்துள்ளது. இதன் மத்தியில் புல எண்கள்.408/2B மற்றும் 408/2C-இல் பு.ஹெக் 1.81.50 விஸ்தீரணமுள்ள பூமி அமைந்துள்ளது.

1. மேற்படி பூமியில் அரசு புறம்போக்கு நிலம் ஏதும் இல்லை.
2. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் நத்தம் குடியிருப்புகள் இல்லை. மேற்படி குவாரியிலிருந்து சுமார் 275 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட மனைப்பிரிவுகள் ஏதும் இல்லை.
3. மேற்படி பூமியானது நகர்ப்புற நில உச்சவரம்பு சட்டம் 1978-ன் கீழ் கவரப்படவில்லை.
4. மேற்படி பூமியானது நில சீர்த்திருத்த சட்டம் 1961-ன் கீழ் கவரப்படவில்லை.
5. மேற்படி பூமியில் புராதானச் சின்னங்களோ அல்லது விலையுயர்ந்த மரங்களோ ஏதும் இல்லை.
6. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் கோவில், மசூதி, தேவாலயம் போன்ற மத வழிபாட்டுத்தளங்கள், ஏதுமில்லை.
7. மேற்படி பூமியில் தேசிய மற்றும் மாநில நெடுஞ்சாலைகள் ஏதும் செல்லவில்லை.
8. மேற்படி பூமியில் குறைமின்னழுத்தக்கம்பிகள், உயர் மின்னழுத்தக்கம்பிகள் ஏதும் செல்வதில்லை.

எனவே மனுதாரர் திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி என்பவருக்கு குலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள்.408/2B-இல் பு.ஹெக் 0.95.5 மற்றும் 408/2C-இல் பு.ஹெக் 0.86.0 ஆக மொத்தம் பு.ஹெக் 1.81.50 பரப்புள்ள பட்டா பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் புதுப்பித்து வழங்கலாம் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு: தொடர்புடைய ஆவணங்கள்

தங்கள் உண்மையுள்ள
 வெள்ளை
 வட்டாட்சியர்
 குலூர்.

16/11/2024

புலத்தணிக்கை குறிப்பு

நாள்: 30-04-2022

கிராமம்: பச்சாபாளையம்

புல எண்: 408/2B, 408/2C

உடனிருந்த அலுவலர்கள்: செலக்கரிச்சல் நில வருவாய் ஆய்வாளர், பச்சாபாளையம் கிராம நிர்வாக அலுவலர் மற்றும் கிராம உதவியாளர்

கோயம்புத்தூர் மாவட்டம், குலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள்.408/2B-இல் பு.ஹெக் 0.95.5 மற்றும் 408/2C-இல் பு.ஹெக் 0.86.0 ஆக மொத்தம் பு.ஹெக் 1.81.50 பரப்புள்ள பட்டா பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோரி திரு.ல.தங்கராசு து/பெலட்சுமணசாமி என்பவர் மனு அளித்தது தொடர்பாக பிரஸ்தாப புலம் (24-0 30-4-2022)அன்று என்னால் தணிக்கை செய்யப்பட்டது.

மேற்படி காலையிலிருந்து வடக்கில் 80 மீட்டர் தொலைவில் இடையர்பாளையம் முதல் பெரிய குயிலை ஸெல்லும் சாலை உள்ளது. குவாரியிலிருந்து சுமார் 120 மீட்டர் தொலைவில் உயர் மின்னழுத்த கம்பி உள்ளது. மேற்படி குவாரியிலிருந்து சுமார் 400 மீட்டர் தொலைவில் வடமேற்கில் உயர் மின்கோபுரம் உள்ளது. சுமார் 300 மீட்டர் தொலைவில் தென் கிழக்கில் உயர் மின் கோபுரம் உள்ளது.

மேற்படி புமிகளுக்கு க.ச.எண்.408/2A, 408/3B,3C நெ.காலையானது வடக்கு பகுதியிலும், க.ச.எண்.408/2E,2D,2F காலையானது தெற்கு பகுதியிலும், க.ச.எண்.409/3 நெ.காலையானது கிழக்கு பகுதியிலும், க.ச.எண்.407/2B காலையானது மேற்கு பகுதியிலும் புல எல்லைகளாக அமைந்துள்ளது. இதன் மத்தியில் புல எண்கள்.408/2B மற்றும் 408/2C-இல் பு.ஹெக் 1.81.50 விஸ்தீரணமுள்ள பூமி அமைந்துள்ளது.

1. மேற்படி பூமியில் அரசு புறம்போக்கு நிலம் ஏதும் இல்லை.
2. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் நத்தம் குடியிருப்புகள் இல்லை. மேற்படி குவாரியிலிருந்து சுமார் 275 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட மனைப்பிரிவுகள் ஏதும் இல்லை.
3. மேற்படி பூமியானது நகர்ப்புற நில உச்சவரம்பு சட்டம் 1978-ன் கீழ் கவரப்படவில்லை.
4. மேற்படி பூமியானது நில சீர்த்திருத்த சட்டம் 1961-ன் கீழ் கவரப்படவில்லை.
5. மேற்படி பூமியில் புராதானச் சின்னங்களோ அல்லது விலையுயர்ந்த மரங்களோ ஏதும் இல்லை.

6. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் கோவில், மசூதி, தேவாலயம் போன்ற மத வழிபாட்டுத்தளங்கள், ஏதுமில்லை.
7. மேற்படி பூமியில் தேசிய மற்றும் மாநில நெடுஞ்சாலைகள் ஏதும் செல்லவில்லை.
8. மேற்படி பூமியில் குறைமின்னழுத்தக்கம்பிகள், உயர் மின்னழுத்தக்கம்பிகள் ஏதும் செல்வதில்லை.

எனவே மனுதாரர் திரு.ல.தங்கராசு த/பெ.லட்சுமணசாமி என்பவருக்கு சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள்.408/2B-இல் பு.ஹெக் 0.95.5 மற்றும் 408/2C-இல் பு.ஹெக் 0.86.0 ஆக மொத்தம் பு.ஹெக் 1.81.50 பரப்புள்ள பட்டா பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமை புதுப்பித்து வழங்கலாம்.

சென்னை
30/4/2022
வட்டாட்சியர்
சூலூர்.

பெரிய யூனிட் யு அலகுகளில்

ப.அ.அம் 408/2A, 408/2B, 3C - 2100

ப.அ.அம் 408/2E, 2D, 2F - 2100

ப.அ.அம் 408/2 - 2100

ப.அ.அம் 407/2B - 2100

பெரிய யூனிட் 408/2B, 2C - 2100 1.81.50.80

2100, பெரிய யூனிட்

1. பெரிய யூனிட் 2100 408/2B-2C க்கு 2100

2. பெரிய யூனிட் 2100 408/2E, 2D, 2F க்கு 2100

3. பெரிய யூனிட் 300 & 2100 408/2B, 2C க்கு 2100

பெரிய யூனிட் 2100 408/2B, 2C க்கு 2100

பெரிய யூனிட் 2100 408/2B, 2C க்கு 2100

2100 408/2B, 2C க்கு 2100

4. பெரிய யூனிட் 2100/408/2B, 2C க்கு 2100

5. பெரிய யூனிட் 2100 408/2B, 2C க்கு 2100

6. பெரிய யூனிட் 2100 408/2B, 2C க்கு 2100

2100 408/2B, 2C க்கு 2100

பெரிய யூனிட் 2100 408/2B, 2C க்கு 2100

1.81.50 2100 408/2B, 2C க்கு 2100

2100 408/2B, 2C க்கு 2100

பெரிய யூனிட்

2100 408/2B, 2C க்கு 2100

2100 408/2B, 2C க்கு 2100

பெரிய யூனிட் 2100 408/2B, 2C க்கு 2100

SELVA NANDHINI EXPLOSIVES AND CHEMICALS

LICENSE NO-E/SC/TN/22/654(E85920)

7/182, Nandini illam , Bharathi Nagar, Kadampady , Kangamyampalayam(po),
City- Sulur , District -Coimbatore, State -Tamilnadu. 641401.

Date: 22/07/2022

Place: Sulur.

To,

L.Thangarasu,
S/o R.Lakshmanasamy,
3/87,West Arasur,
Arasur (Post),
Sulur (tk),
Coimbatore district.

Sub: Regarding Blasting Work using explosives in your proposed quarry.

Sir,

We are having explosive license no. in Form 22, (E85920),(E95326),(E95332),(E95340) and (E95342),
Situating Magazine at Sirukinaru Village, Sangarandapalayam via, Tirupur district. Our office is at, 7/225, Bharathi
Nagar, Kadampady, Sulur, Coimbatore-641401.

We are having eight Explosive Vans for transporting detonators and class 2 explosives separately from our
magazine to work Sites and we have well Experienced and licensed blasters and shot fires for safety blasting
works for the last five years without any untoward incidents.

We are willing to undertake blasting work on contract basis at your site S.F No: 408/2B, 408/2C
Pachapalayam village, Sulur (tk), Coimbatore district.

Thanking you,

Yours faithfully,
For SELVA NANDHINI EXPLOSIVES AND CHEMICALS


Authorized Signatory

For SELVA NANDHINI EXPLOSIVES AND CHEMICALS

Enclosed: License Copy.

अनुज्ञापित प्ररूप एल. ई-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 का अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने
Licence to possess : (e) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazineअनुज्ञापित सं. (Licence No.) : E/SC/TN/22/654(E85920)
वार्षिक फीस रुपए (Annual Fee Rs): 6800/-

1. Licence is hereby granted to

M/s.Selva Nandhini Explosives and Chemicals (अधीनभागी / Occupier : V Bharath), 7/182, Nandhini Illam, Bharathi Nagar, Kadampady, Kangarayapalayam Post, Town/Village - Sulur, District-COIMBATORE, State-Tamil Nadu, Pincode 641401

को अनुज्ञापित अनुदत्त की जाती है।

2 अनुज्ञापितधारी की प्रास्थिति | Status of licensee Partnership Firm

3 अनुज्ञापित निम्नलिखित प्रयोजनों के लिए विधिमान्य है।

Licence is valid only for the following purpose

possess for use of Nitrate Mixture, Safety Fuse, Detonators, Detonating Fuse, के उपयोग के लिए

4 अनुज्ञापित विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है।

Licence is valid for the following kinds and quantity of explosives: - (क) (a)

क्र Sr. No.	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1.	Nitrate Mixture	2, 0	0	2500 Kg
2.	Safety Fuse	6, 1	0	5000 Mtrs
3.	Detonators	6, 3	0	44000 Nos
4.	Detonating Fuse	6, 2	0	7500 Mtrs

(ख) किसी एक कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञापित के लिए)

(b) Quantity of explosives to be purchased in a calendar month [applicable for licence under article 3(b) and (g)]

20 times
as above.

5 निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञापित परिसर की पुष्टि होती है।

The licensed premises shall conform to the following drawing(s):

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/654(E85920)

दिनांक (Dated) 22/04/2016

6 अनुज्ञापित परिसर निम्नलिखित पते पर स्थित हैं। The licensed premises are situated at following address:

Survey No. 491/2, ग्राम (Town/Village) : Sirtukinar village, Sangaradapalayam Via

जिला (District)

TIRUPUR

राज्य (State)

Tamil Nadu

पिनकोड (Pincode)

पुलिस थाना (Police Station) : Uthiyur
638706

दूरभाष (Phone)

9578323233

ई.मेल (E-Mail)

फैक्स (Fax)

7 अनुज्ञापित परिसर में निम्नलिखित सुविधाएँ अतिरिक्त हैं।

The licensed premises consist of following facilities.

: One Explosives room, lobby and a detonator room

8 अनुज्ञापित समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम-2008 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपायों के अधीन रहते हुए अनुदत्त की जाती है।

The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures

1. उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)

Drawings (showing site, constructional and other details) as stated in serial No. 5 above

2. अनुज्ञापित प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञापित की शर्तों और अतिरिक्त शर्तों।

Conditions and Additional Conditions of this licence signed by the licensing authority.

3. दूरी प्ररूप DE-2 | Distance Form DE-2

9 यह अनुज्ञापित तारीख 31 मार्च 2021 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2021.

यह अनुज्ञापित, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपर्युक्त इस अनुज्ञापित की शर्तों का अधिकार करने या यदि अनुज्ञापित परिसर योजना या उससे सलग उपबंधों में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिरहित की जा सकती है, जहाँ वह लागू हो।

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

तारीख | The Date - 22/04/2016

Sd/
संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 05/05/2016
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 25/07/2017
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 15/03/2018

नवीनीकरण के पृष्ठानक के लिए स्थान
Space for Endorsement of Renewal

नवीनीकरण की तारीख Date of Renewal	समाप्ति की तारीख Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प Signature of licensing authority and stamp
25/02/2021	31/03/2026	Jt. Chief Controller of Explosives, South Circle, Chennai

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडित अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.



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
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.8860/SEAC/ToR-1122/2021 Dated:23.03.2022

To

Thiru.D.Karthikeyan
S/o.S.Devaraj
Door.No.2/15, Post Office Street
Periyakuyilai Post
Chettipalayam Via
Coimbatore District-641201

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough stone & Gravel quarry lease over an extent of 1.21.0 Ha in S.F.Nos. 409/1A1 (Part), 409/1A2 (Part), 409/1B1 and 409/1B2 of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu by Thiru.D.Karthikeyan-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/ 68207/2021, dated: 06.10.2021
 2. Your application seeking Terms of Reference submitted on: 26.10.2021
 3. Minutes of the 251st meeting of SEAC held on 04.03.2022, minutes received on 19.03.2022
 4. Minutes of the 495th meeting of SEIAA held on 23.03.2022.

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

The proponent, Thiru.D.Karthikeyan has submitted application seeking ToR for B1 category project in Form-I, for the Proposed Rough stone & gravel quarry lease over an extent of 1.21.0 Ha in

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S.F.Nos. 409/1A1 (Part), 409/1A2 (Part), 409/1B1 and 409/1B2 of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu and has furnished Pre-feasibility report.

Discussion by SEAC and the Remarks:-

The proposal was placed in 251th SEAC meeting held on 4.3.2022. The project proponent has given a detailed presentation. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The project proponent gave detailed presentation. SEAC noted the following:

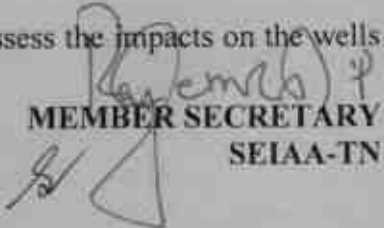
1. The Project Proponent, Thiru. D.Karthikeyan has applied for Terms for Reference for the proposed Rough stone & gravel quarry lease over an extent of 1.21.0 Ha in 409/1A1(Part), 409/1A2(Part), 409/1B1 and 409/1B2 of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. The Production for the five years states that total quantity should not exceed 1,03,868m³ of rough stone and 650m³ of gravel with a ultimate depth of mining is 37 m (2m gravel +35m rough stone) below ground level.

Based on the presentation made by the proponent and the documents furnished, SEAC decided to recommend the proposal for the **grant of Terms of Reference (TOR) with Public Hearing** for the production for the five years states that total quantity should not exceed 1,03,868m³ of rough stone and 650m³ gravel with a ultimate depth of mining is 37 m (2m gravel +35m rough stone) below ground level. Subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The Proponent shall carry out the cumulative & comprehensive impact study due to mining operations carried out in the quarry cluster specifically with reference to the environment in terms of air pollution, water pollution, & health impacts, accordingly the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
2. The certified existing EC compliance report shall be included in the EIA Report.
3. The entire Cluster of mine lease area shall be video graphed through Drone and submit the same along with EIA report.


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4. 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) Highest production achieved in any one year
 - d) Detail of approved depth of mining.
 - e) Actual depth of the mining achieved earlier.
 - f) Name of the person already mined in that leases area.
 - g) If EC and CTO already obtained, the copy of the same shall be submitted.
 - h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
5. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
6. 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.
7. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
8. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
9. 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


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- due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
10. 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.
 11. 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.
 12. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
 13. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
 14. 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).
 15. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the **appendix** in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
 16. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted in proper espacement as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.
 17. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
 18. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP


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Report.

19. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
20. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
21. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Reference besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix

List of Native Trees for Planting

1. Aegle marmelos – Vilvam
2. Adenaanthera pavonina - Manjadi
3. Albizia lebbeck – Vaagai
4. Albizia amara - Usil
5. Bauhinia purpurea - Mantharai
6. Bauhinia racemosa - Aathi
7. Bauhinia tomentosa – Iruvathi
8. Buchanania aillaris - Kattuma
9. Borassus flabellifer - Panai
10. Butea monosperma - Murukka maram
11. Bobax ceiba – Ilavu, Sevvilavu
12. Calophyllum inophyllum - Punnai
13. Cassia fistula - Sarakondrai
14. Cassia roxburghii- Sengondrai
15. Chloroxylon sweitenia - Purasa maram
16. Cochlospermum religiosum – Kongu, Manjal Ilavu
17. Cordia dichotoma – Mookuchali maram
18. Creteva adansonii – Mavalingum


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19. *Dillenia indica* – Uva, Uzha
20. *Dillenia pentagyna* – Siru Uva, Sitruzha
21. *Diospyros ebenum* - Karungali
22. *Diospyros chloroxylon* – Vaganai
23. *Ficus amplissima* – Kal Itchi
24. *Hibiscus tiliaceous* – Aattru poovarasu
25. *Hardwickia binata* – Aacha
26. *Holoptelia integrifolia* - Aayili
27. *Lansea coromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthus tetraphylla* - Neikottai maram
30. *Limonia acidissima* - Vila maram
31. *Litsea glutinosa* –Pisin pattai
32. *Madhuca longifolia* - Illuppai
33. *Manilkara hexandra* – Ulakkai Paalai
34. *Mimusops elengi* - Magizha maram
35. *Mitragyna parvifolia* - Kadambu
36. *Morinda pubescens* – Nuna
37. *Morinda citrifolia* – Vellai Nuna
38. *Phoenix sylvestre* - Eachai
39. *Pongamia pinnata* – Pungam
40. *Premna mollissima* – Munnai
41. *Premna serratifolia* – Narumunnai
42. *Premna tomentosa* - Purangai Naari, Pudanga Naari
43. *Prosopis cinerea* - Vanni maram
44. *Pterocarpus marsupium* - Vengai
45. *Pterospermum canescens* – Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Puthranjiva roxburghii* – Puthranjivi
48. *Salvadora persica* – Ugaa Maram
49. *Sapindus emarginatus* - Manipungan, Soapu kai
50. *Saraca asoca* - Asoca
51. *Streblus asper* - Piraya maram



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52. Strychnos nuxvomica – Yetti
53. Strychnos potatorum - Therthang Kottai
54. Syzygium cumini - Naval
55. Terminalia bellerica - Thandri
56. Terminalia arjuna - Ven marudhu
57. Toona ciliate – Sandhana vembu
58. Thespesia populnea - Puvarasu
59. Walsura trifoliata – valsura
60. Wrightia tinctoria - Vep

Discussion by SEIAA and the Remarks:-

The subject was placed in the 495th Authority meeting held on 23.03.2022. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal 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 specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
5. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
6. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.


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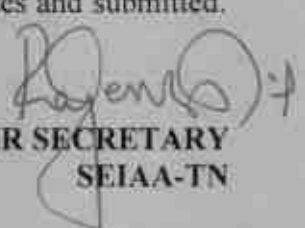
7. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
8. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
9. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.
10. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
11. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
12. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
13. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.
14. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.
15. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
16. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.
17. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.

A. STANDARD TERMS OF REFERENCE

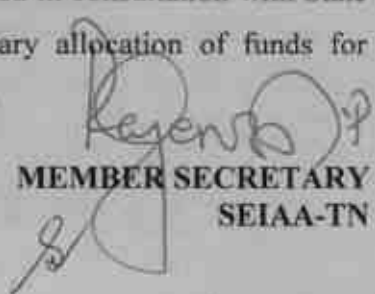
- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production 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.


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- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.


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- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

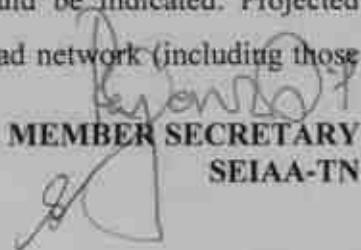

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- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map


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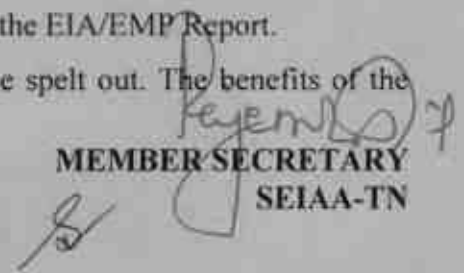
clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those


MEMBER SECRETARY
SEIAA-TN

outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the


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Project shall clearly indicate environmental, social, economic, employment potential, etc.

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

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


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SEIAA-TN

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic,

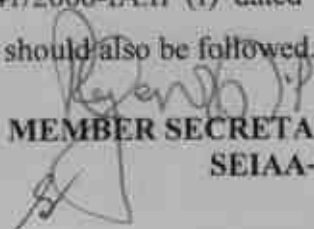

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flora and fauna, socio-economic condition of the nearby population

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

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

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


MEMBER SECRETARY
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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 -II013/77/2004-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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SEIAA-TN

Copy to:

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

From
Dr.A. Kalaiselvan,
Assistant Director(i/c)/
Joint Director,
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.D.karthikeyan,
S/o. S.Devaraj,
2/15, Post Office Street,
Periyakuyilai Post,
Chettipalayam Via,
Coimbatore 641 201.

Rc.No.165/Mines/2019, Dated: 10.03.2020

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District –
Sulur Taluk – Pachapalayam
Village - patta land - Survey Nos. 409/1A1 (P), 409/1A2
(P), 409/1B1 and 409/1B2 - over an extent of 1.21.0
hectares out of 1.78.0 hectares - Application preferred by
Thiru.D.Karthikeyan for quarrying Roughstone and Gravel
– Precise area communicated - Details of quarries
situated within 500 meter radial distance – furnished -
reg.

- Ref: 1) District Collector, Coimbatore Letter Rc.No.165/
Mines/2019, Dated: 02.11. 2019.
2) Thiru.D.Karthikeyan Letter Dated.04.12.2019.

I invite kind attention to the reference cited wherein
Thiru.D.Karthikeyan has been issued precise area for the grant of quarry
lease for Rough Stone and Gravel over an extent of 1.21.0 hectares out of
1.78.0 hectares of patta land in Survey Nos. 409/1A1 (P), 409/1A2 (P),
409/1B1 and 409/1B2 of Pachapalayam Village, Sulur Taluk,
Coimbatore District.

In the reference 2nd cited Thiru.D.Karthikeyan has requested
to furnish the details of quarries situated in a 500 meters radial distance
from the proposed area.

In this connection the details of quarries situated within 500
meters radial distance from the proposed area is furnished below.

i) Existing Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1.	M.Appusamy	Pachapalayam 408-1B, 2A,3A	1.05.5	06.12.2017 to 05.12.2022	

2.	N.Thangavelu	Pachapalayam 407-2A, 2B	4.62.0	07.10.2017 to 06.10.2022	
3.	L.Thangarasu	Pachapalayam 408-2B, 2C	1.81.5	07.08.2017 to 06.08.2022	
4.	A.Ayyasamy	Pachapalayam 407-1D	0.37.0	15.09.2017 to 14.09.2022	
5.	P.Anbarasan	Pachapalayam 407-1F, 1G	1.70.0	22.05.2015 to 21.05.2020	

ii) Expired Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1.	E.Anandkumar	Pachapalayam 408-2E	1.28.5	11.05.2011 to 10.05.2016	

iii) Abandoned quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
---NIL---					

iv) Proposed quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1	D.Karthikeyan	Pachapalayam 409/1A1 (P), 409/1A2 (P), 409/1B1, 409/1B2	1.21.0		Subject Area

2.	S. Durairaj	Pachapalayam 408-3B, 3C	1.47.5	-	Precise area Communicated vide RC. No.38/ Mines/2018 Dated:24.11.2018
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v) Future Proposed quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
--NIL--					


 10/3/2020
 Assistant Director (i/c)/
 Joint Director,
 Dept. of Geology and Mining,
 Coimbatore.


 10/3/2020

From
Dr.A. Kalaiselvan,
Assistant Director(i/c)/
Joint Director,
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.D.karthikeyan,
S/o. S.Devaraj,
2/15, Post Office Street,
Periyakuyilai Post,
Chettipalayam Via,
Coimbatore 641 201.

Rc.No.165/Mines/2019, Dated: 10 .12.2019

Sir,

Sub: Mines & Minerals - Minor Mineral - Coimbatore District - Sulur Taluk - Pachapalayam Village - patta land - Survey Nos. 409/1A1 (P), 409/1A2 (P), 409/1B1 and 409/1B2 - over an extent of 1.21.0 hectares out of 1.78.0 hectares - Application preferred by Thiru.D.Karthikeyan for quarrying Roughstone and Gravel - Submission of mining plan for approval - Approved - Regarding.

- Ref: 1. Quarry lease application dated 01.03.2019 preferred by Thiru.D.karthikeyan, S/o. S.Devaraj, 2/15, Post Office Street, Periyakuyilai Post, Chettipalayam Via, Coimbatore 641 201.
2. District Collector, Coimbatore Letter Rc.No.165/Mines/2019, Dated:02.11.2019.
3. Mining Plan submitted by Thiru.D.Karthikeyan, dated: 04.12.2019.

In response to the precise area communicated by the District Collector, Coimbatore, the applicant Thiru.D.Karthikeyan, vide reference 3rd cited has submitted three copies of mining plan for the area applied for the grant of quarry lease for Roughstone & Gravel over an extent of 1.21.0 hectares out of 1.78.0 hectares of patta land in Survey Nos. 409/1A1 (P) (0.15.0 Hec), 409/1A2 (P) (0.17.0 Hec), 409/1B1 (0.42.5Hec) 409/1B2 (0.46.5 Hec) of Pachapalayam Village, Sulur Taluk, Coimbatore District.

2. The mining plan submitted for the grant of quarry lease for Roughstone & Gravel over an extent of 1.21.0 hectares out of 1.78.0 of patta land in Survey Nos. 409/1A1 (P) (0.15.0 Hec), 409/1A2 (P) (0.17.0 Hec), 409/1B1 (0.42.5Hec) 409/1B2 (0.46.5 Hec) of Pachapalayam Village, Sulur Taluk, Coimbatore District has been verified in detail.

3. As per the guidelines/ instructions issued by the Commissioner of Geology and Mining, Chennai vide letter Rc.No.3868/LC/2012, dated 19.11.2012, the mining plan is hereby approved, subject to the following conditions:

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way imply the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Amended Act, 2015, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv) As per the District Collector, Coimbatore letter Rc.No.165/Mines/2019, Dated: 02.11.2019 the following conditions have been incorporated in the Mining Plan.
 - a) A safety distance of 7.5 meters should be provided for the adjacent patta lands from the applied area.

- (v) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

Encl: Two copy of Approved Mining Plan.

L. Sood
12.12.2019
Assistant Director (i/c)/
Joint Director,
Dept. of Geology and Mining,
Coimbatore.

Copy submitted to:

The Director of Geology and Mining, Chennai-32.

From
Dr.A. Kalaiselvan,
Joint Director/,
Assistant Director (i/c)
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.D.Karthikeyan,
S/o. S.Devaraj,
2/15, Post Office Street,
Periyakuyilai Post,
Chettipalayam Via,
Coimbatore 641 201.

Rc.No.165/Mines/2019, Dated: 10.03.2020

Sir,

Sub : Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Pachapalayam Village - patta land - Survey Nos. 409/1A1 (P), 409/1A2 (P), 409/1B1 and 409/1B2 - over an extent of 1.21.0 hectares out of 1.78.0 hectares - Application preferred by Thiru.D.Karthikeyan for quarrying Rough Stone - Precise area communicated - Mining Plan – Approved – Further particulars called for – furnished - Regarding.

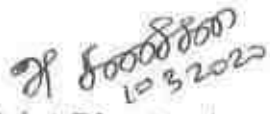
Ref : 1. District Collector proceedings R.C.No.973/2005/MM2 dated: 19.06.2010.
2. District Collector proceedings R.C.No.190/2011/MM2 dated: 29.09.2011.
3. Quarry lease Application preferred by Thiru.D.Karthikeyan, dated: 01.03.2019.
4. Precise Area Communication letter R.C.No.165/Mines/2019, dated: 31.10.2019.
5. Mining Plan submitted by Thiru.D.Karthikeyan, dated: 04.12.2019.
6. Mining Plan approval letter RC.No.165/Mines/2019 Dated: 10.12.2019.
7. Thiru.D.Karthikeyan letter dated:10.03.2020.

In the reference 6th cited Thiru.D.Karthikeyan has requested to furnish certain particulars regarding the precise area granted in Survey Nos. 409/1A1 (P), 409/1A2 (P), 409/1B1 and 409/1B2 over an extent of 1.21.0 hectares out of 1.78.0 hectares of patta land in Pachapalayam Village, Sulur Taluk, Coimbatore District. In this connection the following details are furnished.


The subject area was previously held under quarry lease (in favour of Thiru.K.Shanmugam) for a period of 5 years from 19.06.2005 to 18.06.2010 vide District Collector Proceeding RC.No.973/2005/MM2

and again quarry lease granted to Tmt.K.Bhagyalakshmi vide District Collector Proceedings RC.No.190/2011/MM2 dated: 29.09.2011 for a period of 3 years from 29.09.2011 to 31.10.2014.

At the time of inspection (11.09.2019), a quarry pit with a dimension of 120 Meter Length X 72 Meter Width X 8 Meter Depth is noticed in the subject area.


10/3/2020
Joint Director /
Assistant Director (i/c)
Dept. of Geology and Mining,
Coimbatore.


10/3/20



**MINING PLAN AND PROGRESSIVE QUARRY
CLOSURE PLAN FOR PACHAPALAYAM
ROUGHSTONE AND GRAVEL QUARRY**

(PREPARED UNDER RULES 41 & 42 AS AMENDED IN TAMIL NADU MINOR MINERAL CONCESSION RULES, 1959).

Lease Period = Five Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 1.21.0ha
S.F.NOS. : 409/1A1(P), 1A2(P), 1B1 and 409/1B2
VILLAGE : PACHAPALAYAM
TALUK : SULUR
DISTRICT : COIMBATORE
STATE : TAMIL NADU

FOR

APPLICANT

Thiru. D. Karthikeyan,
S/o. S. Devaraj,
Door No.2/15, Post office Street,
Periyakulai Post,
Chettipalayam Via,
Coimbatore District – 641 201.

PREPARED BY

A. Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E.,

Recognized Qualified Person

RQP/MAS/019/87/A

Regd.off.No.17, Advaita Ashram Road,

Alagapuram, Salem – 636 004.

Cell: +91 94422 78601 and 94433 56539.

E-mail: infogeoexploration@gmail.com

D. Karthikeyan,
S/o. S. Devaraj,
Door No.2/15, Post office Street,
Periyakuyilai Post,
Chettipalayam Via,
Coimbatore District – 641 201.



CONSENT LETTER FROM APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Pachapalayam Roughstone and Gravel Quarry over an extent of 1.21.0ha of Patta Lands in S.F.Nos. 409/1A1(Part), 409/1A2(Part), 409/1B1 and 409/1B2 of Pachapalayam Village, Sulur Taluk, Coimbatore 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 to the District Collector, Coimbatore to make further correspondence regarding the modification of the Mining Plan with the said Recognized Qualified Person at his following address.

A.Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E.,
Regd. Off. No. 17,
Advaita Ashram Road,
Alagapuram, Salem – 636 004.
Cell: 94433 56539.

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

Signature of the Applicant

D. Karthikeyan

Place: Coimbatore

Date: 04.11.2019

D. Karthikeyan,
S/o. S. Devaraj,
Door No.2/15, Post office Street,
Periyakuyilai Post,
Chettipalayam Via,
Coimbatore District – 641 201.



DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Pachapalayam Roughstone and Gravel Quarry over an extent of 1.21.0ha of Patta Lands in S.F.Nos. 409/1A1(Part), 409/1A2(Part), 409/1B1 and 409/1B2 of Pachapalayam Village, Sulur Taluk, Coimbatore 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

D. Karthikeyan

Place: Coimbatore

Date: 04.11.2019

A. Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E.,

Regd. Off. No. 17,

Advaita Ashram Road,

Alagapuram, Salem – 636 004.

Cell: 94433 56539.



CERTIFICATE FROM THE RECOGNIZED QUALIFIED PERSON

This is to certify that the Provisions of Prepared under Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959. The preparation of Mining Plan and Progressive Quarry Closure Plan for Pachapalayam Roughstone and Gravel Quarry over an extent of 1.21.0ha of Patta Lands in S.F.Nos. 409/1A1(Part), 409/1A2(Part), 409/1B1 and 409/1B2 of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Thiru. D. Karthikeyan,

S/o. S. Devaraj,

Door No.2/15, Post office Street,

Periyakulai Post,

Chettipalayam Via,

Coimbatore District – 641 201.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the District Collectorate, Coimbatore, 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 Recognized Qualified Person:


A. Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E.,

RQP/MAS/019/87/A

Place: Salem

Date: 27.11.2019

A. Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E.,

Regd. Off. No. 17,

Advaita Ashram Road,

Alagapuram, Salem – 636 004.

Cell: 94433 56539.



CERTIFICATE FROM THE RECOGNIZED QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations or Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Pachapalayam Roughstone and Gravel Quarry over an extent of 1.21.0ha of Patta Lands in S.F.Nos. 409/1A1(Part), 409/1A2(Part), 409/1B1 and 409/1B2 of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Thiru. D. Karthikeyan,

S/o. S. Devaraj,

Door No.2/15, Post office Street,

Periyakulai Post,

Chettipalayam Via,

Coimbatore District – 641 201.

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, II 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 Recognized Qualified Person

A. Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E.

RQP/MAS/019/87/A

Place: Salem

Date: 27.11.2019

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**MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR
PACHAPALAYAM ROUGH STONE AND GRAVEL QUARRY OVER AN EXTENT
OF 1.21.0ha IN PACHAPALAYAM VILLAGE, SULUR TALUK, COIMBATORE
DISTRICT, TAMIL NADU STATE**

(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 Environment Management Plan is prepared for **Thiru. D. Karthikeyan**, S/o. S. Devaraj, residing at Door No.2/15, Post office Street, Periyakuyilai Post, Chettipalayam Via, Coimbatore District, Tamil Nadu State – 641 201.

The applicant has applied a quarry lease for quarrying Rough stone and Gravel, over an extent 1.21.0ha of Patta Lands in S.F.Nos. 409/1A1(Part), 409/1A2(Part), 409/1B1 and 409/1B2 of Pachapalayam Village, Sulur Taluk, Coimbatore District, as per the Rule 19 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the District Collector, Coimbatore and passed a Precise Area Communication letter vide **Rc.No.165/Mines/2019, Dated: 02.11.2019** to submit Mining Plan for the approval in Department of Geology and Mining, Coimbatore and obtain Environmental Clearance from the Competent Authority, 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, Environmental Management plan and Progressive Quarry Closure Plan for approval and subsequent submission of Form-I, Form-IM and Pre feasibility report to obtain environmental clearance from the Competent Authority, Tamil Nadu, 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 - Pachapalayam
- b. Panchayat Union - Sulur
- c. The Geological Resources are $4,23,500\text{m}^3$ of Rough stone and $24,200\text{m}^3$ of Gravel in the entire area.
- d. The Total Mineable Reserves are $1,03,868\text{m}^3$ of Rough stone and 650m^3 of Gravel.
- e. The proposed quantity of reserves/ (level of production) to be mined are $1,03,868\text{m}^3$ of Rough stone for the period of five years and 650m^3 of Gravel for the period of three years.
- f. Total extent of the lease applied area = 1.21.0ha.
- g. Topography of the area = The area is situated in flat terrain.
- h. Proposed Depth of mining = 37m (2m Gravel + 35m Rough stone)
- 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 first granted in favour of Thiru. K. Shanmugam, over an extent of 1.78.0 hectares of Patta land in S.F.No. 409/1 of Pachapalayam village, Sulur (formerly Palladam) Taluk, Coimbatore District vide R.C.No. 973/2005/M.M-2, dated: 24.05.2005 for the period of Five years. Another quarry lease was granted in favour of Tmt. D. Bakkiyalakshmi, over an extent of 0.89.0 hectares of Patta land in S.F.No. 409/1B of Pachapalayam village, Sulur Taluk, Coimbatore District vide R.C.No. 190/2011/M.M-2, dated: 28.09.2011 for the period of three years from 28.09.2011 to 31.10.2014. There is an existing quarry pit situated within the applied area due to quarrying operation carried out during earlier quarry lease period, the maximum dimensions of the **existing quarry pit** is given table below (Refer Plate No. II & III).

Table - 1

Length(m)	Width(m)	Depth(m)
107	73	8

- 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 quarrying operation.



- n. The approach road from the quarry site to main road is already in exist~~ence~~, the same will be utilized for Transportation of quarry materials and maintain in good condition during entire lease periods.
- o. There is No Export of this Rough stone & 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, archaeological importance, places of worships is marked and enclosed as Plate Nos. IA and IB.
- q. The lease applied area is about 1.21.0ha bounded by four corners; the corners are designated as 1-4 Clockwise from the Northeast corner the Co – ordinates for the all corners are clearly marked in the Quarry Lease and Surface 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 for quarrying are furnished in Plate Nos. III.
- s. General conditions will not be 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.
- u. Around 18 employees are deploying in the quarrying operation.
- v. Total Cost of the project is about **Rs.32,30,200/-**
- w. Infrastructure:

Table – 2

S. No	Particulars	Location	Direction	Approximate Aerial Distance in Km
1	Nearest Post Office	Periyakuyilai	West	1.5
2	Nearest School	Periyakuyilai	West	1.5
3	Nearest Dispensary	Chettipalayam	NW	5.8
4	Nearest Town	Chettipalayam	NW	5.8
5	Nearest Police Station	Chettipalayam	NW	5.8
6	Nearest Hospital	Chettipalayam	NW	5.8
7	Nearest D.S.P. Office	Coimbatore	NW	20
8	Nearest Railway Station	Chettipalayam	NW	5.8
9	Nearest Airport	Coimbatore	NW	20
10	Nearest Harbour	Kochi	SW	140
11	District Head Quarters	Coimbatore	NW	20

10 DEC 2019

2.0 GENERAL INFORMATION

2.1 a) Name of the Applicant : Thiru. D. Karthikeyan,
S/o. S. Devaraj,

b) Address of the Applicant (With Phone No and Aadhaar No)

Address : Door No.2/15, Post office Street,
Periyakuyalai Post,
Chettipalayam Via,
Coimbatore District.

Pin Code : 641 201

Mobile No : +91 98422 04145

Aadhaar No : 2819 7327 2902

Email ID : smlsprakash@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 only.

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, Coimbatore vide Rc.No.165/Mines/2019, Dated: 02.11.2019 to submit approved mining plan and to obtain Environmental Clearance from the Competent Authority, Tamil Nadu.

c) Period of permission / lease to be granted:

The applicant has applied for five years, the District Collector has recommended for Five years for Rough Stone and three years for Gravel.

d) Name and address of the Recognized Qualified Person preparing the Mining Plan:

Name : A. Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E.,

Recognized Qualified Person

Address : Regd.off.No.17, Advaita Ashram Road,

Alagapuram, Salem – 636 004.

Tele Fax : 0427- 2431989 (Office)

Cell No : +91 94422 78601 and 94433 56539

Registration No : RQP/MAS/019/87/A

Valid upto : 17.11.2021

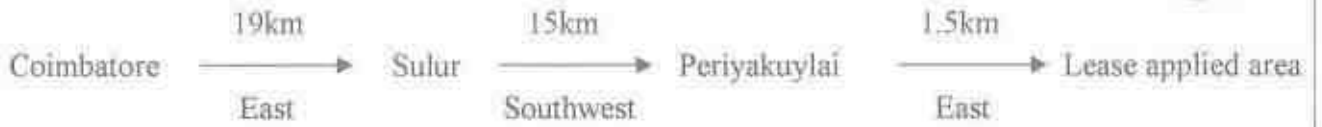
Email : infogeoexploration@gmail.com



3.0 LOCATION

a) Details of the area with location map:

The lease applied area is located at a distance of 20km Southeast side of Coimbatore, 15km Southwest side of Sular and 1.5km Eastern side of Periyakuyalai Village.



Location Map of the Lease Applied Area

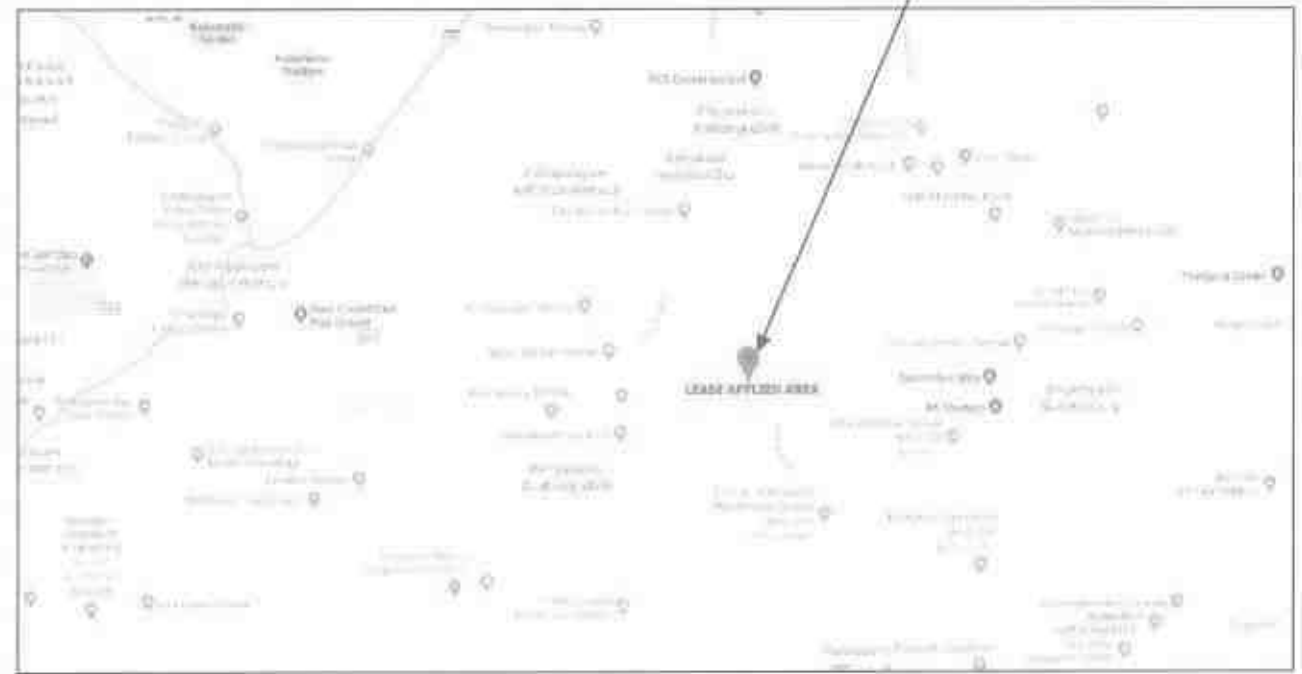
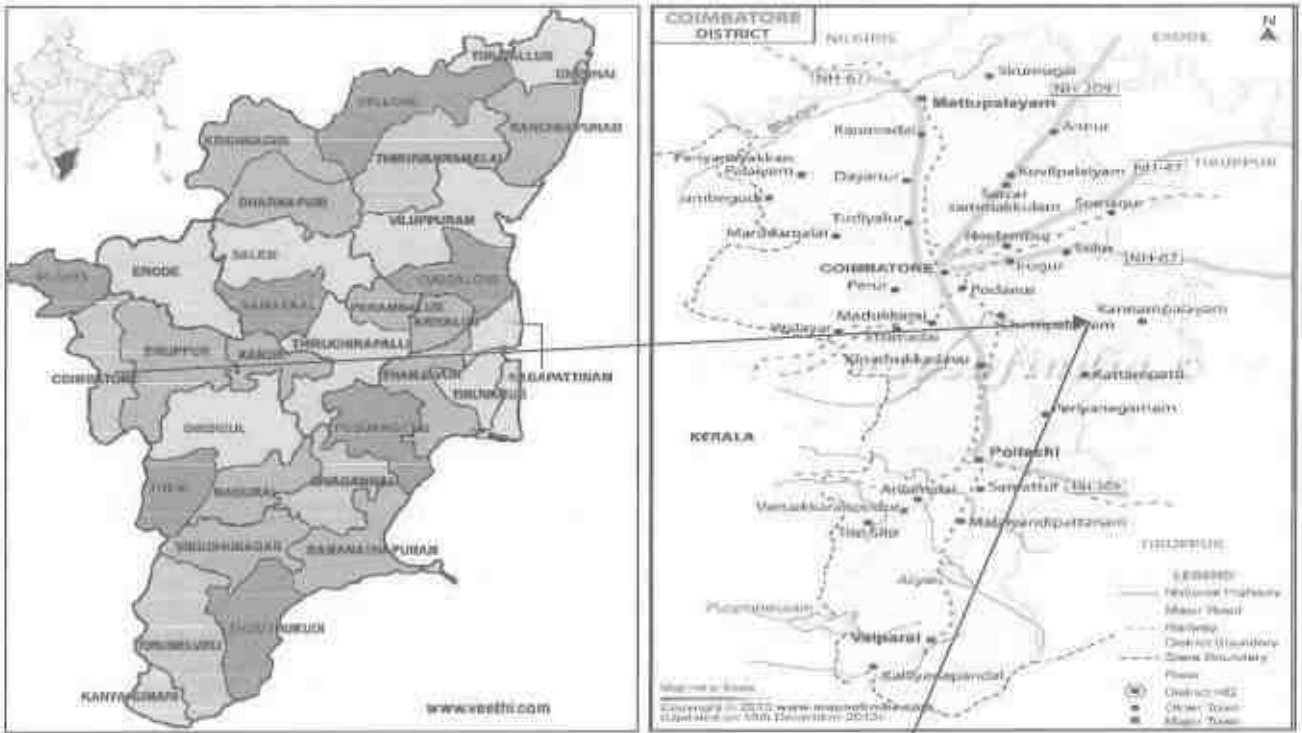


Table - 3

District	Taluk	Village	S.F. Nos.	Area in ha.	Patta No.
Coimbatore	Sulur	Pachapalayam	409/1A1(P)	0.15.0	1427
			409/1B1	0.42.5	
			409/1A2(P)	0.17.0	1428
			409/1B2	0.46.5	
Total Extent				1.21.0ha	

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, S.F.Nos. 409/1A1 and 409/1B1 are registered in the name of Tmt. D. Bakiyalakshmi, vide Patta No.1427 and S.F.No. 409/1A2 and 409/1B2 are registered in the name of Tmt. S. Jothilakshmi vide patta No. 1428. The applicant has obtained consent from the pattadars for the period of five years from the date of execution of quarry lease deed (Refer Annexure Nos. IV to VII).

d) Toposheet No. with latitude and longitude:

The lease applied area falls in the Toposheet No: 58 - F/01 Latitude between: 10°54'08.07"N to 10°54'11.43"N and Longitude between: 77°05'19.26"E to 77°05'24.22"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 road is situated on the Northeast side of the applied area, which is connects to the Edayarpalayam – Periyakuyilai village Road at a distance of 45m on the Northern side.

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.

The approach road from the quarry is already existence, the same road will be utilized for haulage and maintained during entire lease period, besides trees will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

The Nearest Railway line is Coimbatore – Pollachi which is about 6km on the Western side of the area.

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 exhibits flat terrain. The area has gentle sloping towards Southeast. The altitude of the area is 420m above from Mean Sea level. The area is covered by 2m thickness Gravel. Massive Charnockite is found after 2m (Gravel) which is clearly inferred from the existing quarry pit.

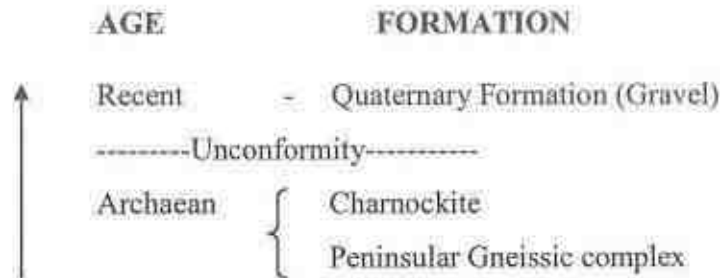
The Water table is found at a depth of 65m in summer and at 60m in rainy seasons. Average annual rainfall is about 689mm.

Topographical View of 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:



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 Coimbatore District. Besides, the Recognized 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 pits.

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 section is drawn Length wise as (X-Y) and other two cross sections are drawn Width wise as (A-B) and (C-D) to cover the maximum area considered for calculation.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in 1:1000 scale (please refer the Geological plan and sections Plate No- III). As the sale of Rough stone are in terms of cubic meters (Volume) only and not in terms of tonnage.



Geological Resources (Plate No. III):

The Geological Resources of Rough Stone and Gravel are calculated to a maximum depth of 37m (2m Gravel + 35m Rough stone) below from the general ground level.

Geological Resources are calculated in area method:

- Total Extent of the area = 1.21.0ha
- Area in square meter = 1.21.0 X 10,000 = 12,100sq.m
- Gravel = 2m below the ground level
- = 12,100sq.m X 2m Depth
- = **24,200m³** of Gravel
- Rough Stone = 35m below ground level
- = 12,100sq.m X 35m Depth
- = **4,23,500m³** of Rough stone

Total Geological Resources of Rough Stone : **4,23,500m³**

Total Geological Resources of Gravel : **24,200m³**

Available Mineable Reserves:

The available mineable reserves are calculated after leaving the safety distance, Bench loss and existing quarry pit.

Table – 4

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Mineable Reserves of Rough stone (m ³)	Gravel (m ³)	
XY-AB	iii	56	65	4	14560	-	
	iv	51	55	5	14025	-	
	v	46	45	5	10350	-	
	vi	41	35	5	7175	-	
	vii	36	25	5	4500	-	
	viii	31	15	5	2325	-	
	Total					52935	-
	XY-CD	i	13	25	2	-	650
ii		12	24	5	1440	-	
iii		7	19	1	133	-	
iii		55	63	4	13860	-	
iv		50	53	5	13250	-	
v		45	43	5	9675	-	
vi		40	33	5	6600	-	
vii		35	23	5	4025	-	
viii		30	13	5	1950	-	
Total					50933	650	
Grand Total					103868	650	



Mining Plan and PQCP

The mineable reserves have been computed as 1,03,868m³ of Rough stone and 650m³ of Gravel at the rate of 100% recovery to a maximum depth of 37m (2m Gravel + 35m Roughstone) 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 slurry explosives 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 pits 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 in Rough stone as vertical bench and 2m in Gravel with 45° slope 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 is 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 fee 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 - 5

Year	Section	Bench	Length (m)	Width (m)	Depth (m)	Recoverable Reserves of Rough stone (m ³)	Gravel (m ³)
I Year	XY-CD	i	13	25	2	-	650
		ii	12	24	5	1440	-
		iii	7	19	1	133	-
		iii	55	63	4	13860	-
	XY-AB	iii	56	65	4	14560	-
Total						29993	650
II Year	XY-AB	iv	51	55	5	14025	-
	XY-CD	iv	50	53	5	13250	-
	Total						27275
III Year	XY-AB	v	46	45	5	10350	-
		vi	41	35	5	7175	-
	XY-CD	v	45	43	5	9675	-
	Total						27200
IV Year	XY-CD	vi	40	33	5	6600	-
		vii	35	23	5	4025	-
	Total						10625
V Year	XY-AB	vii	36	25	5	4500	-
		viii	31	15	5	2325	-
	XY-CD	viii	30	13	5	1950	-
	Total						8775
Grand Total						103868	650

The Recoverable reserves have been computed as 1,03,868m³ of Rough stone for the period of five years and 650m³ of Gravel for the period of first three years at the rate of 100% recovery to a depth of 37m (2m Gravel + 35m Rough stone) below from the general ground level.

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.



Mining Plan and PQCP

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	=	1,03,868m ³
Hence total Lorry loads per day	=	1,03,868m ³ /6m ³
	=	17,311 Lorry loads
	=	17,311/5 years
	=	3,462/300 Days
Roughstone	=	12 Lorry loads per day
Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 pm 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.

Table – 6

I. DRILLING MACHINE

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	3	30-35	1.2m to 2.0m	Compressed air
2	Compressor	1	-	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	2	20 tonnes	Diesel Drive

5.6 Disposal of Overburden/Waste:

The overburden is in the form of Gravel formation. The quarried out 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 fee to the Government. The excavated rough stone will be directly loaded into tippers to the needy customers. Hence, there is no waste anticipated and 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 Environment 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 - 7

Length in m (max)	Width in m (max)	Depth in m (max)
121	74	37m BGL

Greenbelt has proposed on the safety zone 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 Nos. 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

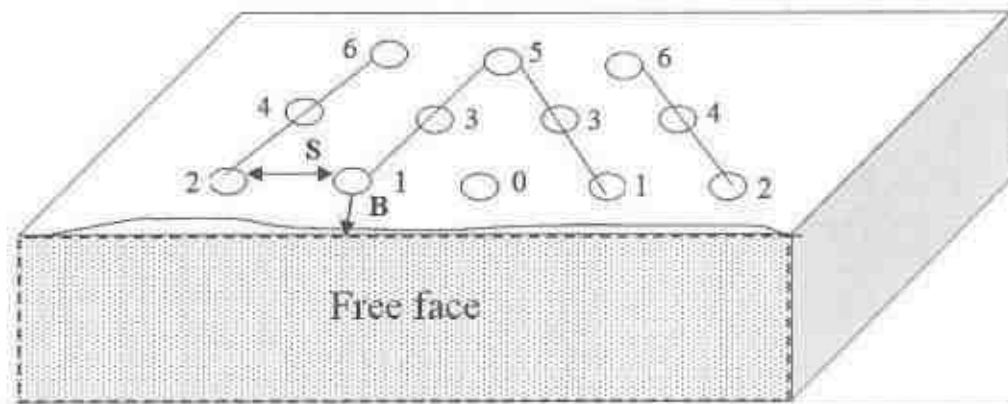
6.1 Blasting pattern:

The quarrying operation is proposed to be carried out by Mechanized Open Case Method in conjunction with conventional method of mining using Jack hammer drilling and blasting of shattering effect for loosening 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° 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	=	60 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 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 hearing 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	= 60 Holes
Yield	= 180 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 30 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30p.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 65m in summer season and 60m in Rainy season which is observed from the nearby wells and the data obtained from existing private boreholes. The lease area is fully covered by gravel and followed by Massive Charnockite formation. 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 – 8

Type	Distance & Direction	Location
Bore Well	58m Southern side	10°54'06.20"N 77°05'19.99"E

7.2 Arrangements and places where the mine water is finally proposed to be discharged:

Quarry operations are confined well above the water table during the entire lease period. If water is encountered due to rain water and seepage, the same will be pumped out by 5HP water pumps to the Greenbelt 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/village located within 300m radius of the lease applied area.

8.2 Power Lines (HT/LT):

There is no EB (LT/HT) line or Housing area situated within 50m radius of the lease applied area.

8.3 Water bodies (river, ponds, lake, odai, canal, etc.):

There is no River, Pond, Lake, Canal, Reservoir located within 50m radius of the lease applied area.

8.4 Archaeological / historical monuments:

There is no Archaeological / historical monuments within 300m radius from the lease applied area.

8.5 Road (NH, SH others):

The Nearest National Highway (NH-47) Salem – Kochi is situated about 9.7km on the Northwest side of the lease applied area.

The State Highway (SH-163) Palladam – Kochi Frontier Road is situated about 4.8km on the Northwest side of the lease applied 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., within radius of 500m of the lease applied area.



SALIENT FEATURES

Table - 9

S. No.	Salient Features Present around site	Prescribed safety distance	If any present within Prescribed distance, it's actual distance and direction from the site															
1.	Railways, Highways, Reservoirs or Canal	50m	None of the above situated within 50m radius.															
2.	Village Road	10m	No Village road is located within 10m radius of the lease applied area.															
3.	Habitation / Village	300m	There is no approved habitation within 300m radius from the lease applied area.															
4.	Adjacent Patta Land / Govt. Land	7.5m/10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>East</td> <td>Patta land</td> <td>7.5m</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> </tbody> </table> <p>(Refer Plate No. II).</p>	Direction	Classification	Safety Distance	North	Patta land	7.5m	East	Patta land	7.5m	South	Patta land	7.5m	West	Patta land	7.5m
Direction	Classification	Safety Distance																
North	Patta land	7.5m																
East	Patta land	7.5m																
South	Patta land	7.5m																
West	Patta land	7.5m																
5.	Housing area, EB line (HT & LT Line)	50m	There is no EB (LT/HT) line or Housing area situated within 50m radius of the lease applied area.															
6.	Boundaries of the permitted area	7.5m/10m	<p>The boundaries of the permitted areas is as follows:</p> <p>North – S.F.Nos.409/1A1 and 409/1A2</p> <p>East – Bogampatty village</p> <p>South – S.F.No. 409/2</p> <p>West – S.F.No.408</p> <p>(Refer Plate No. II).</p>															
7.	Reserve forest	50m	There is no Reserved Forest within the radius of 50m.															
8.	Protected area / ECO sensitive area/Wild Life Sanctuary	10Km	There is no ECO sensitive Zone/ Wild Life Sanctuary/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area.															



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. Mine official & Competent Persons

Mines Manager/Mines Foreman : 1

Mate/Blaster : 1

b. Machinery Operators

Jack hammer operator : 6

Excavator Operator : 1

Tipper Driver : 2

c. Ordinary Employee

Helper : 3

Cleaner & Co-Operator : 3

Security : 1

Total : 18

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 approved water vendors in Chettipalayam which is about 5.8km on the Northwest side of the lease applied area.

b. **Sanitary Facilities:**

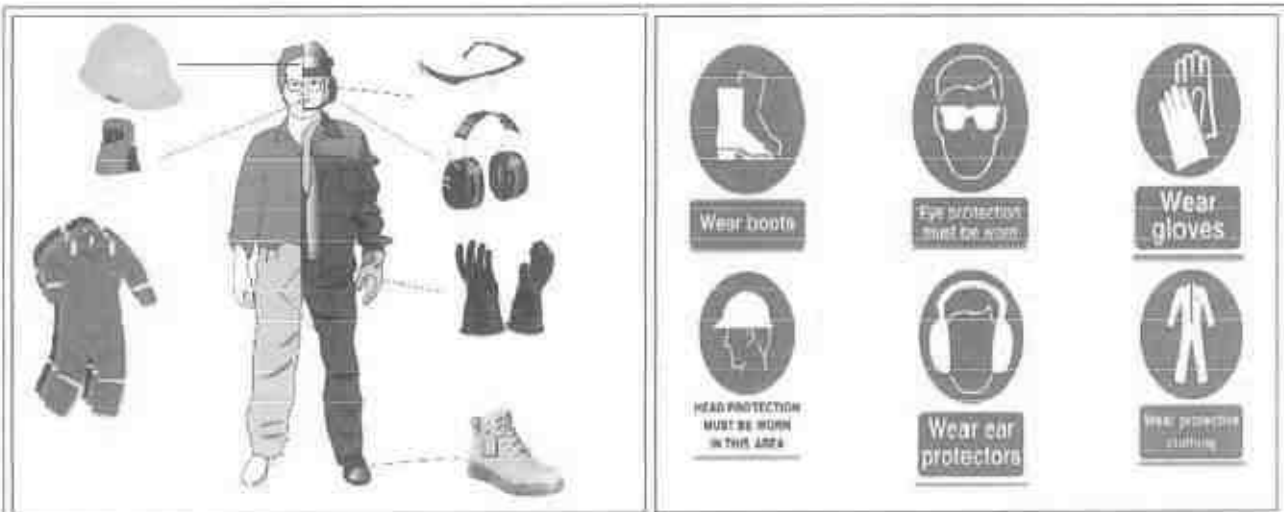
Hygienic modern Sanitary Facilities will be constructed with in the safety area as semi permanent structure and it will be maintained periodically.

c. First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/master. He 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 Chettipalayam located at a distance of 5.8km 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 exhibits flat terrain. The area is a dry barren land devoid of Agriculture and Habitation. Except quarry operation, the land is not used previously for any specific vegetation.

LAND USE TABLE – 10

Description	Present area in (ha)	Area at the end of this quarrying period (ha)
Area under quarry	0.64.6	0.88.5
Infrastructure	Nil	0.01.0
Roads	0.01.0	0.02.0
Green Belt	Nil	0.18.5
Unutilized Area	0.55.4	0.11.0
Grand Total	1.21.0	1.21.0

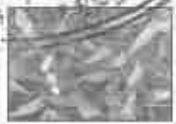




10.2 Water Regime:

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 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 Climate change.

10.3 Flora and Fauna:

Table - 11

S.No.	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree	
2.	<i>Vachellia nilotica</i>	Fabaceae	Karuvelam	Tree	
3.	<i>Cocus nucifera</i>	Arecaceae	Coconut, Thennai	Tree	
4.	<i>Borassus flabellifera</i>	Arecaceae	Palmyra Palm, Panai	Tree	
5.	<i>Calotropis</i>	Asclepeiadaceae	Erukku	Shrub	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	<i>Capra aegagrus hircus</i>	Goat	
2.	<i>Funambulus palmarum</i>	Squirrel	
3.	<i>Bos taurus</i>	Cow	
4.	<i>Danaus plexippus</i>	Striped tiger	
5.	<i>Corvus levillantii</i>	Crow	
6.	<i>Agrion sp & Petalura sp</i>	Dragon fly	

**10.4 Climatic Conditions:**

The area receives rainfall of about 689mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 42°C and a minimum temperature of 23°C.

10.5 Human settlement:

There are few villages located in this area within 5km radius; the approximate distance and population are given below.

Table- 12

S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Edayarpalayam	3.2km – Northeast	2,300
2.	Periyakuyili	1.5km – West	1,050
3.	Thegani	3.8km – Southwest	850
4.	Panappatti	3.1km – Southeast	2,700

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Chettipalayam located at a distance of 5.8km on the Northwest 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 slurry 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 Mitigative 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 equipment's is proposed to be deployed for the Roughstone 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 Environment 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 Environment 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%). Hence, Waste management does not arise.

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 proposed to a maximum depth of 37m below the general ground level has been envisaged as workable depth for safe & economic mining during entire lease applied area. The quarry area will be fenced with barbed wire fencing to prevent inadvertent entry of public and cattle. There is no waste anticipated during the entire lease period hence, there is no proposal for backfilling. The barbed wire fencing cost would be around Rs.1,20,000/-

10.11 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):

The safety zone all along the boundary barrier 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 – 13

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 grown
I	40	80%	370	Neem, Pongamia Pinnata, Casuarina, etc.,	32
II	40	80%	370		32
III	40	80%	370		32
IV	40	80%	370		32
V	40	80%	370		32

Nearly 1,850m² area is proposed to use under Greenbelt by planting 40 Number of tree saplings 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.20,000/- for the period of five years.

The Greenbelt Development will be formed in the quarried out top bench and approach road. The cost would be around Rs.30,000/-.

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

Budget Provision for the entire quarrying period:

Table – 14

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 is about, Rs.8,28,000/ha, hence the total land cost is calculated about 1.21.0ha X Rs.8,28,000/- = Rs.10,01,880/- (source : https://tnreginet.gov.in/portal/)	= Rs.10,01,900/-
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.11,00,000/-
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.1,20,000/-
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.50,000/-
vi) Others items	First aid room & accessories	= Rs.50,000/-
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	= Rs.35,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	= Rs.50,000/-
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.50,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	= Rs.50,000/-

xi) Garland drains Construction	Construction of garland drains to divert surface runoff from virgin area away from mining area	Rs. 1,29,900/-
xii) Greenbelt etc.	Greenbelt program will be carried out in the boundary barriers the cost would be around	= Rs.20,000/-
	Greenbelt program will be carried out in the quarried out top bench and approach road	= Rs.30,000/-
	Total Project Cost	= Rs.27,86,800/-
<p>B. EMP Cost :- (Per year)</p> <p>Air Quality monitoring = Rs. 52,000/-</p> <p>Water Quality Sampling = Rs. 18,000/-</p> <p>Noise Monitoring = Rs. 2,000/-</p> <p>Ground vibration test = Rs. 4,000/-</p> <p>Total Cost = Rs. 76,000/-</p> <p>Total EMP Cost for the five years period is Rs. 3,80,000/-</p> <p>A+B =</p> <p>A. Project cost = Rs.27,86,800/-</p> <p>B. EMP Cost = Rs. 3,80,000/-</p> <p>Total Project Cost (A+B) = Rs.31,66,800/-</p> <p>The applicant indents to involve corporate environment responsibilities (CER) activity like</p> <p>1. Greenbelt development and developing the Garden Maintenance in Pachapalayam Govt. School.</p> <p>2. 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.63,400/-</p> <p>Total Project cost = Rs.31,66,800/-</p> <p>CER Cost (2.0%) = Rs. 63,400/-</p> <p>Total cost = Rs.32,30,200/-</p> <p>(The Total cost of the project including EMP Cost is Rupees thirty two lakhs thirty thousand and two hundred only).</p>		



11.0 PROGRESSIVE QUARRY CLOSURE PLAN

11.1 Introduction:

The Progressive Quarry Closure Plan for Rough stone and Gravel quarry over an extent of 1.21.0ha of Patta Lands in S.F.Nos. 409/1A1(P), 409/1A2(P), 409/1B1 and 409/1B2 of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for **Thiru. D. Karthikeyan**, S/o. S. Devaraj, Door No.2/15, Post Office Street, Periyakuyalai Post, Chettipalayam Via, Coimbatore District, Tamil Nadu State – 641 201.

11.2 Present Land use pattern:

LAND USE TABLE – 15

Description	Present area in (ha)
Area under quarry	0.64.6
Infrastructure	Nil
Roads	0.01.0
Green Belt	Nil
Unutilized Area	0.55.4
Grand Total	1.21.0

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 and Gravel will be directly transported by the 20tons capacity Tippers to the needy customers. Splitting of rock mass of considerable volume from the parent rock mass by jack hammer 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 and sufficient reserves are available to carry on the activities. 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 drawing the precise area communication letter before grant of quarry lease and during the course of quarry operations.

11.7 Progressive quarry closure plan preparation:

Name, address and registration of the Recognized Qualified Person who prepared the progressive closure plan and name, address and registration of the executing agency who is involved in the preparation of progressive quarry closure plan.

Name : **A.Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E.,**
Recognized Qualified Person

Address : Regd.off.No.17, Advaita Ashram Road,
Alagapuram, Salem - 636 004.

Tele Fax : 0427- 2431989 (Office)

Cell No : 94433 56539

Registration No : RQP/MAS/019/87/A

Valid up to : 17.11.2021

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 with next mining plan.

11.9 Closure Plan:**(i) Mined Out Land:**

At the end of mining plan period, about 0.88.5ha of area will be mined out. Land use at various stages is given in the table below.

LAND USE TABLE - 16

Description	Present area in (ha)	Area at the end of this quarrying period (ha)
Area under Quarry	0.64.6	0.88.5
Infrastructure	Nil	0.01.0
Roads	0.01.0	0.02.0
Green Belt	Nil	0.18.5
Unutilized Area	0.55.4	0.11.0
Grand Total	1.21.0	1.21.0

**(ii) Water quality management:**

Following control measures will be adopted for controlling water pollution:-

- Construction of garland drains to divert surface run-off rain water to the virgin area away from mining area.
- Construction of 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. There is no waste generated during entire life of quarry, hence waste management does not arise.

(v) Disposal of mining machinery:

All the machineries will be engaged on rental basis. 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 unauthorized 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 5.0m 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 and proper signal by siren alarm will be given to the public before blasting time to prevent accident.
- 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 with FIRST AID kits which they will always carry.
- The Greenbelt Development will be formed in around the quarried out top bench and panchayat road 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 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 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 – 17

ACTIVITY	YEAR					RATE	AMOUNT (INR)
	I	II	III	IV	V		
Plantation (In Nos.)	40	40	40	40	40	@100 Rs Per sapling	Rs.20,000/-
Plantation & Maintenance Cost	4,000	4,000	4,000	4,000	4,000	Including Maintenance	
Wire Fencing (In Mtrs) 400 Mtrs	1,20,000					@300 Rs Per Meter	Rs.1,20,000/-
Garland Drain with check (In Mtrs) 433 Mtrs	1,29,900					@300 Rs Per Meter	Rs.1,29,900/-
Cost for Plantation in worked out bench & Approach Road	-	-	-	-	30,000	@100 Rs Per sapling Including Maintenance	Rs.30,000/-
TOTAL							Rs.2,99,900/-

12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

This Mining plan for Rough stone (Charnockite) and Gravel is under Rules 40 & 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
A. Jagannathan, B.E., F.C.C., M.M.E.A., M.I.E.,
Recognized Qualified Person
RQP/MAS/019/87/A

Place: Salem

Date: 27.11.2019



This Mining Plan is Approved
subject to the conditions / stipulation
& indicated in the Mining Plan Approval
Letter No: 165/mines/2019 dt: 19/12/2019
office of the A.D, Geology & Mining, Coimbatore

This Mining Plan is Approved based on the
incorporation of the particulars specified
in the letter of the commissioner of Geology
and Mining, Chennai ref No: 3863/LC/2012
Dated 19.11.2012 and subjected to further
fulfillment of the condition laid down under
Tamil Nadu Minor Mineral Concession Rules 1959.

J. Foodson
19.12.2019
**JOINT DIRECTOR AND
ASSISTANT DIRECTOR (i/c)
DEPARTMENT OF GEOLOGY & MINING
COIMBATORE.**

J. Foodson
19/12/19

ந.க.எண். 165/கனிமம்/2019

மாவட்ட ஆட்சித்தலைவர் அலுவலகம்,
கோயம்புத்தூர்.
நாள்: 02.11.2019.

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் -
மாவட்டம் - சூலூர் வட்டம் - பச்சாபாளையம் கிராமம்
- புல எண்கள். 409/1A1(P)-ல் மொத்தம் 0.42.5
ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 0.15.0
ஹெக்டேர் பரப்பில் மட்டும், 409/1A2(P) மொத்தம்
0.46.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 0.17.0
ஹெக்டேர் பரப்பில் மட்டும், 409/1B1-ல் 0.42.5
ஹெக்டேர் மற்றும் 409/1B2-ல் 0.46.5 ஹெக்டேர் ஆக
மொத்தம் 1.21.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா
பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் குவாரி
செய்ய திரு.D.கார்த்திகேயன் என்பவருக்கு - குவாரி
குத்தகை அனுமதி வழங்குவது - தொடர்பாக.

- பார்வை: 1. திரு.S.தேவராஜ், கதவு எண் 2/15, அஞ்சல்
அலுவலக வீதி, செட்டிபாளையம் வழி,
பெரியகுயிலை அஞ்சல், கோயம்புத்தூர் மாவட்டம்
என்பவரது விண்ணப்பம் நாள் 01.03.2019.
2. இவ்வலுவலக கடிதம் இதே எண்
நாள்.14.03.2019.
3. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு,
அவர்களின் கடித ந.க.எண். 1262/2019/அ2 நாள்
30.07.2019.
4. இணை இயக்குநர் மற்றும் உதவி
இயக்குநர்(பொ), புவியியல் மற்றும் சுரங்கத்துறை,
கோயம்புத்தூர் தணிக்கை அறிக்கை நாள்
11.09.2019

பார்வை 1-ல் கோயம்புத்தூர் மாவட்டம், பெரியகுயிலை அஞ்சல்,
செட்டிபாளையம் வழி, அஞ்சல் அலுவலக வீதி, கதவு எண் 2/15 என்ற
முகவரியில் வசிக்கும் திரு.S.தேவராஜ் அவர்களின் மகன்
திரு.D.கார்த்திகேயன் என்பவர் சூலூர் வட்டம், பச்சாபாளையம் கிராமம்,
புல எண்கள். 409/1A1(P)-ல் மொத்தம் 0.42.5 ஹெக்டேர் பரப்பளவுள்ள
பட்டா பூமியில் 0.15.0 ஹெக்டேர் பரப்பிலும், 409/1A2(P) மொத்தம் 0.46.5
ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 0.17.0 ஹெக்டேர் பரப்பிலும்,
409/1B1-ல் 0.42.5 ஹெக்டேர் மற்றும் 409/1B2-ல் 0.46.5 ஹெக்டேர் ஆக
மொத்தம் 1.21.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில்
சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை
உரிமம் கோரி உரிய ஆவணங்களுடன் விண்ணப்பித்துள்ளார்.



மேற்படி மனு தொடர்பாக, கோயம்புத்தூர் தெற்கு வருவாய் கோட்டாட்சியர் மற்றும் கோயம்புத்தூர், புவியியல் மற்றும் அளவீட்டுத் துறை உதவி இயக்குநர் (பொ) ஆகியோர் இணை இயக்குநர் / உதவி இயக்குநர்(பொ) ஆகியோர் மேற்கொண்டு கோயம்புத்தூர் மாவட்டம், பெரியகுயிலை அஞ்சல், செட்டிபாளையம் வழி, அஞ்சல் அலுவலக வீதி, கதவு எண் 2/15 என்ற முகவரியில் வசிக்கும் திரு.S.தேவராஜ் அவர்களின் மகன் திரு.D.கார்த்திகேயன் என்பவருக்கு சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள். 409/1A1(P)-ல் மொத்தம் 0.42.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 0.15.0 ஹெக்டேர் பரப்பிலும், 409/1A2(P) மொத்தம் 0.46.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 0.17.0 ஹெக்டேர் பரப்பிலும், 409/1B1-ல் 0.42.5 ஹெக்டேர் மற்றும் 409/1B2-ல் 0.46.5 ஹெக்டேர் ஆக மொத்தம் 1.21.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் குவாரி செய்ய சில நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளார்கள்.

அனுமதி கோரும் புல எண்கள். 409/1A1 மற்றும் 409/1B1 ஆகியவை பட்டா எண்.1427-ன் படி திருமதி.பாக்கியலட்சுமி க/பெ.திரு.தேவராஜ் என்பவரின் பெயரில் தனிப்பட்டவாகவும் மற்றும் 409/1A2 மற்றும் 409/1B2 ஆகியவை பட்டா எண்.1428-ன் படி திருமதி.ஜேஜாதிலட்சுமி க/பெ.திரு.செல்வராஜ் என்பவரின் பெயரில் தனிப்பட்டவாகவும் கிராம கணக்கில் தாக்கலாகியுள்ளது. மேற்படி பூமியில் மாவட்ட ஆட்சித்தலைவர் அவர்களால் குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றப்படும் நாளிலிருந்து ஐந்து ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க மனுதாரரான திரு.D.கார்த்திகேயன் என்பவருக்கு குத்தகை உரிமம் வழங்க எவ்வித ஆட்சேபமையும் இல்லை என மேற்கண்ட பட்டாதாரர்கள் சம்மத கடிதம் அளித்துள்ளார்கள் என்பதால் மனுதாரர் மேற்படி நிலத்தில் குவாரி குத்தகை உரிமம் பெற தகுதியுடையவர் ஆவார்.

எனவே, கோயம்புத்தூர் தெற்கு வருவாய் கோட்டாட்சியர் மற்றும் கோயம்புத்தூர், புவியியல் மற்றும் அளவீட்டுத் துறை உதவி இயக்குநர்(பொ)/ இணை இயக்குநர் ஆகியோரது பரிந்துரைகளின் அடிப்படையில் கோயம்புத்தூர் மாவட்டம், பெரியகுயிலை அஞ்சல், செட்டிபாளையம் வழி, அஞ்சல் அலுவலக வீதி, கதவு எண் 2/15 என்ற முகவரியில் வசிக்கும் திரு.S.தேவராஜ் அவர்களின் மகன் திரு.D.கார்த்திகேயன் என்பவருக்கு சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள். 409/1A1(P)-ல் மொத்தம் 0.42.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 0.15.0 ஹெக்டேர் பரப்பிலும், 409/1A2(P) மொத்தம் 0.46.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 0.17.0 ஹெக்டேர் பரப்பிலும், 409/1B1-ல் 0.42.5 ஹெக்டேர் மற்றும் 409/1B2-ல் 0.46.5 ஹெக்டேர் ஆக மொத்தம் 1.21.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 5 (ஐந்து) ஆண்டுகளுக்கு சாதாரணகற்கள் மற்றும் 3 (மூன்று) ஆண்டுகளுக்கு கிராவல் மண் வெட்டியெடுக்க கீழ் கண்ட நிபந்தனைகளுக்கு உட்பட்டு குவாரி குத்தகை வழங்குவதற்குரிய நிலப்பரப்பாக (Precise Area Communication) கருதப்படுகிறது.

நிபந்தனைகள்

1. அருகிலுள்ள பட்டா நிலங்களுக்கும் மற்றும் பொது மக்களுக்கும், எவ்வித இடையூறும் இன்றி சந்தரண கல் மற்றும் கிராவல் குவாரி மேற்கொள்ள வேண்டும்.
2. அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதிக்கப்பு இடைவெளிவிட்டு குவாரிப்பணி புரிய வேண்டும்.
3. மெருகேற்றக்கூடிய கிராடைட் கற்கள் வெட்டி எடுக்கக் கூடாது.
4. குழந்தை தொழிலாளர்களை வேலைக்கு அமர்த்தல் கூடாது.



மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959ன் விதி எண். 41 மற்றும் 42-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு அதிகார அமைப்பின் அனுமதியினை பெற்று சமர்ப்பிக்கவும் மனுதாரரை கேட்டுக் கொள்ளப்படுகிறது.

ஓம்.XXX
மாவட்ட ஆட்சித்தலைவர்
கோயம்புத்தூர்

பெறுதல்:
திரு.D.கார்த்திகேயன்,
த/பெ.திரு.S.தேவராஜ்,
அஞ்சல் அலுவலக விதி,
கதவு எண்.2/15,
செட்டிபாளையம் வழி,
பெரியகுயிலை அஞ்சல்,
கோயம்புத்தூர் மாவட்டம்.

/உண்மை நகல்/உத்திரவுப்படி/

ஜி சண்முகம்
21/2/24
மாவட்ட ஆட்சியருக்காக
கோயம்புத்தூர்.

திரு.
அ/ய



சான்றிதழ்
409

சான்றிதழ்
பெயர்: சந்திரா பி. சிவசுந்தரி
3 ஏ. 40.0



New Sub - as per T-12 (S) 1145/11427 dt- 1-2-2018 as 1A1, 1A2, 1B1, 1B2, 1B3
Newly dividing 409/4 sig A/B/C/D by me as per T-12 dt- 11/6/14/2012

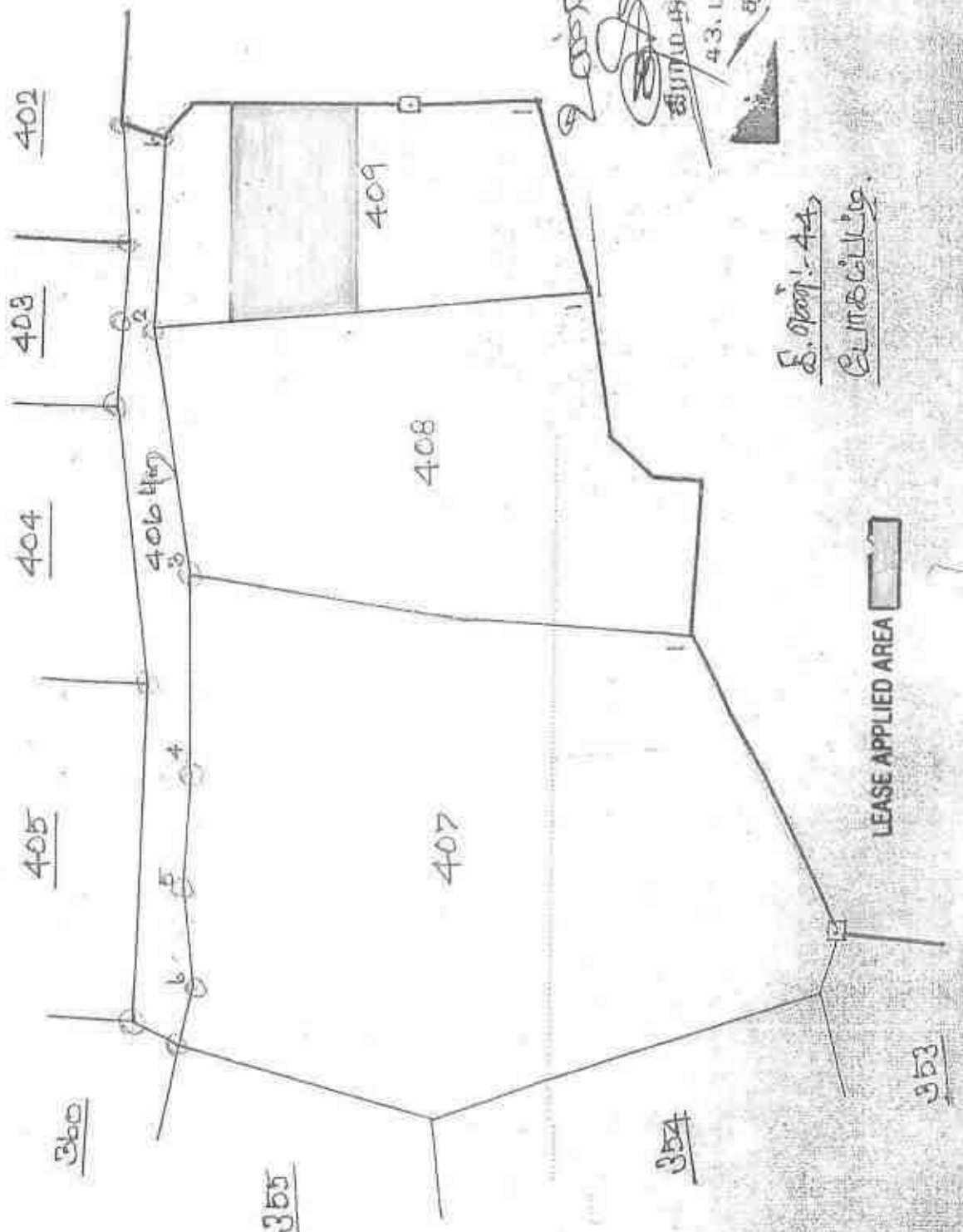
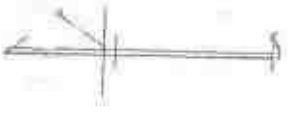
LEASE APPLIED AREA

ச	ப	க	ட	ஏ	அ
143	1	6	70	1560	
		5	14	1428	
		4	164	1238	
		2	48	1130	
432	B			962	526 2

சான்றிதழ் பெயர்: சந்திரா பி. சிவசுந்தரி
பெயர் - சி, சந்திரா

[Signature]
25/10/18

Village Administrative Officer
Birth & Death Registrar
43, Pachapalayam,
Sullur Taluk



2011/10/18
 43. 1000 8000000000
 8000000000

ANNEXURE
 30 DEC 2019
 2011/10/18

S. Anand
 C.M.B.C.

LEASE APPLIED AREA



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : தூலூர்

வருவாய் கிராமம் : பச்சாபாளையம்

பட்டா எண் : 1427

உரிமையாளர்கள் பெயர்

1. தேவராஜ்

மனைவி

பாக்கியலட்சுமி ✓

		நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை
409	1A1	--	--	0 - 42.50	0.85	--	--
409	1B1	--	--	0 - 42.50	0.85	--	--
				0 - 85.00	1.70		

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/025/01427/30574 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 03-10-2018 அன்று 11:25:10 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழக அரசு
வருவாய்த் துறை



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

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : தூலூர்

வருவாய் கிராமம் : பச்சாபாளையம்

பட்டா எண் : 1428

உரிமையாளர்கள் பெயர்

1. செல்வராஜ்

மனைவி

ஜோதிலட்சுமி

		நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை
409	1A2	--	--	0 - 46.50	0.93	--	--
409	1B2	--	--	0 - 46.50	0.93	--	--
				0 - 93.00	1.86		

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/025/01428/30585 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 03-10-2018 அன்று 11:25:40 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS, வழி இணையதளத்தில் சரிபார்க்கவும்.

அ-பதிவேடு விவரங்கள்

மாவட்டம் : கோயம்புத்தூர்
வட்டம் : துலூர்
கிராமம் : பச்சாபாளையம்



1. புல எண்	409	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	1A1	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	409-1A	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 42.50
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.85
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	1427
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	1	16. பெயர்	1.பாக்கியலட்சுமி

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60574 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : துலூர்

கிராமம் : பச்சாபாளையம்

1. புல எண்	409	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	1B1	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	409-1B	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 42.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.85
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	1427
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	1	16. பெயர்	1.பாக்கியலட்சுமி

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60574 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : தலூர்

கிராமம் : பச்சாபாளையம்

1. புல எண்	409	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	1A2	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	409-1A	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 46.50
5. அரக / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.93
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	1428
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	1	16. பெயர்	1.ஜோதிலட்சுமி

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60585 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : துலூர்

கிராமம் : பச்சாபாளையம்

1. புல எண்	409	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	1B2	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	409-1B	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 46.50
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.93
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1428
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	1	16. பெயர்	1.ஜோதிலட்சுமி

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60585 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

भारतीय गैर न्यायिक

बीस रुपये

रु.20

Rs.20

TWENTY
RUPEES

INDIA

INDIA NON JUDICIAL

தமிழ்நாடு தமிழ்நாடு TAMIL NADU

58AB 821958

9 DEC 2018

D. பாக் கியலட்சுமி
சென்னைL.MURUGARAJ
STAMP VENDORCOIMBATORE DISTRICT COURT
COIMBATORE
REF No. 12/2018

சம்மதக் கடிதம்

கோயம்புத்தூர் மாவட்டம், செட்டிபாளையம் வழி, பெரியகுடியிலை அஞ்சல், 2/15, அஞ்சல் அலுவலக வீதி என்ற முகவரியில் வசிக்கும் திரு. S. தேவராஜ் அவர்களின் மனைவி D. பாக் கியலட்சுமி ஆகிய நான் எழுதிக்கொடுக்கும் உறுதி மொழிப்பத்திரம் என்னவென்றால்,

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், பட்டா எண் 1427-ன் படி க.ச.எண்கள் 409/1A1, (0.42.5), மற்றும் 409/1B1, (0.42.5), ஆகிய காலைகளில் மொத்தம் 0.85.0 ஹெக்டேர் பரப்பானது எனக்கு பாத்தியப்பட்டது. மேற்படி காலைகளில் சாதாரணக்கல் மற்றும் மண் வெட்டி எடுக்க கோவை மாவட்ட ஆட்சியர் அவர்களால் குத்தகை ஒப்பந்தப்பத்திரம் நிறைவேற்றப்படும் நாளிலிருந்து ஐந்து ஆண்டுகளுக்கு சாதாரணக்கல் மற்றும் மண் வெட்டி எடுக்க எனது மகனும், மறுதாரமான திரு. D. கார்த்திகேயன் என்பவருக்கு குத்தகை உரிமம் வழங்க இனிது ஆட்சேபணையும் இல்லை என்பதை இச்சம்மதக் கடிதத்தின் மூலம் உறுதிப்படுத்துக கொள்கிறேன்.

இப்படிக்கு

13/2/19
A. PHANGAVELU, M.A., B.L.,
ADVOCATE & NOTARY PUBLIC
208, 1st Floor, Lawyers Chambers
G.O.M.S. 324/17,
District Court Complex, Coimbatore-641 018
COIMBATORE & TIRUPUR DIST.
Call: 98422 - 67534, 93606 -20927

பாக் கியலட்சுமி



தமிழ்நாடு தமில்நாடு TAMIL NADU

58AB 821959

9 DEC 2018

N. ஜெயநாத் கும்ப
சம்மதக் கடிதம்

L. MURUGARAJ
STAMP VENDOR
COIMBATORE DISTRICT COURT
COIMBATORE TAMIL NADU
REF NO: 4295 / 51 / 2018

சம்மதக் கடிதம்

கோயம்புத்தூர் மாவட்டம், செட்டிபாளையம் வட்டி, பெரியகுடியிலை அஞ்சல், 2/14, அஞ்சல் அலுவலக வீதி என்ற முகவரியில் வசிக்கும் திரு. செல்வராஜ் அவர்களின் மனைவி ஜோதிலட்சுமி ஆகிய நான் எழுதிக்கொடுக்கும் உறுதி மொழிப்பத்திரம் என்னவென்றால்,

கோயம்புத்தூர் மாவட்டம், கஜூர் வட்டம், பச்சாபாளையம் கிராமம், பட்டா எண் 1428-ன் படி க.ச.எண்கள் 409/1A2, (0.46.5), மற்றும் 409/1B2, (0.46.5) ஆகிய காலைகளில் மொத்தம் 0.93.0 ஹெக்டேர் பரப்பானது எனக்கு பாத்தியப்பட்டது. மேற்படி காலைகளில் சாதாரணக்கல் மற்றும் மண் வெட்டி எடுக்க கோவை மாவட்ட ஆட்சியர் அவர்களால் குத்தகை ஒப்பந்தப்பத்திரம் நிறைவேற்றப்படும் நாளிலிருந்து ஐந்து ஆண்டுகளுக்கு சாதாரணக்கல் மற்றும் மண் வெட்டி எடுக்க மனுதாரரான திரு. D. கார்த்திகேயன் என்பவருக்கு குத்தகை உரிமம் வழங்க எவ்வித ஆபத்தையும் இல்லை என்பதை இச்சம்மதக் கடிதத்தின் மூலம் தெரிவித்துக் கொள்கிறேன்.

இப்படிக்கு



13/1/19
A. J. NANGAVELU, M.A. B.L.,
ADVOCATE & NOTARY PUBLIC
208, 1st Floor, Lawyers Chambers
G.O.M.S. 324/17,
District Court Complex, Coimbatore-641 018
COIMBATORE & TIRUPUR DIST.
Phone: 99422 - 67534, 93606 -20927

N. 2018



இந்திய சரிப்பட்ட - சட்டப்பான் ஆணை - தனிப்பட்ட

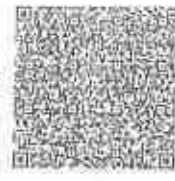
இந்திய அரசாங்கம்
Unique Identification Authority of India
Government of India

ஆய்வு அட்டைமாதிரி / Enrollment No. : 1110/15110101484

To
Karthikeyan Devaraj
அறிஞர் கருத்தியன் தேவராஜ்
S/O: Devaraj
2/15
POST OFFICE STREET
PERIYAKUYILAI
SULLUR
Pachchalayam
Periyakuyilai, Coimbatore,
Tamil Nadu - 641201
9769701760



KL378649886F7
37864989

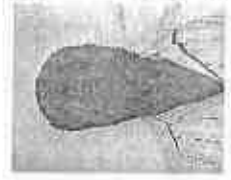


உங்கள் ஆதார் எண் / Your Aadhaar No. :
2819 7327 2902

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



இந்திய அரசாங்கம்
Government of India



அறிஞர் கருத்தியன் தேவராஜ்
Karthikeyan Devaraj

செல் எண் / Mobile
9864 54006 1211188

2819 7327 2902

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

தகவல்

- ஆதார் அடையாளத்திற்கான சான்று குடியரிமைக்கு அல்ல.
- அடையாள சான்றிதழை உடனடியாகப் பெற உறுதியளிக்கக் 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 அடையாள அங்கீகரிப்பு ஆணை
ஆதார்
Unique Identification Authority of India

முகவரி: S/O: Devaraj, 2/15
புத்தியலையம், புத்தியலையம், கோயம்புத்தூர்
Pachchalayam
Periyakuyilai, Coimbatore
Tamil Nadu, 641201



2819 7327 2902

1800 200 1800
1927
1927
www.aadhaar.gov.in



**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 F. 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

Place : MADRAS
Date : 20.11.1987

P. Sivaniamorthy
Regional Controller of Mines
Indian Bureau of Mines
MADRAS

17 NOV 1993

P. Narayanaiah

Regional Controller of Mines
INDIAN BUREAU OF MINES

Renewed up to 17-11-2011

S. Prabhakar
Regional Controller of Mines
INDIAN BUREAU OF MINES

Renewed up to 17-11-2021

S. Prabhakar
REGIONAL CONTROLLER OF MINES
INDIAN BUREAU OF MINES
CHENNAI REGION

17 NOV 1993

V. S. Srinivas

Regional Controller of Mines
INDIAN BUREAU OF MINES

17 NOV 1997

V. S. Srinivas

Regional Controller of Mines
INDIAN BUREAU OF MINES

Renewed up to 17-11-99

H. K. A. Murthy
Regional Controller of Mines
INDIAN BUREAU OF MINES
Ministry of Coal & Mines
Chennai

Renewed up to 17-11-2001

S. Prabhakar
Regional Controller of Mines
INDIAN BUREAU OF MINES

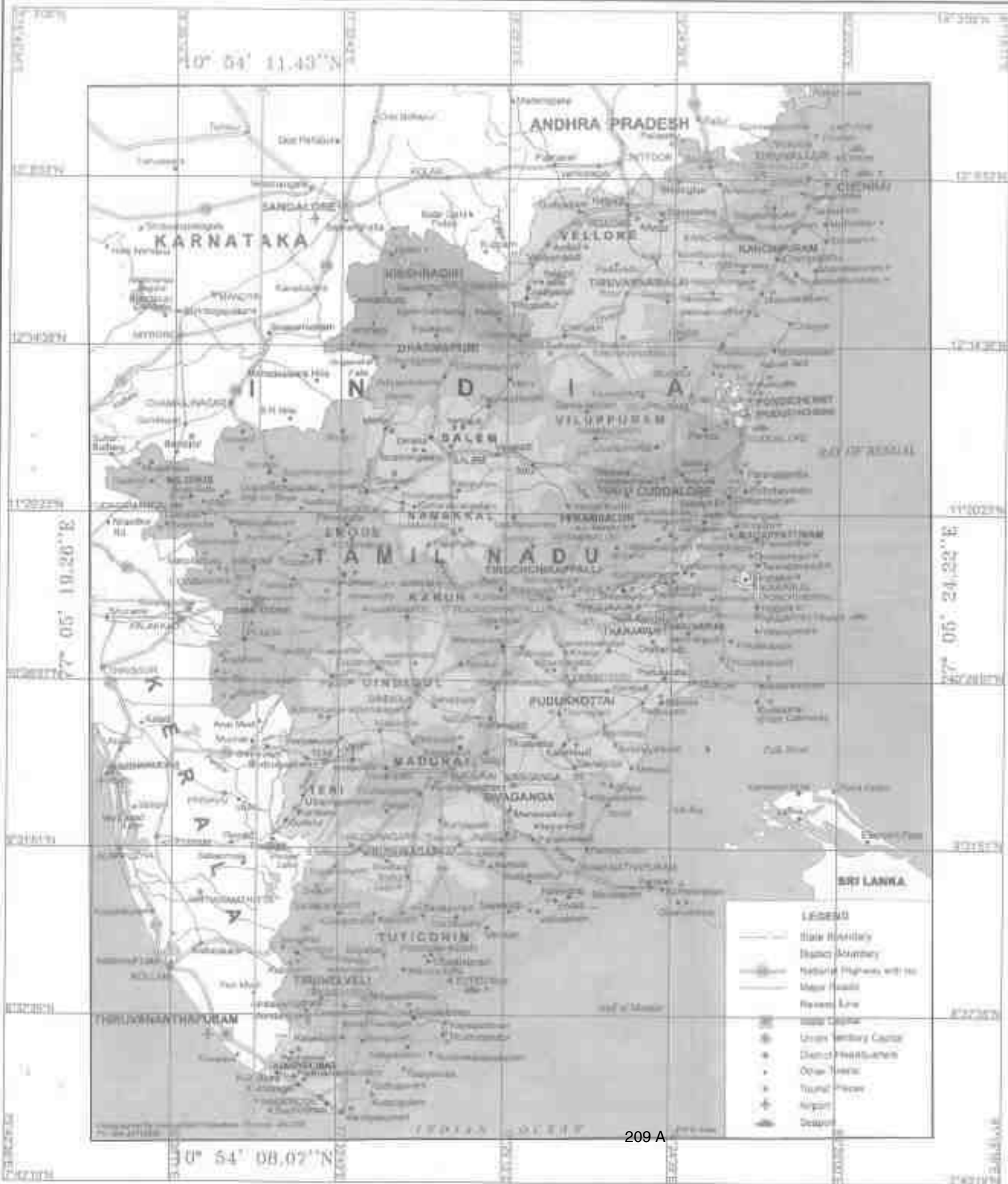


PLATE NO:1

DATE OF SURVEY : 05.11.2019

APPLICANT:

THIRU.D.KARTHIKEYAN,
S/O.S.DEVARAJ,
2/15.POST OFFICE STREET,
CHETTPALAYAM VIA,
PERIYAKULAI POST,
COIMBATORE DISTRICT-641 201.

**LOCATION OF QUARRY
LEASE APPLIED AREA:**

S.F.NO.S : 409/1A1(P),409/1A2(P),
409/1B1 & 409/1B2.
EXTENT : 1.210 Ha.
VILLAGE : PACHAPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

INDEX

Q. L.A. AREA : ●

TOPO SHEET NO. : 58 F/D1

LATITUDE : 10° 54' 08.07"N to 10° 54' 11.43"N

LONGITUDE : 77° 05' 19.26"E to 77° 05' 24.22"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 LEGENDARY
AUTHENTICATED
BY STATE GOVERNMENT

[Signature]
A.JAYARAMAN, I.C.C. & M.E.A., I.E.
REGULATED QUALIFIED PERSON
RIP/NAL/018/07/24.

LANDUSE PATTERN

DESCRIPTION	PERCENTAGE
ROADS	(10%)
HABITATION	(10%)
TREES/ODAI	(15%)
AGRICULTURAL LAND	(60%)
PIT/CRUSHER PLANT	(5%)

PLATE NO: B

DATE OF SURVEY: 25/11/2016

1 Km Road

50 Met Road

O.S. Applied Area

TOPO SHEET NO. 138/101

LATITUDE : 10° 54' 08.07"N to 10° 54' 11.43"N

LONGITUDE : 77° 05' 19.26"E to 77° 05' 24.32"E

APPLICANT:

THIRU.D.KARTHKEYAN,
S/O.S.DEVARAJ,
2/15,POST OFFICE STREET,
CHETTIPALAYAM VIA,
PERIYAKUULAI POST,
COIMBATORE DISTRICT-641 201.

LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.NO.S : 409/1A1 (P),409/1A2(P),
409/1B1 & 409/1B2.

EXTENT : 1.21.0 Ha.

VILLAGE : PACHAPALAYAM.

TALUK : SULLUR.

DISTRICT : COIMBATORE.

STATE : TAMIL NADU.

INDEX

APPROACH ROAD

VILLAGE ROAD

HABITATION & INFRASTRUCTURE

TREES

AGRICULTURAL LAND

QUARRY PIT

WIND DIRECTION

CRUSHER PLANT

ODAI

ENVIRONMENTAL & LAND USE

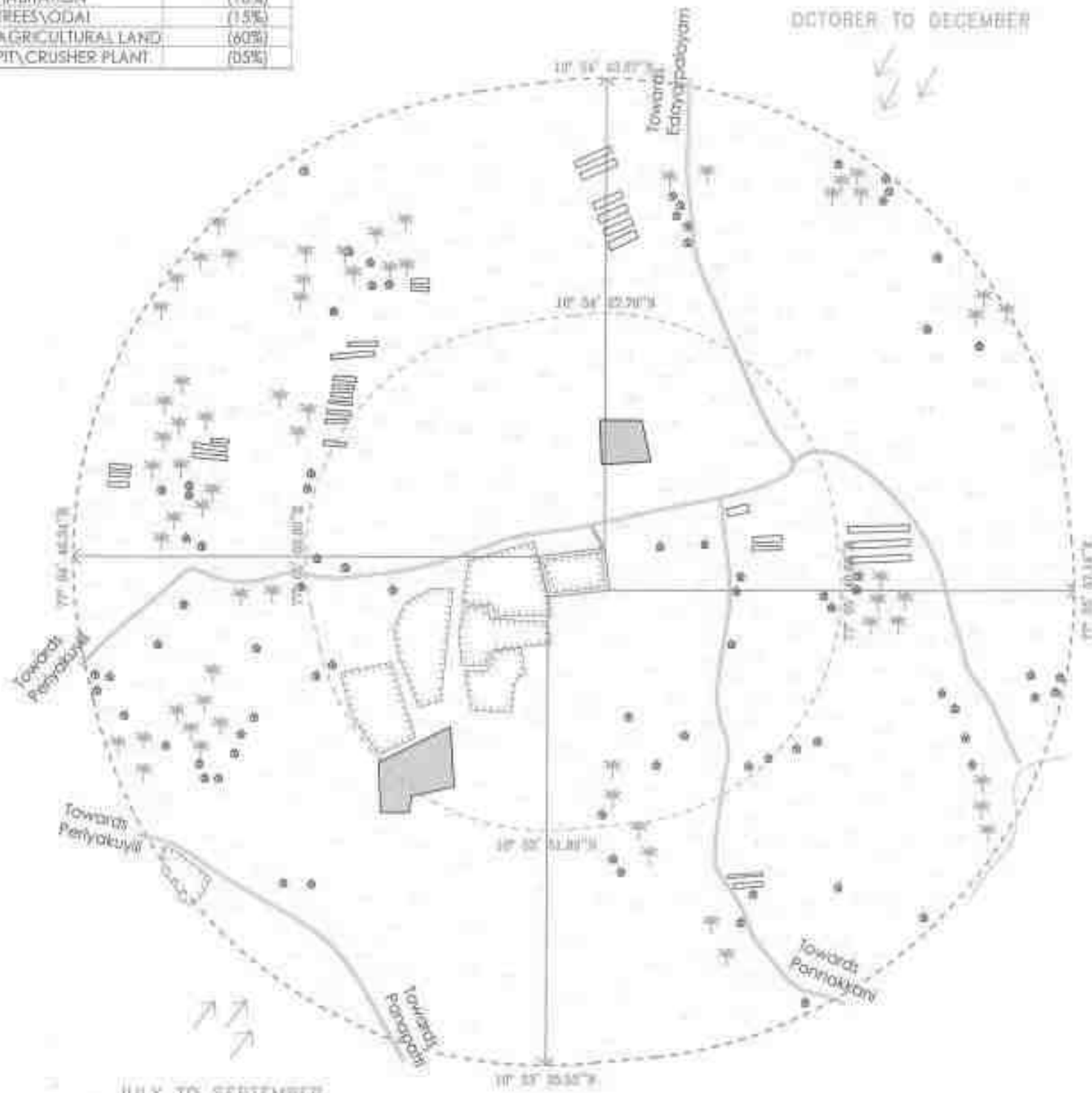
PLAN FOR 1KM RADIUS

SCALE - 1:10,000

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLAN IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE RECORDS
MAINTAINED
BY STATE GOVERNMENT

[Signature]
A. DEVIAN, P.O. F.C. N.H.E. & M.L.E.
REGISTRAR, QUARRY PERSON
30P/VA5/211/2016



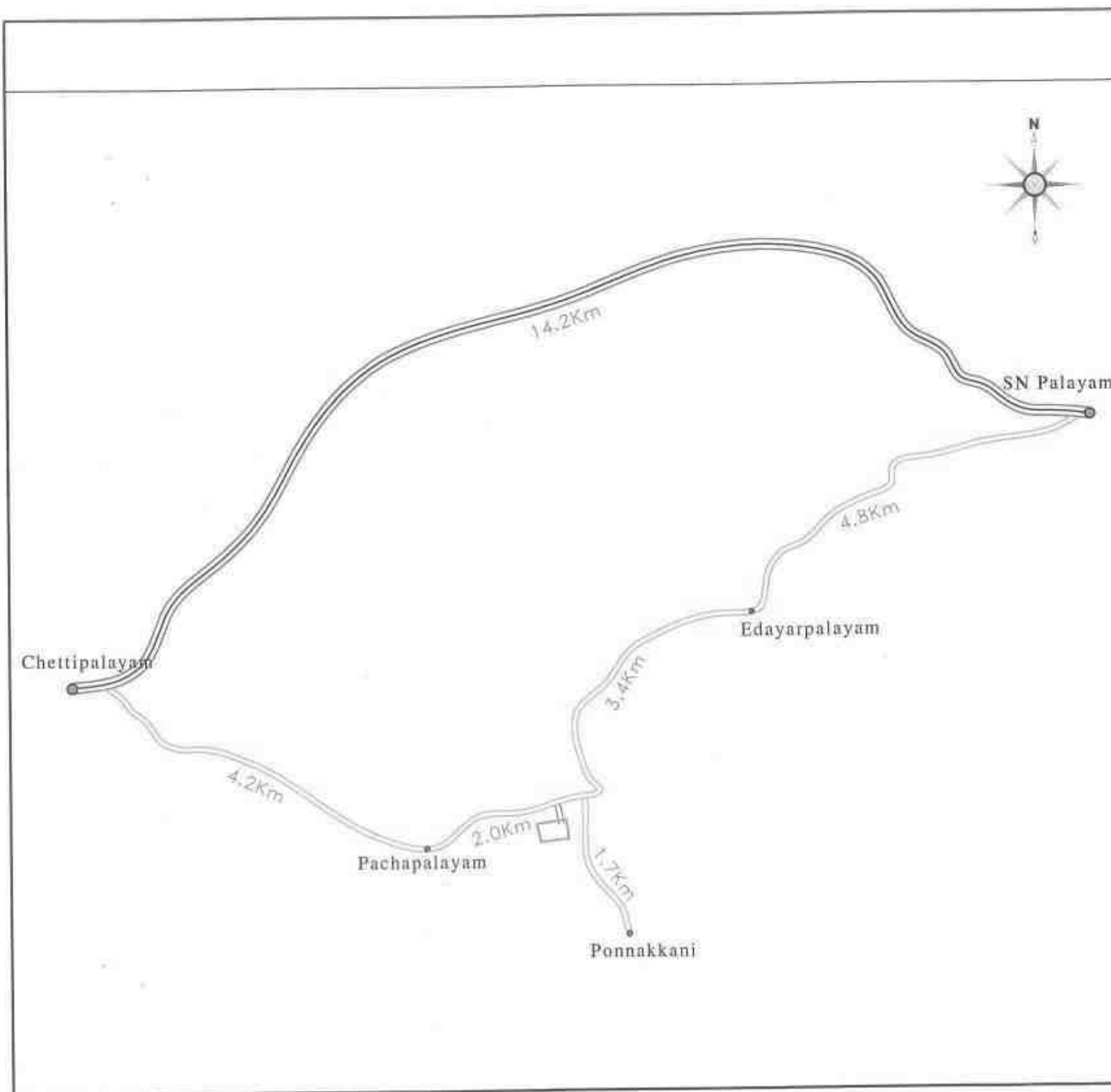


PLATE NO: IC
 DATE OF SURVEY : 05.11.2019

APPLICANT:
 THIRU.D.KARTHIKEYAN,
 S/O.S.DEVARAJ,
 2/15.POST OFFICE STREET,
 CHETTIPALAYAM VIA,
 PERIYAKUYLA POST,
 COIMBATORE DISTRICT-641 201.

LOCATION OF QUARRY
LEASE APPLIED AREA:
 S.F.NO.S : 409/1A1 (P), 409/1A2 (P),
 409/1B1 & 409/1B2.
 EXTENT : 1.21.0 Ha.
 VILLAGE : PACHAPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

INDEX	
Q.L.APPLIED AREA	
SH ROAD-163	
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

(Signature)
 A.JAGANNATHAN, BE., F.C.O., M.M.E.A., M.I.E.
 RECOGNIZED QUALIFIED PERSON
 RQP/MAS/019/87/A




PLATE NO-II
 DATE OF SURVEY : 05.11.2019
10 DEC 2019

LOCATION OF QUARRY LEASE APPLIED AREA:
 S.F. NO.S : 409/1A1(P), 409/1A2(P), 409/1B1 & 409/1B2.
 EXTENT : 1.21.0 Ha.
 VILLAGE : PACHAPALAYAM,
 TALUK : SULLUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

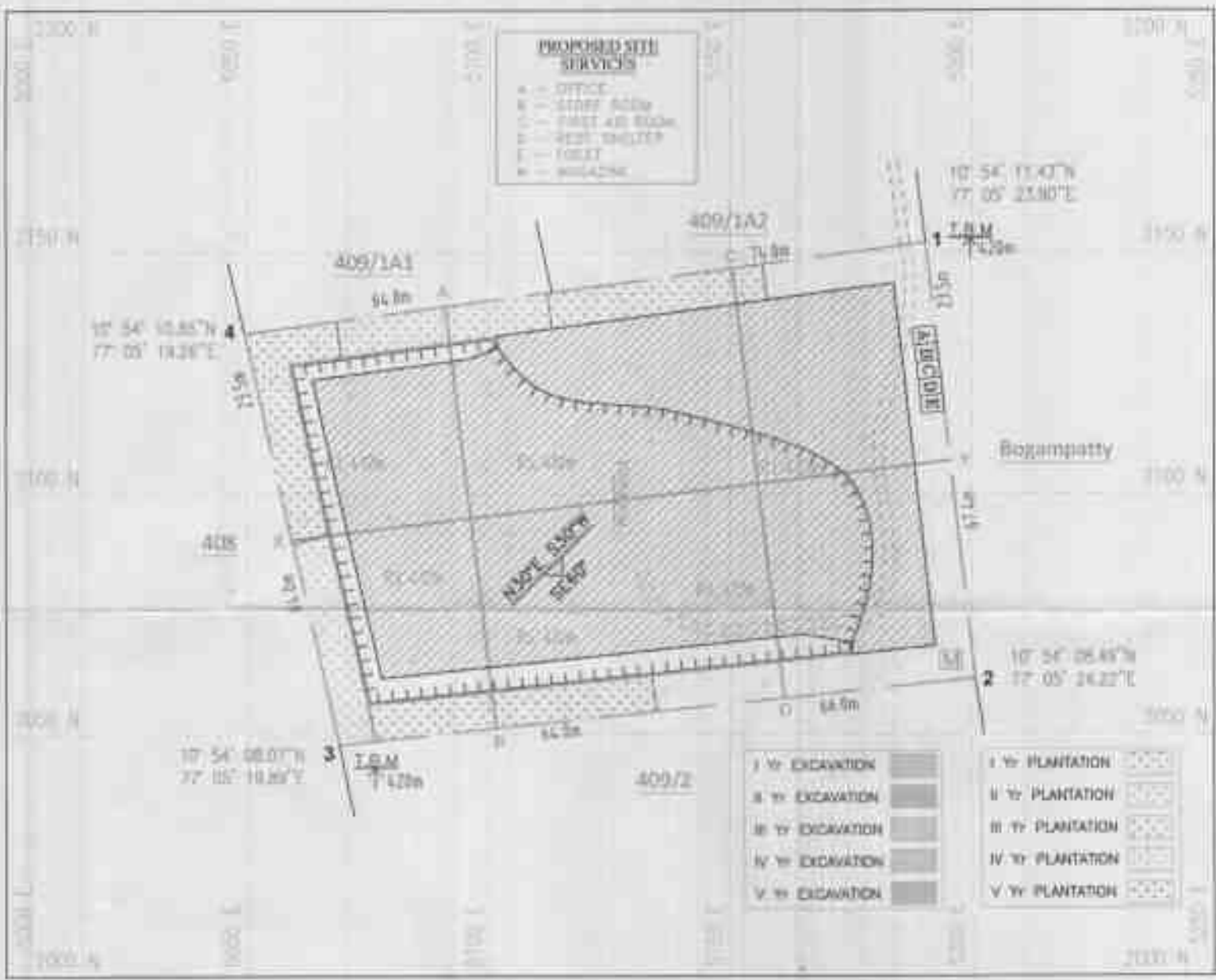
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TEMPORARY BENCH MARK	
APPROACH ROAD	
CONTOUR	
GRAVEL	
QUARRY PIT	
QUARRY ROAD	
STRIKE AND DIP	
ROUGH STONE	

APPLICANT:
 THIRU. D. KARTHIKEYAN,
 S/O. S. DEVARAJ,
 2/15, POST OFFICE STREET,
 CHETTPALAYAM VIA,
 PERYAKUPLAI POST,
 COIMBATORE DISTRICT
 -641 201.

Existing pit Dimension
 102mX73m(max)X8m(d)

QUARRY LEASE & SURFACE PLAN
 SCALE 1 : 1000
PREPARED BY:
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLAN IS TRUE AND CORRECT TO THE
 BEST OF MY KNOWLEDGE BASED UPON THE LEADWORK
 AUTHENTICATED
 BY STATE GOVERNMENT


 S. SURESH KANTH, P.C.C. IN CHARGE
 SURVEYOR, CHENNAI REGION
 807/MAS/218/2019



Existing pit Dimension
102mX73m(max)X8m(d)

PLATE NO-III
DATE OF SURVEY : 05.11.2019

APPLICANT:
THIRU.D.KARTHKEYAN,
S/O.S.DEVARAJ,
2/15,POST OFFICE STREET,
CHETIPALAYAM VIA,
PERIYAKULAI POST,
COIMBATORE DISTRICT-641 201.

LOCATION OF QUARRY LEASE APPLIED AREA:
S.P.NO.S : 409/1A1 (P), 409/1A2 (P),
409/1B1 &
EXTENT : 1.21.0 Ha
VILLAGE : PACHAYALAYAM,
TALUK : SULLUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.



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Q.L. APPLIED AREA BOUNDARY	
7.3m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	
GRAVEL	
QUARRY PIT	
QUARRY ROAD	
STRIKE AND DIP	
ROUGH STONE	

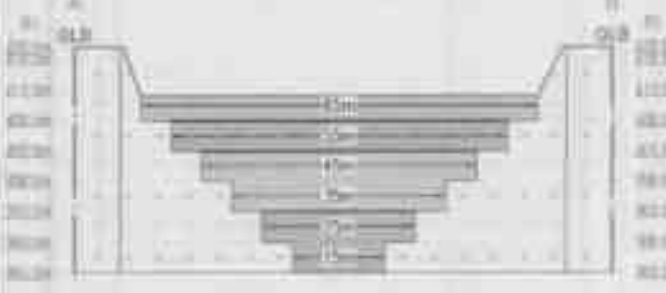
SECTION ALONG X-Y



PRESENT & POST LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	0.64.8	0.58.3
INFRASTRUCTURE	Nil	0.01.0
ROADS	0.01.0	0.02.0
GRASS BELT	Nil	0.18.3
UN-UTILIZED AREA	0.55.4	0.11.3
GRAND TOTAL	1.21.2	1.21.0

SECTION ALONG A-B



SECTION ALONG C-D



TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS

SCALE 1 : 1000
SECTION HOR T : 1000, VER T : 1000

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLAN IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE MEASUREMENTS
BY STATE SURVEY OFFICE
(Signature)
A SURVEYOR IN CHARGE P.T.O. AREA III
REGULATED QUALIFIED PERSON
087/446/2019/2019

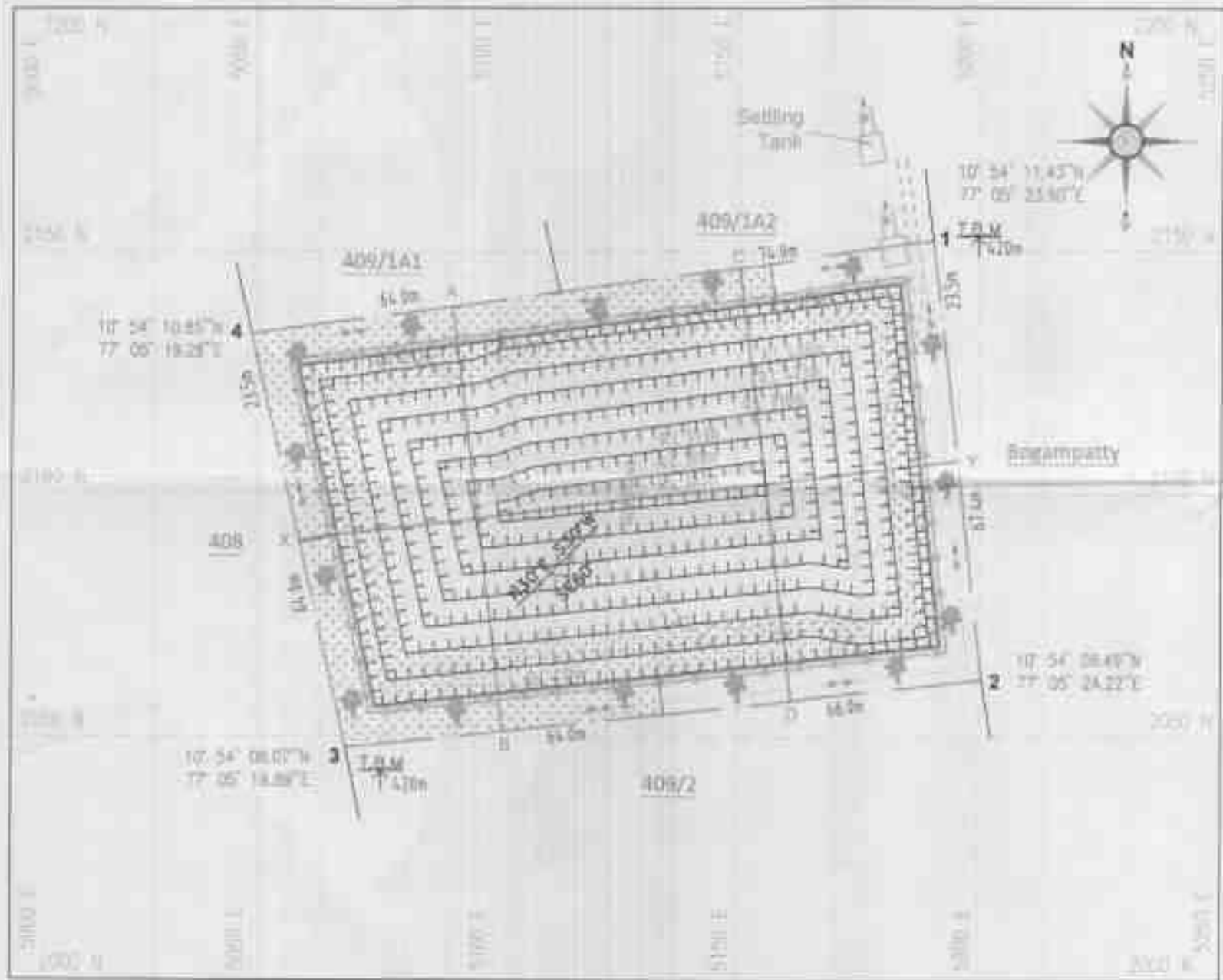


PLATE NO. 11 DEL. /
DATE OF SURVEY 11.2019

APPLICANT
THIRU. KARTHIKEYAN
S/O S. DEVARAJ
2/15, POST OFFICE STREET,
CHETTIPALAYAM VIA.
PERYAKULAI POST,
COIMBATORE DISTRICT-641 201.

LOCATION OF QUARRY
LEASE APPLIED AREA:
S.F. NO.S : 409/1A (P), 409/1A2(P),
409/1B1 & 409/1B2.
EXTENT : 3.21.0 Ha.
VILLAGE : PACHAPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

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7.5m SAFETY DISTANCE	—————
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APPROACH ROAD	—————
CONTOUR	—————
QUARRY PIT	
QUARRY ROAD	—————
STRIKE AND DIP	SE 15° E
EXISTING LANDFORM	—————
OLD SURFACE LEVEL	—————
FINISHED SURFACE LEVEL	—————
TREES	⊕ ⊕
SOIL LAYER	—————
RAIN WATER STORAGE	—————
REHABILITATED LANDFORM	—————
FENCING	—————
PROPOSED GARLAND DRAIN	—————

SECTION ALONG X-Y

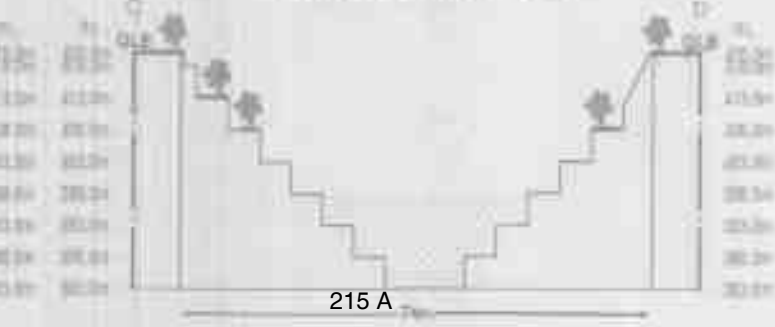


Proposed pit Dimension
12mX74m(max)X37m(d)

SECTION ALONG A-B

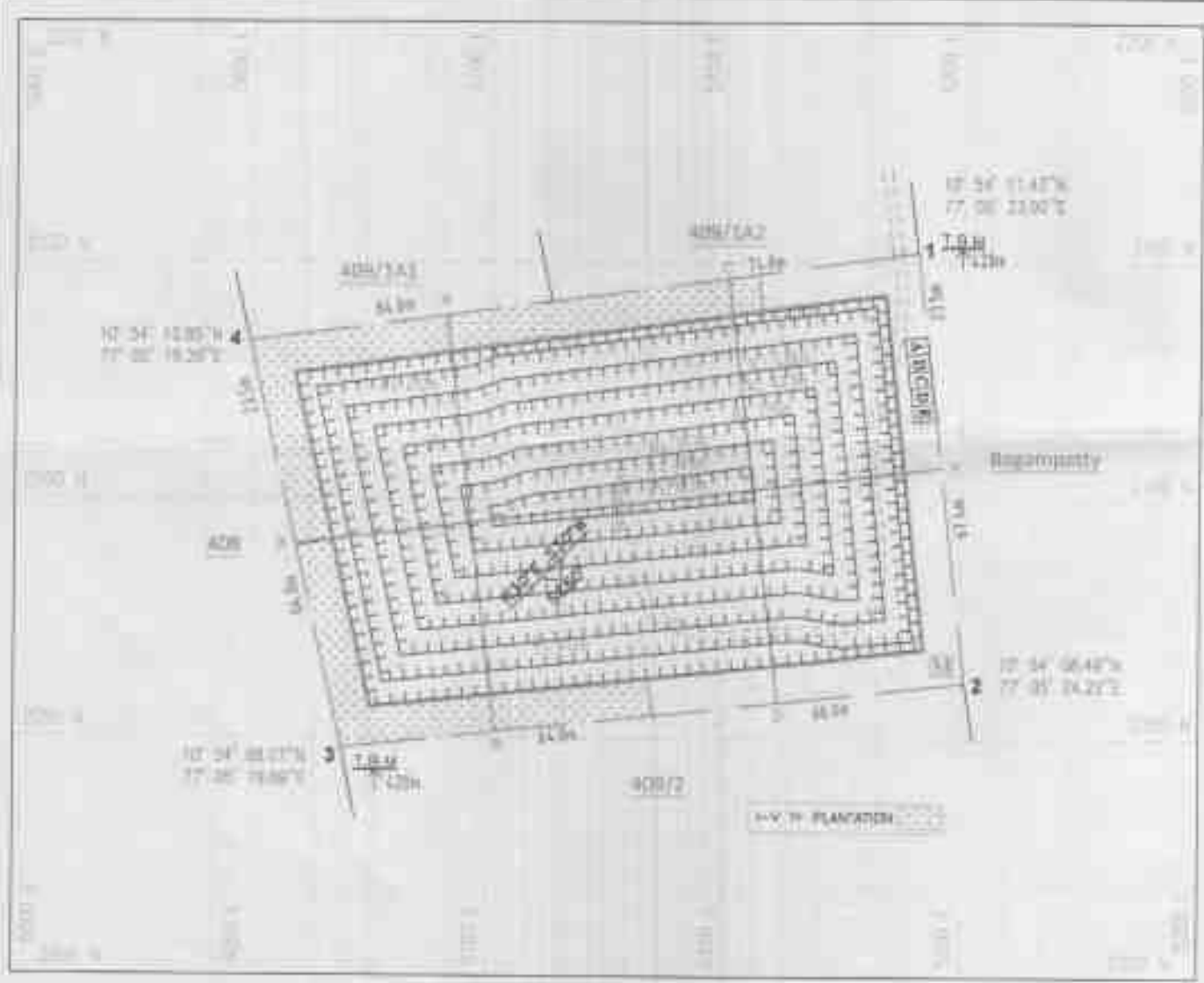


SECTION ALONG C-D



PROGRESSIVE QUARRY CLOSURE
PLAN & SECTIONS
SCALE 1 : 1000
SECTION HOR : 1 : 1000, VER : 1 : 1000

PREPARED BY:
M. S. SURESH
M.S.SURESH & CO. ENGINEERS
11/15, POST OFFICE STREET,
CHETTIPALAYAM VIA.
PERYAKULAI POST,
COIMBATORE DISTRICT-641 201.



Ultimate pit Dimension
121mX74m(Avg)X37m(d)

PLATE NO-V
DATE OF SURVEY : 05.11.2018

APPLICANT:
THIRU D. KARTHICKAN,
S/O S. DEVARAJ,
2/13, POST OFFICE STREET,
CHETTI PALAYAM VIA,
PERYAKUTLAI POST,
COMBATOR DISTRICT-641 201.

LOCATION OF QUARRY
LEASE APPLIED AREA:
S7, NO.S : 408/1A1 (P), 408/1A2 (P),
408/1B1 & 408/1B2.
EXTENT : 1.21.0 Ha,
VILLAGE : PACHAPALAYAM,
TALUK : SELLUR,
DISTRICT : COMBATOR,
STATE : TAMIL NADU.

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Q.L. APPLIED AREA BOUNDARY	—————
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APPROACH ROAD	—————
CONTOUR	—————
GRAVEL	—————
QUARRY PIT	—————
QUARRY ROAD	—————
SMILE AND DP	—————
ROUGH STONE	—————

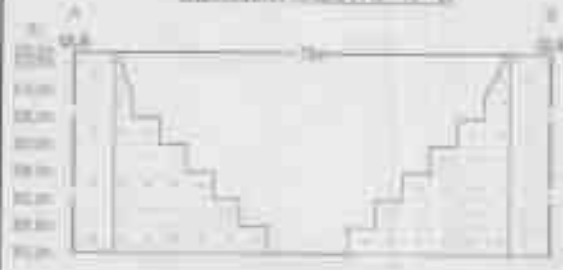
SECTION ALONG X-Y



STD BENCH MARK

1	1000
2	1000
3	1000
4	1000
5	1000
6	1000
7	1000
8	1000
9	1000
10	1000

SECTION ALONG A-B



SECTION ALONG C-D



CONCEPTUAL
PLAN & SECTIONS
SCALE 1 : 1000
SECTION HOR 1 : 1000, VER 1 : 1000

PREPARED BY:
DATE OF THIS SURVEY WAS THE MEASUREMENT IN THIS
PLAN IN THIS AND SUBJECT TO THE
BEST OF MY KNOWLEDGE, BELIEVE UNDER THE USUAL
CONDITIONS
BY STATE ENGINEER

TAMIL NADU STATE ENGINEERING COLLEGE, KARAIKAL
KARAIKAL DISTRICT-605 001



THIRU.DEEPAK S.BILGI, I.F.S.
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU
3rd Floor, Paragal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr.No.SEIAA-TN/F.No.9172/SEAC/ToR- 1186/2022 Dated :06.07.2022

To

S.Durairaj
S/o.Sellappan
MalakkaduThottam
Periyakuyilai Post, Pachapalayam
Coimbatore District - 641 201


Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone quarry over an extent of 1.47.5 Ha in S.F.No. 408/3B &408/3C, Pachapalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu by Thiru S.Durairaj - 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/74767/2022, dated: 04.04.2022
 2. Your application seeking Terms of Reference submitted on: 18.04.2022
 3. Minutes of the 284th Meeting of SEAC held on 10.06.2022
 4. Minutes of the 529th Meeting of SEIAA held 06.07.2022.

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

The project proponent, S.Durairaj has submitted application seeking ToR for B1 category project in Form-I, for the Proposed Rough Stone quarry over an extent of 1.47.5 Ha in S.F.No. 408/3B &408/3C, Pachapalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu and has furnished Pre-feasibility report.


MEMBER SECRETARY
SEIAA-TN

Discussion by SEAC and the Remarks:-

Proposed Rough Stone quarry over an extent of 1.47.5 Ha in S.F.No. 408/3B &408/3C, Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu by Thiru S.Durairaj for Terms of Reference (SIA/TN/MIN/74767/2022, dated 04.04.2022)


The proposal was placed in this 284th Meeting of SEAC held on 10.06.2022. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

The SEAC noted the following


1. The Project Proponent, Thiru S.Durairaj has applied for Terms of Reference for the proposed Rough Stone quarry over an extent of 1.47.5 Ha in S.F.No. 408/3B &408/3C, Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.
2. The proposed quarry/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006
3. As per the mining plan the lease period is 5 years. The mining plan is for the period of 5 years & production should not exceed 112701 cu.m. of Rough Stone & 2220 Cu.m of Gravel. The annual peak production 23875 cu.m. of Rough Stone(4th Year) & 1200 Cu.m of Gravel (1st year). The ultimate depth - 44 m BGL.

Based on the presentation made by the proponent and considering safety point of view, SEAC recommended to remove the last bench in XY-AB section . Accordingly grant of Terms of Reference (TOR) with Public Hearing for the production of 111301 Cu.m of rough stone and 2220 cu.m. of Gravel in 5 years with ultimate depth 44m, subject to the following TORs, 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 ELA/EMP Report:

1. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.
2. The PP shall include the letter received from DFO concerned stating the proximity details of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.


MEMBER SECRETARY
SEIAA-TN


3. The PP shall conduct a survey regarding the structures/wind mill etc., located in 500m radius from the project site and the same shall be included in the EIA report.
4. The Proponent shall submit a conceptual "Slope Stability Plan" for the proposed quarry during the appraisal while obtaining the EC, as the depth of the working is extended beyond 30 m below ground level.
5. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
6. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
7. 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. Quantity of minerals mined out.
 - b. Highest production achieved in any one year.
 - 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.
9. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
10. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
11. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries &


MEMBER SECRETARY
SEIAA-TN

- water bodies nearby provided as per the approved mining plan.
12. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
 13. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act, 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
 14. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
 15. 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.
 16. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of air pollution, water pollution, & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
 17. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
 18. Issues relating to Mine Safety, including slope geometry in case of Granite quarrying, blasting parameters etc. should be detailed. The proposed safeguard measures in each case should also be provided.
 19. 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


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- 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.
20. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
 21. Since non-saleable waste /OB / intermediate waste etc. is huge in the granite quarry, the Proponent shall provide the details pertaining to management of the above material with year wise utilization and average moving inventory be submitted.
 22. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
 23. 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.
 24. Impact on local transport infrastructure due to the Project should be indicated.
 25. 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.
 26. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
 27. Public Hearing points raised and commitments 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 and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
 28. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
 29. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.


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30. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
31. 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).
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the **appendix-I** in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.
34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should


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- be detailed along with budgetary allocations.
38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
 39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
 41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
 42. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix -I
List of Native Trees Suggested for Planting

1. *Aeglemarmelos*-Vilvam
2. *Adenaantherapavonina*-Marjadi
3. *Albizialebeck*-Vaagai
4. *Albiziaamara*-Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa*-Irvathi
8. *Buchananiaaillaris*-Kattuma
9. *Borassusflabellifer*- Panai
10. *Buteamonosperma* - Murukkamaram
11. *Bobaxceiba*- Ilavu, Sevvilavu
12. *Calophylluminophyllum* - Punnai
13. *Cassia fistula*- Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylonswietenia* - Purasamaram
16. *Cochlospermumreligiosum*- Kongu, Manjallavu
17. *Cordiadihotoma*- Mookuchalimaram
18. *Cretevuadansonii*-Mavalingum


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19. *Dilleniaindica* - Uva, Uzha
20. *Dilleniapentagyna* - SiruUva, Sitruzha
21. *Diospyrosebenum* - Karungali
22. *Diospyroschloroxylon* - Vaganai
23. *Ficusamplissima* - Kallchi
24. *Hibiscus tiliaceous* - Aatrupoovarasu
25. *Hardwickiabinata* - Aacha
26. *Holopteliaintegrifolia* - Aayili
27. *Lanneacoromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthustetraphylla* - Neikottaimaram
30. *Limonioacidissima* - Vila maram
31. *Litsea glutinosa* - Pisinpattai
32. *Madhucalongifolia* - Illuppai
33. *Manilkarahexandra* - UlukkaiPaalai
34. *Mimusopselengi* - Magizhamaram
35. *Mitragynaparvifolia* - Kadambu
36. *Morindapubescens* - Nuna
37. *Morindacitrifolia* - VellaiNuna
38. *Phoenix sylvestre* - Eachai
39. *Pongamiapinnata* - Pungam
40. *Premnamollissima* - Munnai
41. *Premnaverratifolia* - Narumunai
42. *Premnatomentosa* - PurangaiNaari, PudangaNaari
43. *Prosopiscinerea* - Vannimaram
44. *Pterocarpusmarsupium* - Vengai
45. *Pterospermumcanescens* - Vennangu, Tada
46. *Pterospermumxylocarpum* - Polavu
47. *Puthranjivaroxburghii* - Puthranjivi
48. *Salvadorapersica* - Ugaamaram
49. *Sapindusemarginatus* - Manipungan, Soapukai
50. *Saracaasoca* - Asoca
51. *Streblusasper* - Pirayamaram
52. *Strychnosnuxvomica* - Yetti
53. *Strychnopotatorum* - TherthangKottai
54. *Syzygiumcumini* - Naval
55. *Terminaliabellerica* - Thandri
56. *Terminalia arjuna* - Venmarudhu
57. *Toona ciliate* - Sandhanavembu
58. *Thespesiapopulnea* - Puvarasu
59. *Walsuratrifoliata* - valsura

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60. Wrightiatinctoria- Vep**Discussion by SEIAA and the Remarks:-**

The proposal was placed in the 529th Authority meeting held on 06.07.2022. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan for a mining period of 5 years subject to the ToR as recommended by SEAC & standard ToR in addition to the following ToR:-

1. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
2. As per the MoEF& CC office memorandum F.No.22-65/2017-1A.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
3. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
4. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
5. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
6. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
7. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
8. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
9. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
10. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.


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11. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
12. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
13. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.
15. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.
16. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
17. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.
18. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
19. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & bio-diversity.
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - d) Possibilities of water contamination and impact on aquatic ecosystem health.
 - e) Agriculture, Forestry & Traditional practices.
 - f) Hydrothermal/Geothermal effect due to destruction in the Environment.
 - g) Bio-geochemical processes and its foot prints including environmental stress.
 - h) Sediment geochemistry in the surface streams.


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20. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
21. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/unfavorable accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.
22. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.
23. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.
24. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

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


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geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.

- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to


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- ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
 - 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
 - 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
 - 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
 - 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
 - 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-1 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


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the effect that the proposed mining activities could be considered.

- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the


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- map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
 - 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
 - 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 - 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
 - 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
 - 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
 - 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
 - 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
 - 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those

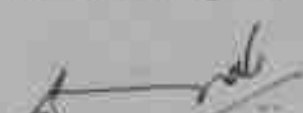

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outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.


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



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features of the adjoining area.

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

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


1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km


MEMBER SECRETARY
SEIAA-TN

- other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
 19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
 20. Likely impact of the project on air, water, land, flora-fauna and nearby population
 21. Emergency preparedness plan in case of natural or in plant emergencies
 22. Issues raised during public hearing (if applicable) and response given
 23. CER plan with proposed expenditure.
 24. Occupational Health Measures
 25. Post project monitoring plan
 26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
 27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
 28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
 29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
 30. Reserve funds should be earmarked for proper closure plan.
 31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC-2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.


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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.


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- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/laboratories including their status of approvals etc. In this regard circular no F. No.J-11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moefnic.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.


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5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC,
Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Coimbatore District.
7. Stock File.



From

Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To

Thiru.S.Durairaj,
S/o.Sellappan,
Malakkadu Thottam,
Periyakuyilai Post,
Pachapalayam,
Coimbatore.

Rc.No.38/Mines/2018 Dated: .10.2021

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Pachapalayam Village – Survey Nos. 408/3B & 408/3C – over an extent of 1.47.5 hectares of patta land – Application preferred by Thiru.S.Durairaj for quarrying Roughstone and Gravel – Precise area communicated – Details of quarries situated within 500 meter radial distance – Requested – furnished – reg.

- Ref. 1. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.38/Mines/2018, Dated: 24.11.2018.
2. Thiru.S.Durairaj letter dated: 11.10.2021.

I invite kind attention to the reference cited wherein Thiru.S.Durairaj has been issued precise area for the grant of quarry lease for Rough Stone and Gravel over an extent of 1.47.5 hectares of patta land in Survey Nos. 408/3B & 408/3C of Pachapalayam Village, Sulur Taluk, Coimbatore District.

In the reference 2nd cited of Thiru.S.Durairaj has requested to furnish the details of quarries situated within 500 meter radial distance from the proposed area.

In this connection the details of abandoned, expired, existing and proposed quarries situated within 500 meter radial distance from the proposed area is furnished below.

i) Existing Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1	L.Thangarasu	Pachapalayam 408/2B, 2C	1.81.5	07.08.2017 to 06.08.2022	

2	N.Thangavel	Pachapalayam 407/2A(P), 2B(P)	4.30.0	07.10.2017 to 06.10.2022
3	A.Ayyappan	Pachapalayam 407/1D	0.37.3	13.09.2017 to 14.09.2022
4	M.Ayyappan	Pachapalayam 408/2A, 3A	1.05.0	04.12.2017 to 03.12.2022

3) Expired Quarries

Sr. No.	Name of the Owner	Village & S.P.No.	Extent in Hect.	Lease period	Remarks
1	K.Arunabaskumar	Pachapalayam 408/2B	1.28.5	11.05.2011 to 10.05.2016	

4) Abandoned quarries

Sr. No.	Name of the Owner	Village & S.P.No.	Extent in Hect.	Lease period	Remarks
—Nil—					

5) Proposed quarries

Sr. No.	Name of the Owner	Village & S.P.No.	Extent in Hect.	Remarks
1	S.Gurusami	Pachapalayam 408/3B, 2C	1.47.5	Subject area precise area communicated
2	K.Ganesh	Pachapalayam 407/1E, 1G	2.44.0	Precise area communicated
3	D.Karthikeyan	Pachapalayam 409/1A(P), 1A2(P), 1B1, 1B2	1.21.0	Precise area communicated

6) Future Proposed quarries

Sr. No.	Name of the Owner	Village & S.P.No.	Extent in Hect.	Remarks
—Nil—				

From
Dr.A. Kalaiselvan,
Joint Director /
Assistant Director(i/c),
Dept of Geology and Mining,
Coimbatore.

To
Thiru.S.Durairaj,
S/o. Sellappan,
Malakkadu Thottam,
Periyakuyilai (po),
Pachapalayam,
Coimbatore District.

Rc.No.38/Mines/2018, Dated: 02 .01.2019

Sir,

Sub: Mines & Minerals-Minor Mineral- Coimbatore District-
Sulur Taluk - Pachapalayam
Village - Survey Nos.408/3B (0.42.5 hectares) and
408/3C (1.05.0 hectares) - over an extent of 1.47.5
hectares of patta land - Application preferred by
Thiru.S.Durairaj for quarrying Roughstone and Gravel-
Submission of mining plan for approval - Approved -
Regarding.

- Ref: 1. Quarry lease application dated 25.01.2018 -
preferred by Thiru.S.Durairaj, S/o.Sellappan,
Malakkadu Thottam, Periyakuyilai
(po),Pachapalayam, Coimbatore District.
2. District Collector, Coimbatore Letter
Rc.No.38/Mines/2018, Dated: 24.11.2018.
3. Mining Plan submitted by Thiru.S.Durairaj dated:
29.11.2018.

In response to the precise area communicated by the District
Collector, Coimbatore, the applicant Thiru.S.Durairaj vide reference 3rd
cited has submitted three copies of mining plan for the area applied for
the grant of quarry lease for Roughstone and Gravel over an extent of
1.47.5 hectares of patta land in Survey Nos.408/3B (0.42.5 hectares)
and 408/3C (1.05.0 hectares) of Pachapalayam Village, Sulur Taluk,
Coimbatore District.

2. The mining plan submitted for the grant of quarry lease for
Roughstone and Gravel over an extent of 1.47.5 hectares of patta land in

Survey Nos.408/3B (0.42.5 hectares) and 408/3C (1.05.0 hectares) of Pachapalayam Village, Sular Taluk, Coimbatore District has been verified in detail.

3. As per the guidelines/ instructions issued by the Commissioner of Geology and Mining, Chennai vide letter Rc.No.3868/LC/2012, dated 19.11.2012, the mining plan is hereby approved, subject to the following conditions:

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way imply the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Amended Act, 2015, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv) As per the District Collector, Coimbatore letter Rc.No.38/Mines/2018, Dated: 24.11.2018 the following conditions have been incorporated in the Mining Plan .
 - a) A safety distance of 7.5 meters should be provided all along the boundary of the area applied for lease.
 - b) A safety distance of 10 meters should be provided for Etteri poramboke and 50 meters should be provided for EB line.

- V) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

Encl: Two copy of Approved Mining Plan.

Dr. S. S. S. S.
21/2019
Joint Director /
Assistant Director (i/c),
Dept. of Geology and Mining,
Coimbatore.

Copy submitted to:

(S)
21/119

The Director of Geology and Mining, Chennai-32.

From
Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.S.Durairaj,
S/o.Sellappan,
Malakkadu Thottam,
Periyakuyilai Post,
Pachapalayam,
Coimbatore.

Rc.No.38/Mines/2018 Dated: 17.10.2021

Sir,

Sub : Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Pachapalayam Village - Survey Nos. 408/3B & 408/3C - over an extent of 1.47.5 hectares of patta land – Application preferred by Thiru.S.Durairaj for quarrying Rough stone and Gravel – Precise area communicated – Mining Plan – approved – further particulars called for – furnished – regarding.


- Ref: 1. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.38/Mines/2018, Dated: 24.11.2018.
2. Thiru.S.Durairaj letter dated: 11.10.2021.

In the reference 2nd cited Thiru.S.Durairaj has requested to furnish certain particulars regarding the precise area granted in Survey Nos. 408/3B & 408/3C over an extent of 1.47.5 hectares of patta land in Pachapalayam Village, Sulur Taluk, Coimbatore District. In this connection the following details are furnished.

The area was previously held under quarry lease and the details are as follows,

Sl. No.	Name of the Exlessee	SF.No/ Extent	District Collector's proceedings No. & Date	Validity	Lease Period
1	Thiru.C.Marappa Gounder	408/3B 0.42.5	1405/2007/X1 Dt: 25.02.2008	5 Years	25.02.2008 to 24.02.2013
2	Thiru.M.Sellappan	408/3C 1.05.0	599/2010/MM2 Dt: 02.03.2011	5 Years	02.03.2011 to 01.03.2016

At the time of inspection, the quarry pit with a dimension of Pit 123 Meter (length) X 107 Meter (width) X 16 Meter depth are noticed in the applied area.


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



MINING PLAN FOR PACHAPALAYAM ROUGH STONE AND GRAVEL QUARRY

(PREPARED UNDER RULES 41 & 42 AS AMENDED IN TAMILNADU MINOR MINERAL CONCESSION RULES, 1959)

(Lease Period = Five Years)

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 1.47.5ha
S.F.NO'S : 408/3B and 408/3C
VILLAGE : PACHAPALAYAM
TALUK : SULUR
DISTRICT : COIMBATORE
STATE : TAMILNADU

FOR

APPLICANT

Thiru.S.Durairaj,
S/o.Sellappan,
Malakkadu Thottam,
Periyakuyilai Post,
Pachapalayam,
Coimbatore District.

PREPARED BY

Dr.P.Thangaraju, M.Sc., Ph.D.,
Qualified Person

M/s. Geo Exploration and Mining Solutions,

Regd.off.No:17,
Advaitha Ashram Road,
Alagapuram Post,
Salem - 636 004.

E-mail id: geothangam@gmail.com

Website: www.gemssalem.com

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S.Durairaj,
S/o.Sellappan,
Malakkadu Thottam,
Periyakuyilai Post,
Pachapalayam,
Coimbatore District.



CONSENT LETTER FROM APPLICANT

The Mining Plan in Respect Roughstone and Gravel Quarry in S.F.No's.408/3B and 408/3C over an extent of 1.47.5ha of Patta Land in Pachapalayam Village, Sular Taluk, Coimbatore District, Tamilnadu State has been prepared by

Dr.P.Thangaraju, M.Sc., Ph.D.,

Qualified Person

I request to the District Collector, Coimbatore to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

Dr.P.Thangaraju, M.Sc., Ph.D.,

Regd.off.No:17,

Advaita Ashram Road,

Alagapuram Post,

Salem – 636 004.

Cell: 94433 56539, 94422 78601.

I hereby undertake that all the modifications, if any made in the Mining Plan by the 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.Durairaj

Place : Coimbatore

Date :26.11.2018

S.Durairaj,
S/o.Sellappan,
Malakkadu Thottam,
Periyakuyilai Post,
Pachapalayam,
Coimbatore District.



DECLARATION OF THE APPLICANT

The Mining Plan in Respect of Roughstone and Gravel Quarry in S.F.No's.408/3B and 408/3C over an extent of 1.47.5ha of Patta Land in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamilnadu 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.Durairaj
S.Durairaj

Place : Coimbatore

Date : 26.11.2018

Dr.P.Thangaraju, M.Sc., Ph.D.,

Regd.off.No:17,

Advaita Ashram Road,

Alagapuram Post,

Salem – 636 004.

Cell: 94433 56539, 94422 78601.



CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Prepared under Rules 41 & 42 as Amended in Tamilnadu Minor Mineral Concession Rules, 1959. The preparation of Mining Plan for Roughstone and Gravel Quarry in S.F.No's.408/3B and 408/3C over an extent of 1.47.5ha of Patta Land in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamilnadu State has been prepared for

Thiru.S.Durairaj,

S/o.Sellappan,

Malakkadu Thottam,

Periyakuyilai Post,

Pachapalayam,

Coimbatore District.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the District Collectorate, Coimbatore, Tamilnadu 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 Qualified Person


Dr.P.Thangaraju, M.Sc., Ph.D.,

Place : Salem

Date : 29.11.2018

Dr.P.Thangaraju, M.Sc., Ph.D.,

Regd.off,No: 17,

Advaita Ashram Road,

Alagapuram Post,

Salem – 636 004.

Cell: 94433 56539, 94422 78601.



CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations or Orders made there under have been observed in the preparation of Mining Plan for Roughstone and Gravel Quarry in S.F.No`s.408/3B and 408/3C over an extent of 1.47.5ha of Patta Land in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamilnadu State has been prepared for

Thiru.S.Durairaj,

S/o.Sellappan,

Malakkadu Thottam,

Periyakuyilai Post,

Pachapalayam,

Coimbatore District.

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, II Street, Block-AA, Anna Nagar, Chennai-40, Tamilnadu 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 Qualified Person

Dr.P.Thangaraju, M.Sc., Ph.D.,

Place : Salem

Date : 29.11.2018



CERTIFICATE

Certified that I, **Dr.P.THANGARAJU, M.Sc., Ph.D.**, having an office at M/s. Geo Exploration and Mining Solutions, Regd.off.No.17, Advaita Ashram Road, Alagapuram, Salem – 636 004, am a Post Graduate in Geology (M.Sc.Geology) from Madras University, Chennai and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules 2016 stipulates the eligibility for preparing Mining plans as “(I)(a) a post graduate degree in Geology granted by a university established” and (I)(b) “Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree”. Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly, I prepare this Mining Plan in respect of Roughstone and Gravel Quarry in S.F.No`s.408/3B and 408/3C over an extent of 1.47.5ha of Patta Land in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamilnadu State for **Thiru.S.Durairaj**, S/o.Sellappan, Malakkadu Thottam, Periyakuyilai Post, Pachapalayam, Coimbatore District., Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person

Dr.P.Thangaraju, M.Sc., Ph.D.,

Place : Salem

Date : 29.11.2018



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**MINING PLAN FOR PACHAPALAYAM ROUGHSTONE AND GRAVEL QUARRY
OVER AN EXTENT OF 1.47.5ha IN PACHAPALAYAM VILLAGE,
SULUR TALUK, COIMBATORE DISTRICT, TAMILNADU.**

(Prepared Under Rule 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.Durairaj, S/o.Sellappan, Malakkadu Thottam, Periyakuyilai Post, Pachapalayam, Coimbatore District has applied for Roughstone and Gravel Quarry in S.F.No's.408/3B and 408/3C over an extent of 1.47.5ha of Patta land in Pachapalayam Village, Sulur Taluk of Coimbatore District as per Prepared under Rule of 41 & 42 as Amended in Tamilnadu Minor Mineral Concession Rules, 1959.

The application was processed by the District Collector, Coimbatore and passed a letter vide **R.c.No.38/Mines/2018 Dated 24.11.2018** to submit Mining Plan for the approval in Department of Geology and Mining, Coimbatore to obtain Environmental Clearance from the District Level Environment Impact Assessment Authority, Coimbatore, Tamilnadu.

In order to ensure compliance of the order of the Honourable supreme court dated 27.02.2012 in I.A.No.12.13.2011 in Special Leave Petition SLP (C) No.19628-19629/2009, now it has been decided that all mining projects of minor minerals including their renewal irrespective of sizes of the lease would hence forth require prior environmental clearance for mining project within the lease area up to less than 100ha including projects or minor mineral with lease area less than 5ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state DEIAA notified by MoEF as prescribed procedure under EIA notification 2006.

In the above circumstances the applicant through his consultant is hereby preparing the mining plan for approval and subsequent submission of Form-I and Pre feasibility report to obtain environmental clearance from the DEIAA, Coimbatore, Tamilnadu to Roughstone and Gravel quarry. This mining plan is prepared by considering the TNMMCR 1959 and as per the EIA Notification 2006 and its further amendments and judgments up to till 01.05.2018.

**Short Notes of Mining plan**

- a. Village Panchayat - Pachapalayam
- b. Panchayat Union - Sulur
- c. The Geological Resources are **6,40,584m³** of Roughstone, **30,504m³** of Weathered Gravel and **30,504m³** of Gravel formation in the entire area.
- d. The Total Mineable Reserves are **1,12,701m³** of Roughstone and **2,220m³** of Weathered Gravel formation in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined and is about **1,12,701m³** of Roughstone for a period of five years and **2,220m³** of Weathered Gravel formation for a period of three years in the entire area.
- f. Total extent of the lease applied area is about 1.47.5ha.
- g. Topography of the area = The area exhibits Plain topography.
- h. Existing Depth of Mining = 16m from below the ground level.
- i. Proposed Depth of mining = 44m from below the ground level.
- j. Lease period = Five years.
- k. It is a fresh application, the area has been quarrying earlier.
- l. Method of mining/ level of mechanization.
Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.
- m. Type of machineries proposed in the quarrying operation.
Excavators attached with rock breaker (Rental Basis).
Jackhammer, Compressor (Diesel drive) (4 jack hammer capacity).
- n. No trees will be uprooted due to this quarrying operation.
- o. The Approach road from the main road to quarry is in the good condition the same will be maintained and utilized for haulage.
- p. There is no export of this Roughstone and Gravel.
- q. 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.



Mining Plan

Pachapalayam Boulders and Gravel Quarry

- r. The lease applied area is about 1.47.5ha bounded by seven corners; the corners are designated as 1-7 Clockwise from the Southwestern corner the Co – ordinates for the all the corners are clearly marked in the Topography, Geological Plan and section enclosed as (Plate No-III).
- s. 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.
- t. General conditions will not be applicable for the proposed area. The area applied for lease is 10km away from the,
- i) *Intestate boundary.*
 - ii) *Protected area under wild life protection ACT 1972.*
 - iii) *Critically polluted areas as identified by CPCB.*
 - iv) *Notified Eco sensitive areas.*
- u. There are no wastages anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- v. Around 19 employees are deploying in the quarrying operation.
- w. Total Cost of the project is about **Rs.51,94,612/-**.



Mining Plan

Pachapalayam Roughstone and Gravel Quarry

2.0 GENERAL INFORMATION

2.1 a) Name of the Applicant : Thiru.S.Durairaj,

b) Address of the Applicant (With Phone No and Aadhaar Number)

Address : S/o.Sellappan,
Malakkadu Thottam,
Periyakuyilai Post,
Pachapalayam,
Coimbatore District.

Pin code : 641 201

Mobile No : 98428 84089

Aadhaar Number : 2188 3878 8149

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 Roughstone and Gravel only.

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, Coimbatore vide **R.c.No.38/Mines/2018 Dated 24.11.2018** to obtain approved mining plan and obtain Environmental Clearance from the District Level Environment Impact Assessment Authority, Coimbatore, Tamilnadu.

c) Period of permission/ lease to be granted.

The applicant applied permission to quarry Roughstone and Gravel for the period of Five years/ The District Collector considered for the Grant of quarry lease for the period of Five years for Roughstone and three years for Gravel.

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Mining Plan

Pachapalayam Roughstone and Gravel Quarry

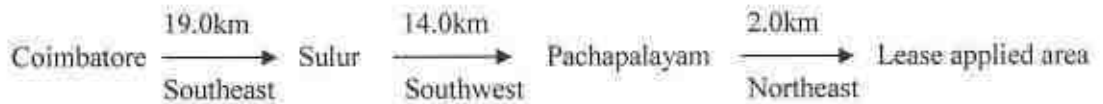
d) **Name and address of the Qualified Person preparing the mining plan.**

Name : **Dr.P.Thangaraju, M.Sc., Ph.D.,**
Address : Regd.off.No.17,
Advaita Ashram Road,
Alagapuram, Salem – 636 004.
Mobile : 94433 56539
Tele Fax : 0427- 2431989
Email : geothangam@gmail.com
Website : www.gemssalem.com

3.0 LOCATION

a) **Details of the area with location map**

The lease applied area is about 19.0km Southeastern side of Coimbatore and 14.0km from Southwest side of Sullur and 2.0km from Northeast side of Pachapalayam Village.



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Location Map of the Lease applied

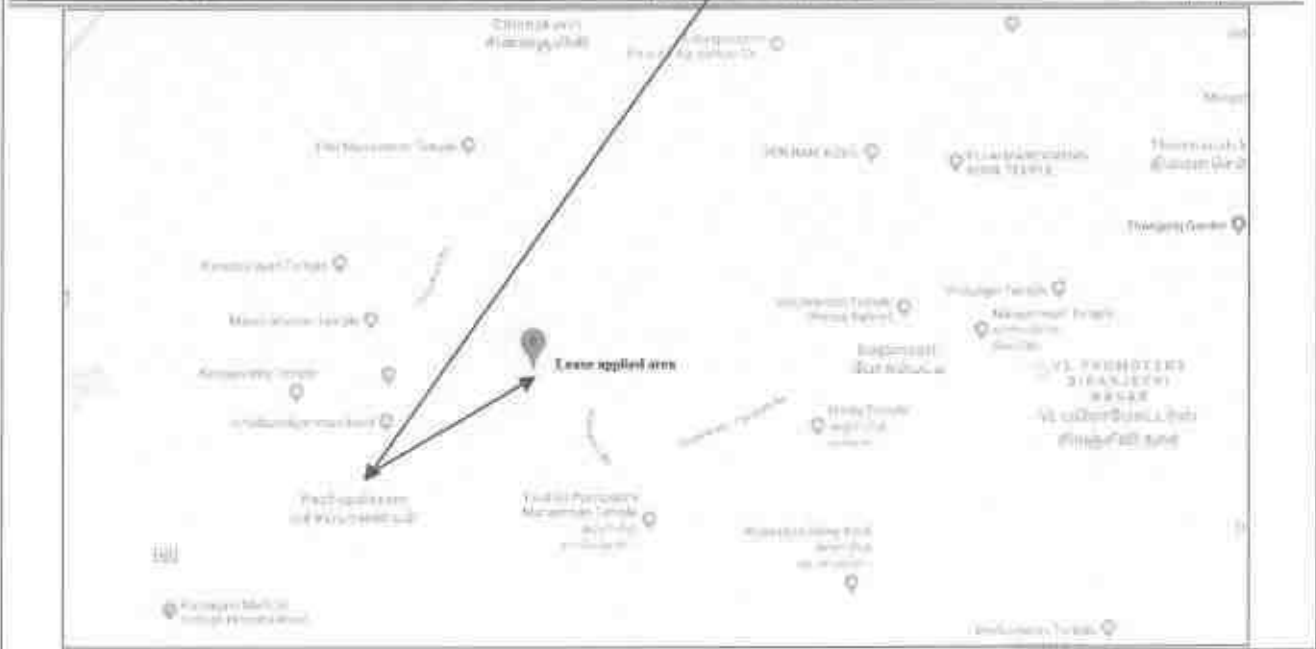
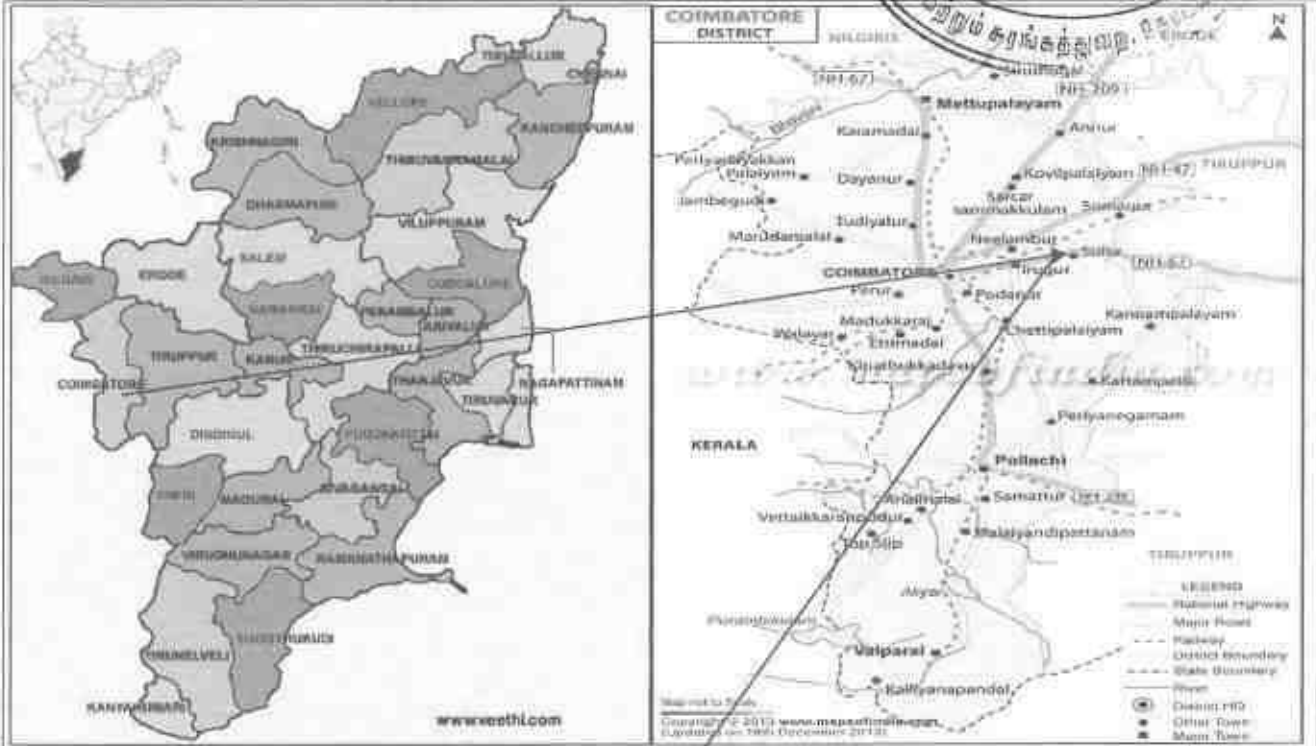


TABLE - 1

District	Taluk	Village	S.F.No's	Lease applied area in ha.
Coimbatore	Sulur	Pachapalayam	408/3B	0.42.5
			408/3C	1.05.0
Total Extent				1.47.5ha

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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, Jointly Registered the Name of Applicant (Durairaj), Ravichandran and Subbulakshmi vide Patta Nos.574 & 471. The applicant has been consent from Joint Pattadhars. (Refer the Patta copy as Annexure No.IV & Consent Document as Annexure No.VII).

d) Toposheet No. with latitude and longitude.

The lease area falls in the Toposheet No.58-F/01 Latitude between 10°54'06.50"N to 10°54'12.24"N and Longitude between 77°05'15.85"E to 77°05'20.27"E on WGS datum-1984. Refer the Plate No.I & II).

e) Existence of public road/ Railway line, if any nearby and approximate distance.

The metal road is situated on the Northern side of the applied area which connects the village road at a distance 10m.

Multiple road access is available from the quarry to state highways and National Highway, no villages are enrooted hence the traffic density is not much more due to the transportation of Roughstone.

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 Nearest Railway line is Coimbatore – Pollachi line which is about 5.5km on the Western side of the area.

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 topography. The area has gentle sloping towards Southwestern side. The altitude of the area is 412m (Max) above Mean sea level. The area is covered by the Gravel which is about 2.0m and Weathered Gravel is 2.0m thickness. Massive charnockite is found after 4.0m (Gravel + Weathered Gravel formation) which is clearly inferred from the existing quarrying pits.

The Water level in the surrounding area is 55-50m below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 920mm during the monsoon.



Topographical View of 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 $N30^{\circ}E$ to $S30^{\circ}W$ with dipping $SE60^{\circ}$.

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

AGE	FORMATION
Recent	- Quaternary weathered 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 Coimbatore District. Besides, the Qualified Person and his team members made a detailed geological of the proposed area. The Roughstone formation is clearly inferred from the existing quarrying pits.

4.3 Estimation of Reserves

a) Geological reserves with geological sections on a scale of 1:1000/ 1:2000.

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



Totally three sections have been drawn, one section are drawn Length wise as (X-Y) and another two sections are drawn Width wise as (A-B) and (C-D) to cover the maximum area considered for lease. The Topographical, Geological plan and sections demarcated the commercial marketable Roughstone (Charnockite) deposit has been prepared in 1:1000 and vertical as 1:1000 scale (Refer the Geological plan and sections Plate No-III). The sale of Roughstone is in terms of cubic meters (Volume) and not in terms of tonnage.

Geological Resources (Plate No.III)

The Geological Resources of Roughstone and Gravel is calculated up to a maximum depth of 44m from below the ground level.

TABLE-2

GEOLOGICAL RESOURCES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Geological Resources of Roughstone in m ³	Weathered Gravel formation in m ³	Gravel formation in m ³
XY-AB	I	92	62	2			11408
	II	92	62	2	11408	11408	
	III	92	62	5	28520		
	IV	92	62	5	28520		
	V	92	62	5	28520		
	VI	92	62	5	28520		
	VII	92	62	5	28520		
	VIII	92	62	5	28520		
	IX	92	62	5	28520		
	X	92	62	5	28520		
	Total					239568	11408	11408
XY-CD	I	77	124	2			19096
	II	77	124	2	19096	19096	
	III	77	124	5	47740		
	IV	77	124	5	47740		
	V	77	124	5	47740		
	VI	77	124	5	47740		
	VII	77	124	5	47740		
	VIII	77	124	5	47740		
	IX	77	124	5	47740		
	X	77	124	5	47740		
	Total					401016	19096	19096
Grand Total					640584	30504	30504

The Geological Resources of Roughstone = 6,40,584m³
 The Geological Resources of Weathered Gravel = 30,504m³
 The Geological Resources of Gravel = 30,504m³

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Existing Pit Dimension:

TABLE- 3

<i>Length in m (Max)</i>	<i>Width in m (Max)</i>	<i>Depth in m (Max)</i>
123m	107m	16m from below ground level

Available Mineable Reserves:

The Mineable reserves are calculated by deducting 7.5m safety distance from adjacent patta land, 50m safety distance maintained from EB Line and bench locked up Reserves.

TABLE-4

MINEABLE RESERVES						
<i>Section</i>	<i>Bench</i>	<i>Length in (m)</i>	<i>Width in (m)</i>	<i>Depth in (m)</i>	<i>Mineable Reserves of Roughstone in m³</i>	<i>Weathered Gravel formation in m³</i>
XY-AB	IV	50	38	5	9500	
	V	45	28	5	6300	
	VI	40	18	5	3600	
	VII	35	8	5	1400	
	Total				20800	
XY-CD	II	37	30	2		2220
	III	33	31	5	5115	
	IV	56	32	5	8960	
	V	51	58	2	5916	
	V	51	95	3	14535	
	VI	46	85	5	19550	
	VII	41	75	5	15375	
	VIII	36	65	5	11700	
	IX	26	55	5	7150	
	X	16	45	5	3600	
Total				91901	2220	
Grand Total				112701	2220	

The available mineable reserves have been computed as **1,12,701m³** of Roughstone and **2,220m³** of Weathered Gravel formation at the rate of 100% recovery upto a maximum depth of 44m from below the ground level for a mining 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 and a bench width not less than the bench height.

However, as far as the quarrying of Roughstone 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, manual).

The Roughstone 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 Roughstone to the needy crusher.

The production of Roughstone in this quarry involves the following method which is typical for Roughstone 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 Roughstone from pithead to the needy crushers.

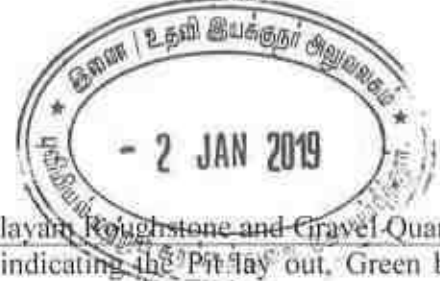
Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast mechanized method of mining.

5.3 Proposed Bench Height and Width.

The Charnockite is hard and compact rock, the bench height is proposed 5.0 meter vertical bench 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 and Weathered Gravel formation, the Gravel is already excavated from earlier quarrying operation and Weathered Gravel only 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 Tipper to the needy customers.



The Composite plan, Development plan and section indicating the Pit lay out, Green belt development are shown in Plate No-III.

Year wise development and Production

TABLE-5

YEARWISE PRODUCTION DETAILS							
<i>Year</i>	<i>Section</i>	<i>Bench</i>	<i>Length in (m)</i>	<i>Width in (m)</i>	<i>Depth in (m)</i>	<i>Recoverable Reserves of Roughstone in m³</i>	<i>Weathered Gravel formation in m³</i>
I	XY-CD	II	20	30	2		1200
		III	16	31	5	2480	
		IV	39	32	5	6240	
		V	34	58	2	3944	
		V	34	95	3	9690	
	Total						22354	1200
II	XY-CD	II	17	30	2		1020
		III	17	31	5	2635	
		IV	17	32	5	2720	
		V	17	58	2	1972	
		V	17	95	3	4845	
	XY-AB	IV	50	38	5	9500	
Total						21672	1020
III	XY-AB	V	45	28	5	6300	
		VI	40	18	5	3600	
		VII	35	8	5	1400	
	XY-CD	VI	26	85	5	11050	
Total						22350	
IV	XY-CD	VI	20	85	5	8500	
		VII	41	75	5	15375	
	Total						23875
V	XY-CD	VIII	36	65	5	11700	
		IX	26	55	5	7150	
		X	16	45	5	3600	
	Total						22450
Grand Total						112701	2220

The Recoverable reserves have been computed as **1,12,701m³** of Roughstone for a period of five years and **2,220m³** of Weathered Gravel formation for a period of three years at the rate of 100% recovery upto a maximum depth of 44m below ground level.

The applicant ensures the total quantity proposed in the benches will not exceed during the Quarrying operation. Besides the Roughstone 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.

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Mining Plan

Pachapalayam Roughstone and Gravel Quarry

One lorry load = 6m³ (approx)

Total No of Working days = 260 Days per year

Total quantity to be removed in this five years plan period = 1,12,701m³

Hence total lorry loads per day = 1,12,701m³ / 6m³

= 18783 Lorry loads

= 18783/5 years

= 3757/260

= **14 Lorry loads per day.**

Working hours = 8.00 am to 6.00 pm (with 1-2 pm 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.

TABLE - 6

I. DRILLING MACHINE

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	4	30-35	1.2m to 2m	Compressed air
2	Compressor	1	-	400 psi	Diesel Drive

II. EXCAVATION AND LOADING EQUIPMENT

S.No.	Type	No	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	1	300	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT

S.No.	Type	No	Capacity	Motive Power
1	Tipper	1	20 Tonnes	Diesel Drive

5.6 Disposal of Overburden/Waste

The overburden in the form of Gravel and Weathered Gravel formation, the Gravel is already excavated from earlier quarrying operation and Weathered Gravel only will be directly loaded into tippers for the filling and levelling of low lying areas, the excavated Roughstone will be directly loaded into Tipper to the needy customers.

**5.7 Brief note on conceptual mining plan for the entire lease period based 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-7

<i>Description</i>	<i>Length (Max) (m)</i>	<i>Width (Max) (m)</i>	<i>Depth (Max) (m)</i>
Conceptual	123m	107m	44m from below ground level

Greenbelt has proposed on the 7.5m safety barrier and Nearest Panchayat roads by planting Neem/Pungan of native species. All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis will be carried out every year as per the standards of Ministry of Environment, Forest & Climate change (MoEF & CC), TNPCB Norms. Refer Plate No.III & IV.

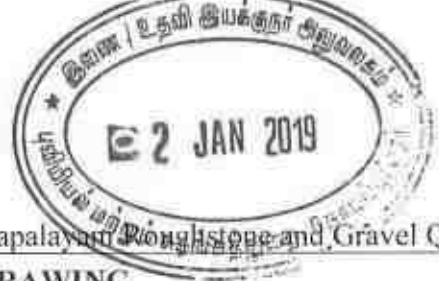
It is proposed to engage any local institution to monitor the EIA and EMP during the course of quarrying operation after the grant of quarry lease.

6.0 BLASTING**6.1 Blasting patterns**

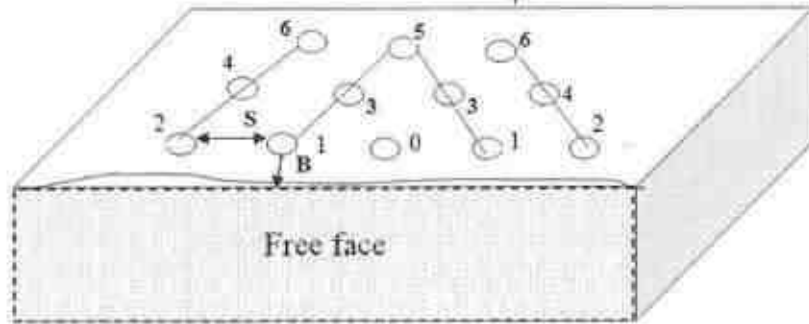
The quarrying operation is proposed to carried out by Opencast Mechanized Method in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Roughstone.

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	=	76Holes

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 Roughstone. No deep hole drilling and primary blasting are proposed.

6.3 Measures proposed to minimize ground vibration due to blasting

Shallow depth jackhammer drilling & blasting are proposed to be quarry with minimum use of explosives mainly to give shattering effect in Roughstone for easy excavation and 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-rocks.

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Blasting program for the production per day:

- No of Holes = 76Holes
- Yield = 228Tons
- Powder factor = 6tons/Kg of explosives
- Total explosive required = 38Kg- Slurry explosives
- Charge/ hole = 0.5Kg
- Blasted at day time only = 5-6p.m (whenever required).

6.4 Storage and safety measures to be taken while blasting

The applicant has authorized explosive agency to carry out the small amount of blasting and it is being supervised by competent and statutory foreman. The explosives agencies should 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 55m BGL in summer season and 50m in Rainy season which is observed from the nearby wells and the data obtained from existing private boreholes. The lease 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 -8

Type	Distance & Direction	Location
Open well	400m Northeastern side	10°54'08.61"N 77°05'33.42"E

7.2 Arrangements and places where the mine water is finally proposed to be discharged.

The Quarry operations are confined above the water table during the entire lease period. If water is encountered due to rain water seepage, the same will be pumped out by 5HP water pumps to facilitate the Green belt development areas. Besides, the water will also be used for dust suppression on haul roads during Haulage of machineries.

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- 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 periphery of the lease applied area.
- 8.2 Power Lines (HT/LT).**
50m safety distance maintained by Northern side of EB Line.
- 8.3 Water bodies (river, pond, lake, odai, canal, etc.,).**
There is no water body within 500m radius of the lease applied area.
- 8.4 Archaeological/ historical monuments.**
There is no Archaeological/ historical monuments within 50m radius from the lease applied area.
- 8.5 Road (NH, SH others).**
The Nearest National Highway (NH-209) Coimbatore – Dindigul which is about 9.0km from the Southwestern side of the lease applied area.
The State Highway (SH-163) Palladam – Chocin Frontier which is about 4.5km from the Northwestern side of the lease applied area.
- 8.6 Places of worships.**
There is no place of worships within the radius of 500m from the lease applied area.
- 8.7 Reserved forest/ forest/ social forest/ wild life sanctuary etc.**
There is no reserved forest/ forest/ social forest/ wild life sanctuary etc., within radius of 500m.

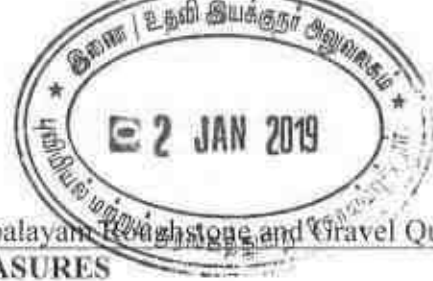
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SALIENT FEATURES

S.No	Salient Features Present around site	Prescribed safety distance	Actual Distance from the site																				
1.	Railways, Highways, Reservoirs or Canal	50m	Railway line – 5.5km (Coimbatore –Pollachi) Western side. Highways - (NH-209) Coimbatore – Dindigul which is about 9.0km from the Southwestern side of the lease applied area. Canal - No Canal within 1.0km radius. Reservoir - No Reservoir within 10.0km radius.																				
2.	Village Road	10m	Village road is 10m from the Northern side of the area.																				
3.	Habitation / Village	300m	There is no approved habitation within 300m radius from the periphery of the lease applied area. Actual distance is clearly marked in the Plate No.I-B.																				
			<table border="1"> <thead> <tr> <th>S.No</th> <th>Name of the Village</th> <th>Approximate distance & Direction from lease applied area</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Edayarpalayam</td> <td>3.0km - NE</td> </tr> <tr> <td>2.</td> <td>Ponnakkani</td> <td>1.5km - SE</td> </tr> <tr> <td>3.</td> <td>Pachapalayam</td> <td>2.0km - SW</td> </tr> <tr> <td>4.</td> <td>Chinnakuyilai</td> <td>2.5km - NW</td> </tr> </tbody> </table>	S.No	Name of the Village	Approximate distance & Direction from lease applied area	1.	Edayarpalayam	3.0km - NE	2.	Ponnakkani	1.5km - SE	3.	Pachapalayam	2.0km - SW	4.	Chinnakuyilai	2.5km - NW					
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4.	Chinnakuyilai	2.5km - NW																					
4.	Adjacent Land	7.5m	East - S.F.No.409 South - S.F.No.408/2C West - S.F.No.408/1B, 2A, 2B & 3A 7.5m safety distance maintained by adjacent patta lands.																				
5.	Power House, EB line (HT & LT Line)	50m	There is no approved habitation within of 300m the radius from the periphery of the lease applied area. H.T.Line - 50m safety distance maintained by Northern side of EB Line.																				
6.	Boundaries of the permitted area	7.5m & 10m	The boundaries of the permitted areas is as follows:																				
			<table border="1"> <thead> <tr> <th>Direction</th> <th>S.F.Nos</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>406</td> <td>Govt land (EB line)</td> <td>50m</td> </tr> <tr> <td>East</td> <td>409</td> <td>Patta Land</td> <td>7.5m</td> </tr> <tr> <td>South</td> <td>408/2C</td> <td>Patta Land</td> <td>7.5m</td> </tr> <tr> <td>West</td> <td>408/1B, 2A, 2B & 3A</td> <td>Patta Land</td> <td>7.5m</td> </tr> </tbody> </table>	Direction	S.F.Nos	Classification	Safety Distance	North	406	Govt land (EB line)	50m	East	409	Patta Land	7.5m	South	408/2C	Patta Land	7.5m	West	408/1B, 2A, 2B & 3A	Patta Land	7.5m
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North	406	Govt land (EB line)	50m																				
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South	408/2C	Patta Land	7.5m																				
West	408/1B, 2A, 2B & 3A	Patta Land	7.5m																				
7.	Reserve forest	50m	There is no Reserve forest is located within 50m from the lease applied area.																				
8.	Protected area / ECO sensitive area/Wild Life Sanctuary	10km	There is no ECO sensitive area/ wild life sanctuary/ Protected area within the radius of 10.0km from the periphery of the lease applied area.																				

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**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.	<u>Skilled labour</u>		
	Mine Foreman	:	1
	Blaster/mate	:	1
	Excavator – Operator & Driver	:	3
	Jack hammer operator	:	8
b.	<u>Semi-skilled</u>		
	Watchman	:	1
c.	<u>Unskilled</u>		
	Labour & Helper	:	4
	Cleaner	:	1
	Total	:	19

Allowing 10% absenteeism the man power would be around 17, 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 labor will not be employed less than 18 years, **No child labour** will engaged or entertained for any kind of quarrying operations. All the labors 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 approved water vendors in Ponnakkani which is about 1.5km from the Southeastern side of the area. Drinking water shall be readily available at conveniently accessible points during the whole of the working shift.

b) Sanitary Facilities

Hygienic modern sanitary facilities will be constructed with in the safety barriers of lease applied area as semi permanent structure and it will be maintained periodically.



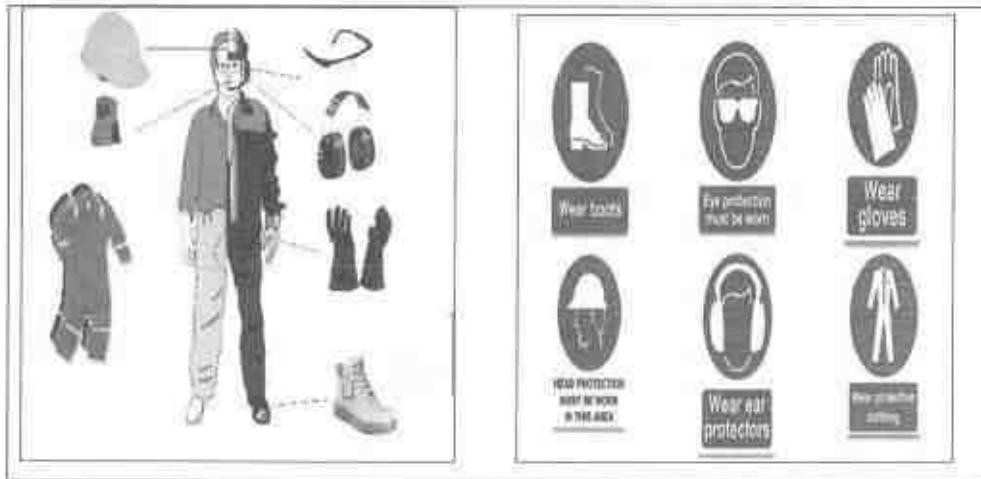
c) **First aid facility**

First aid kits are kept in Mines office room, in case of any emergency the victim will be given first aid immediately at the site and injured person will be taken to the hospital. Hospital is available at distance of 5.5km Northwestern side in Chettipalayam by a vehicle earmarked for the purpose the competent and statutory foreman/permit manager/mate will be in charge of first aid.

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 and

Safety Shoes as personal protective device 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 Roughstone 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 & 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 exhibits Plain topography. The area is a dry barren land devoid of Agriculture and Habitations. The land is not used for any specific vegetation.

LAND USE TABLE-9

Description	Present area in (ha)	Area at the end of this Quarrying period (ha)
Quarrying Pit	0.93.0	0.93.0
Infrastructure	0.01.0	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.20.0
Unutilized Area	0.51.5	0.31.5
Grand Total	1.47.5	1.47.5

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 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.

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10.3 Flora and Fauna:

TABLE-10

List of Flora

S.No	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	Calotropis gigantea	Asclepiadaceae	Crown Flower, Erukku	Shrub	
2.	Borassus flabellifera	Arecaceae	Palmyra Palm	Tree	
3.	Azadirachta indica	Meliaceae	Neem, Vembu	Tree	
4.	Acacia nilotica	Mimosaceae	Babul, Karuvelam	Tree	
5.	Aloe vera	Liliaceae	Kathalai	Herb	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	Acraea terpsicore	Tawny coster	
2.	Eumenus	Wasp	
3.	Carausius sp	Stick insect	
4.	Aranea sp	Spider	
5.	Hieroglyphus sp	Grasshopper	



10.4 Climatic Conditions

The area receives rainfall of about 920mm/ annum and the rainy season is mainly from Oct-Dec during monsoon. The summer is hot with maximum temperature of 35°C and winter encounters a minimum temperature of 18°C.

10.5 Human settlement

There are no villages located in this area within 5km radius, the approximate distance and population are given below:

TABLE - 11

S.No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Edayarpalayam	3.0km - NE	950
2.	Ponnakkani	1.5km - SE	850
3.	Pachapalayam	2.0km - SW	800
4.	Chinnakuyilai	2.5km - NW	850

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc are available at Sular located at a distance of 14.0km on the Northeastern 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 Roughstone quarry operation.

The following Mitigative 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.
- The Roughstone will be fully covered by the Taurpaulin during transportation to avoid the spillage of materials.

Air quality will be monitored periodically as per Norms and Mitigative 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.

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10.7 Plan for Noise level control.

The noise level is 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 equipment's is proposed to be deployed for the Roughstone quarry operation.
- Modifications of older equipment.
- Implementation of effective preventive maintenance which reduces noise level 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 in speed not exceeding 40km per hour during transportation.
- Sentries with flags & whistle will be 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 Roughstone. Hence, ground vibration and noise pollution ie., 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 Roughstone and Gravel 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 Roughstone and Gravel quarrying operation. The entire quarried out materials will be utilized (100%).

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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 44m below ground level has been envisaged as workable depth for safe & economic mining during entire lease period. Hence, after quarry reaches the ultimate pit limit of 44m depth below the ground level, fencing will be constructed around the quarried pits to prevent inadvertent entry of the public and cattle. There is no proposal for reclamation and rehabilitation. The barbed wire fencing cost would be around Rs.1,00,000/-

10.11 Programme of Greenbelt development (indicate extend, number, name of species to be afforested).

7.5m safety barrier and Nearest Panchayat Roads has been identified to be utilized for Greenbelt appropriate native species of Neem/ Casuarina trees will be planted in a phased manner as described below.

TABLE – 12

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 grown
I	90	80%	400	Neem/ Casuarina	72
II	90	80%	400	Neem/ Casuarina	72
III	90	80%	400	Neem/ Casuarina	72
IV	90	80%	400	Neem/ Casuarina	72
V	90	80%	400	Neem/ Casuarina	72

Nearly 2,000sq.m area is proposed to be used under Greenbelt by planting 90Nos of Neem/ Casuarina trees every year with an anticipated survival rate of 80%. (Refer Plate No.III). The estimated budget for plantation and maintenance of Green belt development would be around Rs.45,000/- for the period of five years.

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

Budget Provision for the entire quarrying period

TABLE -13

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.



Mining Plan

Pachapalayam Broughstone and Gravel Quarry

A. Project cost/ investment		
i) Land cost	The Land value as per the Government Guideline is cost is calculated as follows, 408/3B- 0.42.5ha X Rs.29,65,500/ha = Rs.12,60,337/- 408/3C- 1.05.0ha X Rs.12,35,500/ha = Rs.12,97,275/- Total land cost - 1.47.5ha = Rs.25,57,612/- (source : https://tnreginet.gov.in/portal/)	Rs.25,57,612/-
ii) Machinery to be used	The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Dumper, Tractor mounted compressor With jack Hammer and loose tools (Rental Basis)	=Rs.15,00,000/-
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.1,00,000/-
iv) Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost would be around	= Rs. 85,000/-
v) Sanitary facility	Adequate latrine and urinal accommodation shall be provided at conveniently accessible places. The cost would be around	= Rs. 50,000/-
vi) Others items	First aid room & accessories	= Rs. 50,000/-
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	= Rs.1,00,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	= Rs.50,000/-
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.50,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	= Rs.1,00,000/-
xi) Greenbelt etc.	Greenbelt program will be carried out in the boundary barriers and Panchayat roads the cost would be around	= Rs.45,000/-
Total Project Cost		= Rs.46,87,612/-



Mining Plan

Pachapalayam Rough Stone and Gravel Quarry

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.46,87,612/-
B. EMP Cost	= Rs. 3,80,000/-
Total Project Cost (A+B)	= Rs.50,67,612/-
The applicant Indents to involve corporate social responsibilities (CSR) activity like providing note books to nearby school, providing drinking water facilities to the nearby villages etc., at around 2.5% from the total project cost the cost would be around Rs.1,27,000/-	
Total Project cost	= Rs.50,67,612/-
CSR Cost (2.5%)	= Rs. 1,27,000/-
Total cost	= Rs.51,94,612/-
(The Total cost of the project including EMP Cost is Rupees Fifty one lakhs and ninety four thousand and six hundred and twelve only).	



11.0 MINE CLOSURE PLAN

11.1 Steps proposed for phased restoration, reclamation of already mined out areas:

There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of the life of lease will be fenced to prevent inadvertent entry of public and cattles. After treating the water the same will be utilized for agriculture purpose of the agriculture lands.

11.2 Measures to be under taken on mine closure as per Act & Rules:

Measure will be taken as per Act & Rules. There is no proposal for back filling, reclamation and rehabilitation. The quarry pit will be fenced by barbed wire to prevent inadvertent entry of public and cattle.

The quarried out pit will be allowed to collect rain and seepage water which will act as a temporary reservoir for storage. This water storage will enhance the static level and ground water and to recharge the nearby wells and also it will be used for irrigating the nearby agriculture lands.

11.3 Mitigation measure to be undertaken for safety and restoration/ reclamation of the already mined out area:

Air quality: (Air quality will be degrade due to the drilling, blasting, mining operation and transportation)

Mitigation measures:

Drilling will be carried out by wet drilling mode to control the dust propagation into the air. Blasting will be carried out on limited scale. Mist Water spraying on haul road is proposed to prevent the dust propagation into the air. Air quality will be monitored periodically as per norms.

NOISE AND VIBRATION: (The noise will be formed due to the drilling, blasting, loading and movement of Machineries)

Mitigation measures:

The applicant proposed to carry out the plantation all along the boundary to prevent Noise besides wet drilling will be practiced to prevent dust. All the machineries will be maintained in good conditions as per RTO and TNPCB Norms to prevent Noise, Smoke and vibration.

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WATER REGIME:

Mitigation Measures:

The quarry operation proposed up to a maximum depth of 44m from below the ground level for the five year period, the proposed depth is well above the water table (summer in 55m and rainy seasons in 50m) for the five years plan period. Hence the water table will not be affected in anyway

The seepage and rain water will be drained out from the pit by the 5H.P motor pump and discharged through filter media to the Greenbelt area in the boundary barrier. The excess water will be sprayed on haul roads to prevent dust propagation in to the atmosphere. The Roughstone quarry will not produce any harmful toxic effluents.

HUMAN HEALTH & SAFETY: Dust will be limited due to the mine operation

All the labours have been provided with safety equipments like helmet, Safety Goggles, Ear muff, Hand Gloves, safety jacket, safety belt, Mine boots etc., by the applicant own cost as per Director of mines safety. The foreman/Permit Mines Manager will provide first aid for small & minor injuries. In case of any eventualities, the victim will be taken to the nearby hospital by the applicant vehicle which is always available in the mines office. The hospital is about 5.5km in Chettipalayam (NW).



Mining Plan

Pachapalayam Roughstone and Gravel Quarry

12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT:

This Mining plan for Roughstone (Charnockite) and Gravel quarry is prepared under amended Rules 41 & 42 of Tamilnadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders shall be complied with in the quarrying operation, So that the safety off 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

[Signature]
Dr.P.Thangaraju, M.Sc., Ph.D.,
Qualified Person

Place : Salem

Date : 29.11.2018

This Mining Plan is Approved subject to the conditions / stipulation & indicated in the Mining Plan Approval Letter No: 33/mines/2018, dt: 02/01/19 office of the A.D, Geology & Mining Coimbatore

This Mining Plan is Approved based on the incorporation of the particulars specified in the letter of the commissioner of Geology and Mining, Chennai ref No: 33632.C/2012 Dated 19.11.2012 and subjected to further fulfillment of the condition laid down under Tamilnadu Minor Mineral Concession Rules 1959.

[Signature]
2-1-2019
JOINT DIRECTOR AND ASSISTANT DIRECTOR (i/c) DEPARTMENT OF GEOLOGY & MINING COIMBATORE

[Signature]
02/1/19

ந.க.எண். 38/கனிமம்/2018



குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும்
மாவட்டம் - சூலூர் வட்டம்
கிராமம் - புல எண்கள், 408/3B-ல் 0.425 ஹெக்டேர்
மற்றும் 408/3C-ல் 1.05.0 ஹெக்டேர் ஆக மொத்தம்
1.475 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில்
சாதாரணகற்கள் மற்றும் கிராவல் குவாரி செய்ய
திரு.S.துரைராஜ் என்பவருக்கு - குவாரி குத்தகை
அனுமதி வழங்குவது - தொடர்பாக.

- பார்வை: 1. திரு.S.துரைராஜ், த/பெ.செல்லப்பன், மலக்காடு
தோட்டம், பெரியகுயிலை அஞ்சல்,
பச்சாபாளையம், கோயம்புத்தூர் என்பவரது
விண்ணப்பம் நாள் 25.01.2018.
2. இவ்வலுவலக இடே ந.க.எண் மற்றும் நாள்-
15.02.2018.
3. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு
அவர்களின் கடித ந.க.எண். 862/2018/A2 நாள்
04.09.2018.
4. இணை இயக்குநர் மற்றும் உதவி
இயக்குநர்(பொ), புலியியல் மற்றும் சுரங்கத்துறை,
கோயம்புத்தூர் தணிக்கை அறிக்கை நாள்
29.09.2018.

பார்வை 1-ல் கோயம்புத்தூர் மாவட்டம், பச்சாபாளையம் கிராமம்,
பெரியகுயிலை அஞ்சல், மலக்காடு தோட்டம் என்ற முகவரியில் வாசிக்கும்
திரு.செல்லப்பன் அவர்களின் மகன் திரு.எஸ்.துரைராஜ் என்பவர் சூலூர்
வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள், 408/3B-ல் 0.425
ஹெக்டேர் மற்றும் 408/3C-ல் 1.05.00 ஹெக்டேர் ஆக மொத்தம் 1.475
ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல்
மண் வெட்டிபெடுக்க குவாரி குத்தகை உரிமம் கோரி உரிய
ஆவணங்களுடன் விண்ணப்பித்துள்ளார்.

மேற்படி மனு தொடர்பாக, கோயம்புத்தூர் தெற்கு வருவாய்
கோட்டாட்சியர் மற்றும் கோயம்புத்தூர், புலியியல் மற்றும் சுரங்கத்துறை
இணை இயக்குநர் மற்றும் உதவி இயக்குநர்(பொ), ஆகியோர்
புலத்தணிக்கை மேற்கொண்டு சூலூர் வட்டம், பச்சாபாளையம் கிராமம்,
புல எண்கள், 408/3B-ல் 0.425 ஹெக்டேர் மற்றும் 408/3C-ல் 1.05.00
ஹெக்டேர் ஆக மொத்தம் 1.475 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில்

சாதாரணகற்கள் மற்றும் கிராமல் மண் குவாரி செய்ய
நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளோம்.



நிபந்தனைகள்

1. அருகிலுள்ள பட்டா நிலங்களுக்கும் மற்றும் பொது மகாசூக்கும், எவ்வித இடையூறும் இன்றி சாதாரண கல் மற்றும் கிராமல் குவாரி மேற்கொள்ள வேண்டும்.
2. அருகில் உள்ள பட்டா நிலத்திற்கு 7.5 மீட்டர் மற்றும் இட்டேரி புறம்போக்கு நிலத்திற்கு 10 மீட்டரும், பின் பாசைக்கு 50 மீட்டரும் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
3. அருகிலுள்ள பட்டா நிலத்திற்கும் புறம்போக்கு இட்டேரிக்கும் இடையே கம்பிவேலி அமைக்கப்பட வேண்டும்.
4. மெருச்சுற்றக்கடிய கிராடை கற்கள் வெட்டியெடுக்க கூடாது.
5. குடிநீரை தொழிலாளர்களை வேலைக்கு அழர்த்தல் கூடாது என அறிக்கை அளித்துள்ளார்.

அனுமதி கோரும் புல எண் 408/3B ஆனது பட்டா எண் 574-ன் படி திரு.செல்லப்பன் என்பவரின் குமாரர்கள், ரவிச்சந்திரன் மற்றும் குமாரசாமி (விண்ணப்பதாரர்) என்பவர்கள் பெயரில் கட்டுப்பாட்டாலாக கிராம கணக்கில் தாக்கலாகியுள்ளது எனவும், புல எண் 408/3C ஆனது பட்டா எண் 471-ன் படி திரு. செல்லப்ப கண்ணப்ப என்பவரின் மனைவி திருமதி.சம்புலட்சுமி என்பவர் பெயரில் தனிப்பட்டவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. மேற்படி புல எண்கள் 408/3B மற்றும் 408/3C-ல் சாதாரணகற்கள் மற்றும் கிராமல் மண் வெட்டியெடுக்க மாவட்ட ஆட்சியர் அலுவலகால் சூத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றும் நாளிலிருந்து ஐந்து ஆண்டுகளுக்கு விண்ணப்பதாரரான திரு.எஸ்.குமாரசாமி என்பவருக்கு சூத்தகை உரிமை வழங்க எவ்வித ஆட்சேபமையும் இல்லையென இதர பட்டாதாரர்களான திரு.S.ரவிச்சந்திரன் மற்றும் திருமதி.சம்புலட்சுமி ஆகிய இருவரும் விண்ணப்பதாரருக்கு சம்பந்த சமம் அளித்துள்ளார்கள் எனவே விண்ணப்பதாரர் மேற்படி நிலத்தில் குவாரி சூத்தகை உரிமை பெற சூத்தியுடையவர் ஆவார் எனவும்.

எனவே, கோயம்புத்தூர் தேர்தல் வருவாய் கோட்டாட்சியர் மற்றும் கோயம்புத்தூர், புலியியல் மற்றும் சுரங்கத்துறை இணை இயக்குநர்

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மற்றும் உதவி இயக்குநர்(பொ) வுகியேந்தி புலத்தணிக்கைகள் அறிக்கையின் அடிப்படையில் சூலார் வட்டம், மாவட்டம், புல எண்கள். 408/3B-ல் 0.42.5 ஹெக்டேர் மற்றும் 1.05.00 ஹெக்டேர் ஆக மொத்தம் 1.47.5 ஹெக்டேர் புரப்பளவுள்ள பட்டா பூமியில் 5 (ஐந்து) ஆண்டுகளுக்கு சாதாரண கல் மற்றும் கிராலல் மண் வெட்டியெடுக்க மேலே கண்ட நிபந்தனைகளுக்கு உட்பட்டு குவாரி குத்தகை வழங்குவதற்குரிய நிலப்பரப்பாக (Precise Area Communication) கருதப்படுகிறது.

மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959ன் விதி எண். 41 மற்றும் 42-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், மாவட்ட சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையகத்தின் சுற்றுச்சூழல் அனுமதி பெறவும் மனுதாரரை கேட்டுக் கொள்ளப்படுகிறது.

ஓம்.XXX
மாவட்ட ஆட்சியர்
கோயம்புத்தூர்.

பெறுதல்:
திரு.S.துரைராஜ்,
த/பெ.செல்லப்பன்,
மலக்காடு தோட்டம்,
பெரியகுயிலை அஞ்சல்,
பச்சாபாளையம்,
கோயம்புத்தூர்.

/உண்மை நகல்//உத்திரவுப்படி/

27/11/18
மாவட்ட ஆட்சியருக்காக
கோயம்புத்தூர்.

27/11/18



		A	
9	5.0	(312.6)	
		229.4	
		190.6	500 8
7	15.2	152.6	
		97.4	500 3
		D	
		(233.8)	
5	45.8	140.8	
4	7.6	114.0	
		92.0	94 3
		G	
		(312.0)	
		144.0	39.6 2
		104.2	64 1
		B	

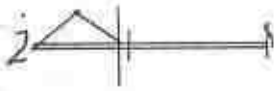
LEASE APPLIED AREA

2000

வகைப்பாடு: 2. கிராம

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 - 2 JAN 2019
 மதுரை மன்றம் மற்றும் சுற்றுச் சுவாமிநாதர், கோயம்புத்தூர்.



கி.மீ. 43 உட்கட்டிடம்

கி.மீ. 43 உட்கட்டிடம்
 கி.மீ. 43 உட்கட்டிடம்



த.ச. எண் 408 ல் கட்டுமானம்
 1164
 ச. எண் 44
 யோக்கியம்.

சுப்பிரமணியன்
 12/11/2018

சுப்பிரமணியன்
 43, 48-மாணவன்
 சுப்பிரமணியன்

LEASE APPLIED AREA



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : தூலூர்

வருவாய் கிராமம் : பச்சாபாளையம்

பட்டா எண் : 574

உரிமையாளர்கள் பெயர்

1.	செல்லப்பன்	மகன்	ரவிச்சந்திரன்
2.	செல்லப்பன்	மகன்	துளராஜ்

		நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை
408	3B	--	--	0 - 42.50	0.85	--	--
				0 - 42.50	0.85		

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/025/00574/70546 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 05-10-2018 அன்று 12:26:27 PM நேரத்தில் அச்சிடக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



தமிழக அரசு

வருவாய்த் துறை

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



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : தூலூர்

வருவாய் கிராமம் : பச்சாபாளையம்

பட்டா எண் : 471

உரிமையாளர்கள் பெயர்

1.	செல்லப்ப கவுண்டர்		மனைவி		உப்புலட்சுமி		
	நன்செய்		புன்செய்		மற்றவை		
	பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
புல எண்	உட்பிரிவு	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை
408	3C	--	--	1 - 5.00	2.11	--	--
				1 - 5.00	2.11		

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/025/00471/60512 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 05-10-2018 அன்று 12:27:07 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்கீழ் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

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அ-பதிவேடு விவரங்கள்



மாவட்டம் : கோயம்புத்தூர்
வட்டம் : துலூர்
கிராமம் : பச்சாபாளையம்

1. புல எண்	408	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	3B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-3P	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 42.50
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.85
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	574
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	1	16. பெயர்	1.ரவிச்சந்திரன் 2.துரைராஜ்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60546 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : துலூர்

கிராமம் : பச்சாபாளையம்

1. புல எண்	408	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	3C	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-3P	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 5.00
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - யை)	2.11
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	471
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	1	16. பெயர்	1.சுப்புலட்சுமி

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60512 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

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கோயமுத்தூர் மாவட்டம், தூலர் வட்டம், மச்சாளையை கிராமம், புல
எண்கள் 408/3C ல் 1.050 ஏக்கர்பேர் கை (1) லக்கமிட்டவருக்கு பாத்தியப்பட்ட
பூமியும், 408/3B ல் 1.05 ஏக்கர் கை (2) லக்கமிட்டவருக்கும் மனுசாரருக்கும்
கூடாகப் பாத்தியப்பட்ட பூமியாகும் மேற்படி காலகால்களில் உள்ள பூமியில்
சாதாரண கற்கள் மற்றும் மண் லெட்டியெடுக்க கோவை மாவட்ட ஆட்சியர்
அவர்களால் குத்தகை ஒப்பந்தப்பத்திரம் நிரைவிறற்படும் நூலிலிருந்து ஐந்து
அண்டுகளுக்கு சாதாரண கற்கள் மற்றும் மண் லெட்டியெடுக்க மனுசார்
S. துரைராஜ் என்பவருக்கு குத்தகை உரிமை வழங்க கை 1, 2 லக்கமிட்ட
எங்களுக்கு எவ்வித ஆட்சேபணையும் இல்லை என்பதை திசையற்க கடிதத்தின்
மூலம் தெரிவித்துக்கொள்கிறோம்.

திப்பாடுக்த.

1) S. RAJAN

2) S. RAJAN



K. Radhakrishnan
K. RADHAKRISHNAN,
B.A., B.L., LL.M.,
ADVOCATE & NOTARY,
111/69, Gopalapuram 3rd Street,
COIMBATORE - 641 001.
Res: 244, Lingappa Chetty Street,
COIMBATORE - 641 001

G.O. Ms. No: S5/12-04-2017



இந்திய அரசாங்கம்

Government of India



முன்னர் பெயர்
Duraizaj Sellappan

பாலினம்
Male

2188 3878 8149



ANNEXURE - VIII

Unique Identification Authority of India

Address: 5/3 Sellappan
2/135,
VANNAKUTTAITHOTIAM
PERIYAKULAI SILLUR
TALUK, Pachapalayam
Periyakulalai, Coimbatore
Tamil Nadu, 641291

2188 3878 8149

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



157



2121019



சென்னைப் பல்கலைக் கழகப் பெயரால் 1934

ஆண்டு உயரல் ம.சி.மலியல்
 எய்தியது ம.சி.மலியல்
 இரகசியப் பத்திரம் என்று தகவல் இல்லாமல் சான்றொத்தவை அறிவியல் நிறைவு
 கண்டறியும் ப.சி.க. இரகசியப் பத்திரம் என்று தகவல் இல்லாமல் சான்றொத்தவை

The Senate of the UNIVERSITY OF MADRAS hereby
 makes known that P. Thangaraju
 has been admitted to the Degree of Master of Science, he
 having been certified by duly appointed Examiners to be qualified
 to receive the same in Geology and was placed in the
First Class, at the Examinations held in April 1934.

Given under the seal of the University



சென்னை, செப்டம்பர்
 சென்னை, Madras
 No. 1 25-01-1939

Secretary

P. T. Chandrasekhar
 Vice-Chancellor



GOVERNMENT OF INDIA
MINISTRY OF LABOUR AND REHABILITATION
OFFICE OF THE DIRECTOR GENERAL OF MINES SAFETY

Certificate of Practical experience granted by the Manager to a candidate for a Manager's / Surveyor's / Foreman's / Overman's / Sirdar's / Mate's / Short firer's / Blaster's Certificate of Competency (Restricted) examination under the Metalliferous Mines Regulations 1961

I T.VENKATARAJAGOPALAN being the Mines Agent of M/S.LIMENAPH CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thenmali Limestone Mine) do hereby certify that Thiru. P.THANGARAJU, son of S.PERIASAMY (whose signature is appended) worked as a Geologist in the above mine from 02.05.1994 to 30.12.1999. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for Certificate of Competency.

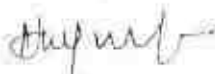
TIRUNELVELI LIME STONE MINES
10/1/96
(Signature with date and official Seal)
[T.VENKATARAJAGOPALAN]

Mines Agent.

P.O. : ARUKANGULAM

District : TIRUNELVELI

State : TAMIL NADU


(Signature of Candidate)

(State name of Mineral) : LIMESTONE

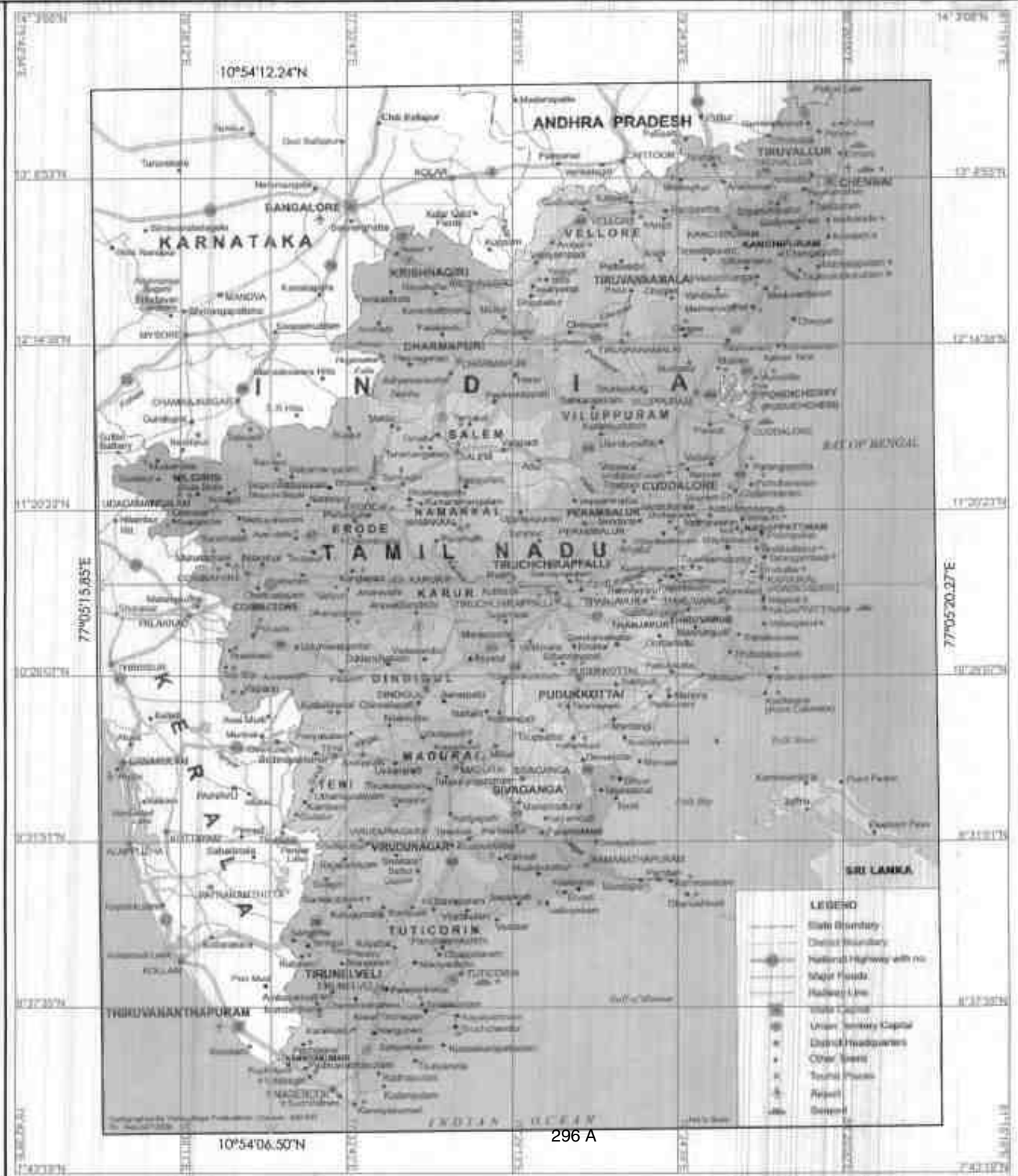


PLATE NO - 1
DATE OF SURVEY : 26.11.2018

APPLICANT :
 Thiru. S. DURAIRAJ,
 S/o. SELLAPPAN,
 MALAKKADU THOTTAM,
 PERIYAKULAI POST,
 PACHAPALAYAM,
 COIMBATORE DISTRICT.

LOCATION OF Q.L. APPLIED AREA:
 S.F.Nos : 408 / 35 & 3C.
 EXTENT : 1.47.5 Ha.
 VILLAGE : PACHAPALAYAM,
 TALUK : SULLUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

INDEX
 Q. L. APPLIED AREA: ●
 TOPO SHEET No. : 58-F/01
 LATITUDE : 10°54'06.50"N to 10°54'12.24"N
 LONGITUDE : 77°05'15.85"E to 77°05' 20.27"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 LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

(Signature)
 DR. P. MANJARAJUM, P.H.D.,
 QUALIFIED PERSON

10°59'33.42"N



PLATE NO - I-A

DATE OF SURVEY : 28.11.2018

APPLICANT :

Thiru. S. DURAIRAJ,
S/o. SELAPPAN,
MALAKKADU THOTTAM,
PERIYAKUYILAI POST,
PACHAPALAYAM,
COIMBATORE DISTRICT.



LOCATION OF Q.L. APPLIED AREA:

S.F.No.s : 40B / 3B & 3C,
EXTENT : 1.47.5 Ha,
VILLAGE : PACHAPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

INDEX

CONVENTIONAL SYMBOLS

Table with 2 columns: Symbol and Description. It lists various symbols used in the topographic map, such as roads, rivers, and buildings, with their corresponding graphical representations.

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 LEASE MAP AUTHENTICATED BY STATE GOVERNMENT.

(Signature)
Dr. P. PRANARAJAN, Ph.D.,
QUALIFIED PERSON

158

76°59'47.90"E



77°10'48.40"E

10°48'44.25"N

TOPO SHEET No. : 58-F/01

LATITUDE : 10°54'06.50"N to 10°54'12.24"N
LONGITUDE : 77°05'15.85"E to 77°05'20.27"E

10km RADIUS :

Q.L.APPLIED 297 A :

PLATE NO - I-B

DATE OF SURVEY : 28.11.2018

APPLICANT :

Thiru. S. DURAIRAJ,
S/o. SELLAPPAN,
MALAKKADU THEEAM,
PERIYAKUYILAI POST,
PACHAPALAYAM,
COIMBATORE DISTRICT



LOCATION OF Q.L. APPLIED AREA:

S.F.Nos : 408 / 3B & 3C
EXTENT : 1.475 Ha.
VILLAGE : PACHAPALAYAM,
TALUK : SULLUR,
DISTRICT : COIMBATORE
STATE : TAMIL NADU.

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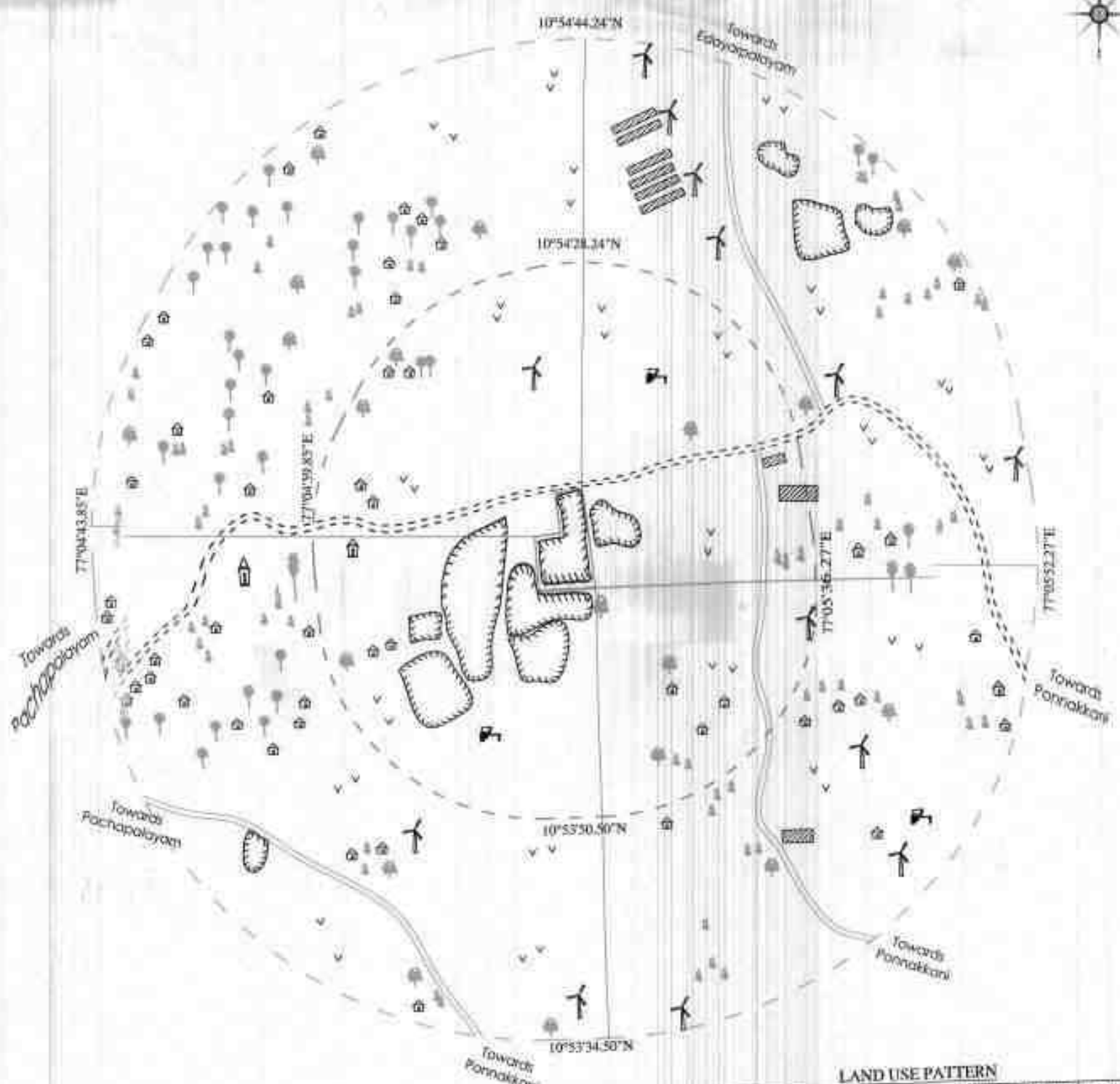
- Q.L. APPLIED AREA
- 1 Km RADIUS
- 500m RADIUS
- HABITATION
- INFRASTRUCTURE
- TREE / COCONUT FARM
- SEASONAL AGRICULTURE LAND
- BARREN LAND
- WIND DIRECTION
- QUARRY HAUL ROAD
- ITTERI ROAD
- PANCHAYAT ROAD
- QUARRY PIT
- CRUSHER PLANT
- WIND MILL

ENVIRONMENTAL & LANDUSE PLAN

SCALE- 1:10,000

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLAT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

M. Prasad
M. P. PRASAD, M.Sc., Ph.D.,
QUALIFIED PERSON



LAND USE PATTERN

DESCRIPTION	PERCENTAGE	INDEX
AGRICULTURE LAND	(18%)	
BARREN LAND	(25%)	
ROADS	(11%)	
TREES/COCONUT FARM	(10%)	
HABITATION / INFRASTRUCTURE	(22%)	
QUARRY PIT / CRUSHER PLANT	(14%)	
	100%	

TOPO SHEET No. : 58-F/01
LATITUDE : 10°54'06.50"N to 10°54'12.24"N
LONGITUDE : 77°05'15.85"E to 77°05'20.27"E

TC 298 A

107

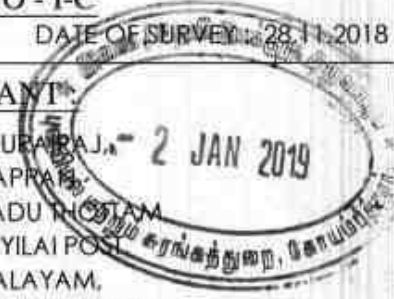


PLATE NO - I-C

DATE OF SURVEY : 28.11.2018

APPLICANT:

Thiru. S. DURAI RAJ,
S/o. SELLAPPA,
MALAKKADU THOTTAM
PERIYAKUYILAI POST
PACHAPALAYAM,
COIMBATORE DISTRICT.



LOCATION OF Q.L. APPLIED AREA:

S.F.Nos : 408 / 3B & 3C.
EXTENT : 1.47,5 Ha,
VILLAGE : PACHAPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

INDEX

Q.L. APPLIED AREA	
PANCHAYAT ROAD	
SH-ROAD	
NH - ROAD	

KEY PLAN

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 LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

Dr. P. THANGARAJU, M.Sc., Ph.D.,
QUALIFIED PERSON

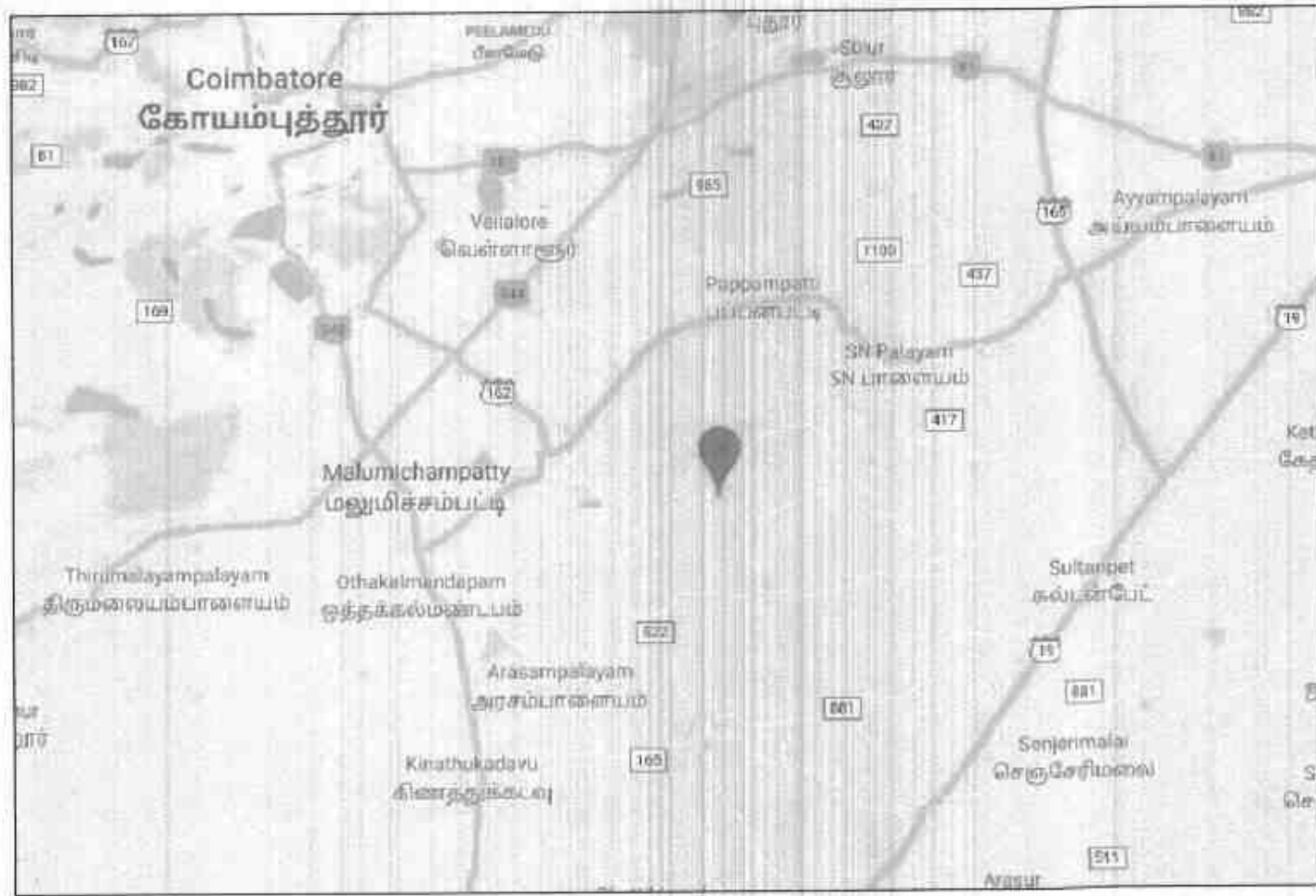




PLATE NO - II

DATE OF SURVEY : 28.11.2018

APPLICANT :

THIRU. S. DURAIRAJ,
S/o. SELLAPPAN,
MALAKKADU THOTTAM,
PERIYAKUYILAI POST,
PACHAPALAYAM,
COIMBATORE DISTRICT.

LOCATION OF Q.L. APPLIED AREA:

S.F.Nos : 408 / 3B & 3C.
EXTENT : 1.47.5 Ha.
VILLAGE : PACHAPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 50m, 10m & 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- ROUGHSTONE
- QUARRY PIT
- CONTOUR
- SHRUBS
- QUARRY HAUL ROAD
- ITERI ROAD
- E.B. LINE

QUARRY LEASE & SURFACE PLAN

SCALE 1 : 1000

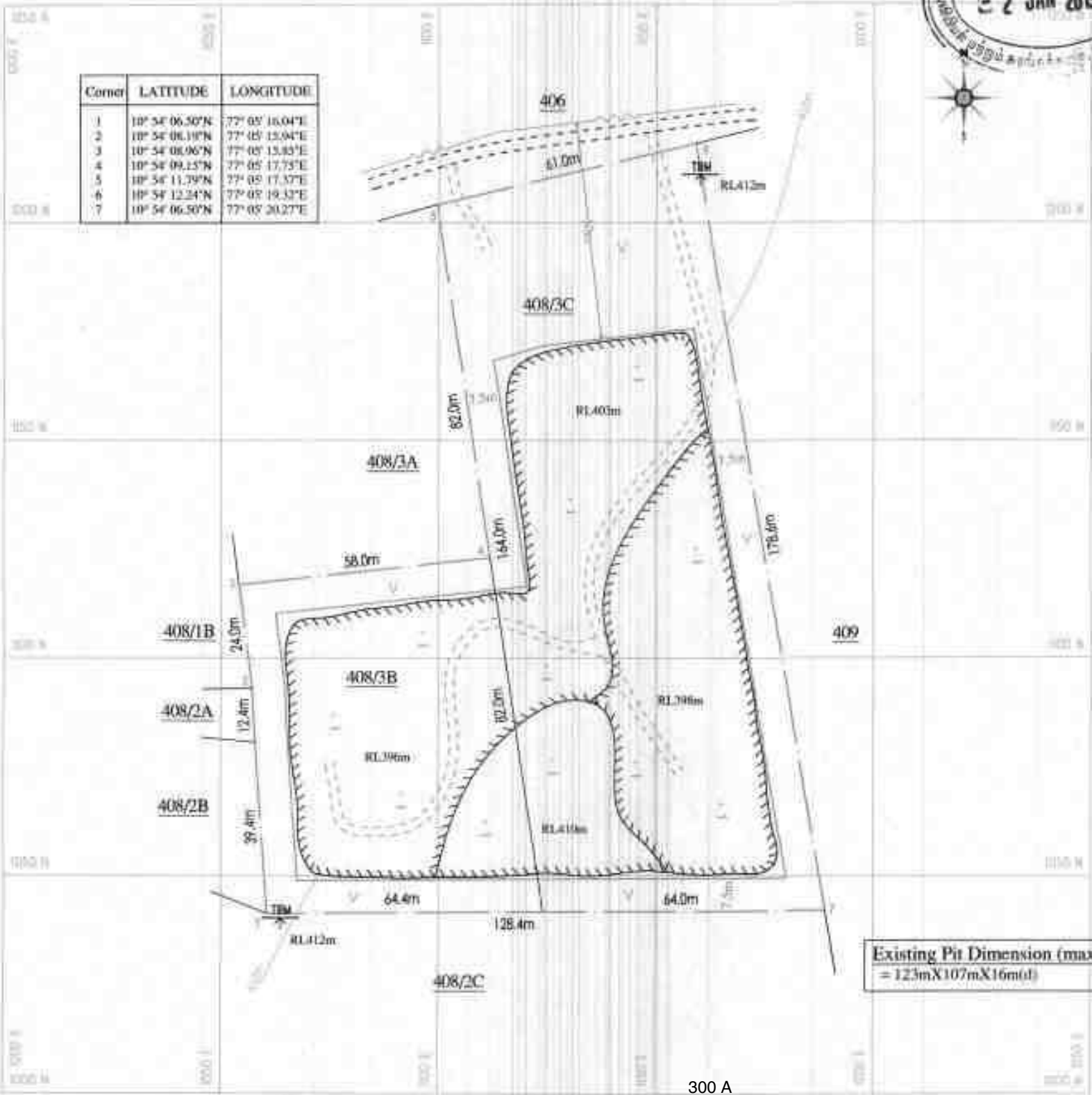
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

(Signature)
M.P. THANGARAJU, M.Sc., Ph.D.,
QUALIFIED PERSON

1/51

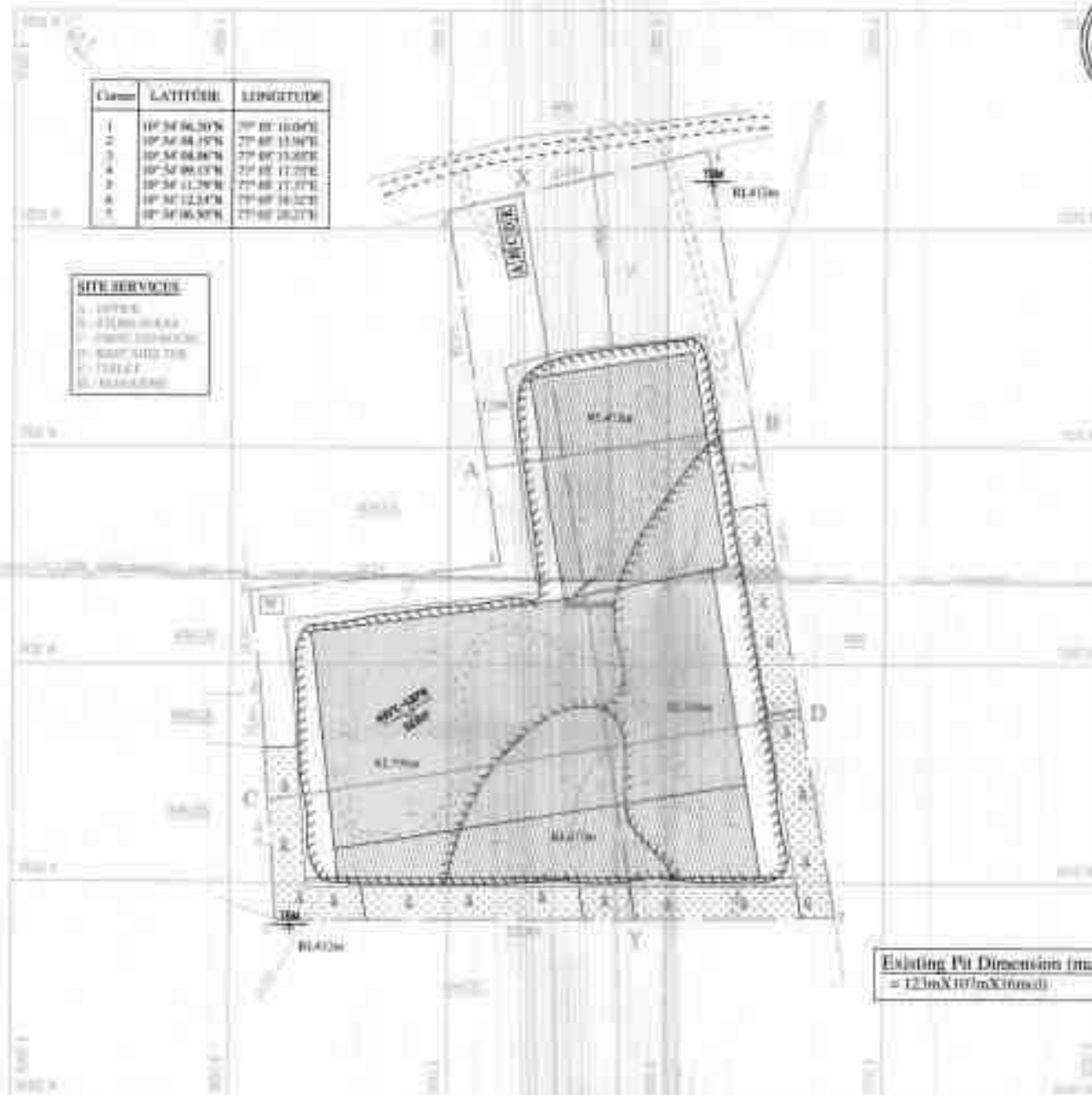
Corner	LATITUDE	LONGITUDE
1	10° 54' 06.50"N	77° 05' 16.04"E
2	10° 54' 06.10"N	77° 05' 15.04"E
3	10° 54' 06.06"N	77° 05' 15.85"E
4	10° 54' 09.15"N	77° 05' 17.73"E
5	10° 54' 11.79"N	77° 05' 17.37"E
6	10° 54' 12.24"N	77° 05' 19.32"E
7	10° 54' 06.50"N	77° 05' 20.27"E





Corner	LATITUDE	LONGITUDE
1	10° 34' 06.20"N	77° 07' 10.04"E
2	10° 34' 04.15"N	77° 07' 11.94"E
3	10° 34' 04.04"N	77° 07' 13.03"E
4	10° 34' 06.03"N	77° 07' 11.07"E
5	10° 34' 11.29"N	77° 07' 11.07"E
6	10° 34' 12.34"N	77° 07' 10.02"E
7	10° 34' 16.59"N	77° 07' 10.77"E

SITE SERVICES	
1	TOPPED
2	25mm GRAVEL
3	100mm SANDSTONE
4	50mm SILEXITE
5	150mm
6	GRAVEL



LAND USE PATTERN

DESCRIPTION	PRESENT AREA IN Ha	AREA AT THE END OF THE QUARRYING PERIOD (Ha)
QUARRYING PIT	0.000	0.000
INFRASTRUCTURE	0.000	0.000
ROADS	0.000	0.000
GREEN BELT	0.000	0.000
UN-UTILIZED AREA	0.000	0.000
TOTAL	1.475	1.475

PLATE NO - III

DATE OF SURVEY : 28.11.2018

APPLICANT :

Mrs. S. DURAJI
S/O. SELLAPPAN
MALAKKODU THOTTAM,
PERIYAKKUPPILAIPOSE,
PACHAPALAYAM,
COIMBATORE DISTRICT.

LOCATION OF Q.L. APPLIED AREA :

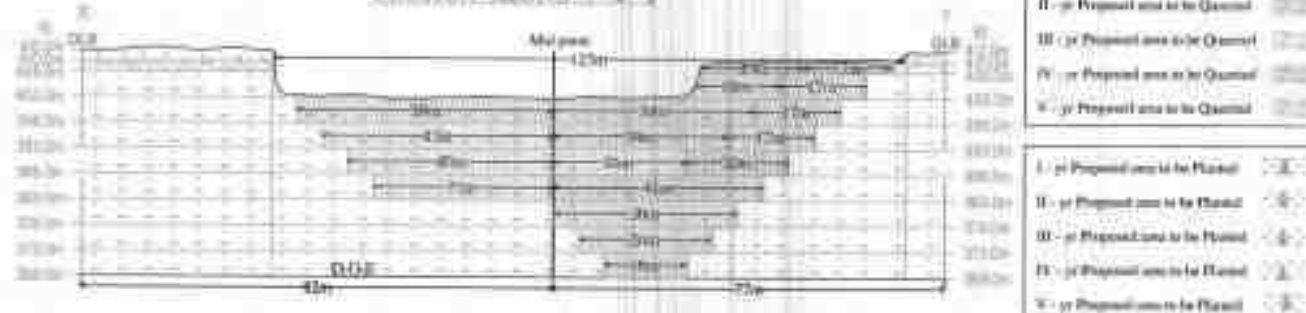
S.F.No. : 408 / 38 & 3C
EXTENT : 1.475 Ha.
VILLAGE : PACHAPALAYAM,
TALUK : SULLUR,
DISTRICT : COIMBATORE,
STATE : TAMILNADU.

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Q.L. APPLIED AREA BOUNDARY	---
50m, 10m & 7.5m SAFETY DISTANCE	---
TEMPORARY BENCH MARK	TBM
GRAVEL	---
WEATHERED GRAVEL	---
ROUGH STONE	---
STRIP & DIP	---
QUARRY PIT	TTTT
CONTOUR	---
SHRUBS	---
QUARRY HAUL ROAD	---
STEEL ROAD	---
E.B. LINE	---
DEPTH OF ESTIMATION	DOE

Existing Pit Dimension (max)
= 12.0m X 10.0m X 10.0m

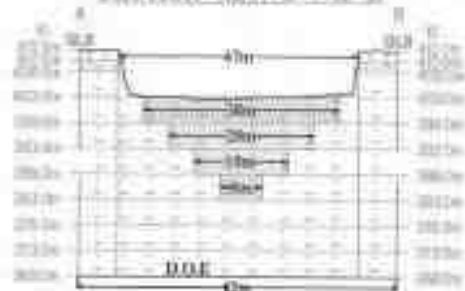
SECTION ALONG : X-Y



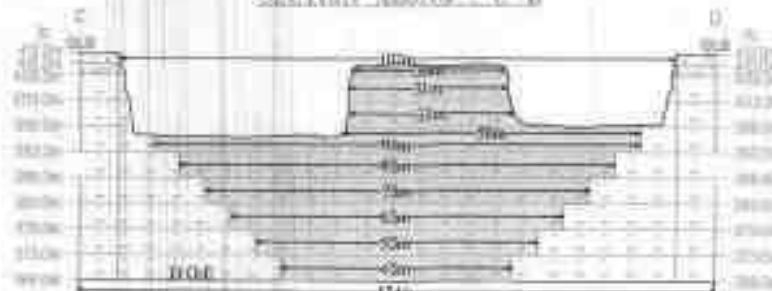
- I - of Proposed area to be Quarried
- II - of Proposed area to be Quarried
- III - of Proposed area to be Quarried
- IV - of Proposed area to be Quarried
- V - of Proposed area to be Quarried

- I - of Proposed area to be Flashed
- II - of Proposed area to be Flashed
- III - of Proposed area to be Flashed
- IV - of Proposed area to be Flashed
- V - of Proposed area to be Flashed

SECTION ALONG : A-B



SECTION ALONG : C-D



TOPOGRAPHY, GEOLOGICAL PLAN YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS

SCALE - 1 : 1000

PREPARED BY :

THE OFFICE CERTIFIES THAT THE INFORMATION IN THIS
MAP IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE DATA SUPPLIED
BY THE APPLICANT ON 28.11.2018

[Signature]
S/O. SELLAPPAN S. P. S.
SULLUR, COIMBATORE DISTRICT



Const	LATITUDE	LONGITUDE
1	10° 54' 06.50"N	77° 03' 16.04"E
2	10° 54' 08.19"N	77° 03' 15.94"E
3	10° 54' 08.90"N	77° 03' 15.85"E
4	10° 54' 09.15"N	77° 03' 15.75"E
5	10° 54' 11.79"N	77° 03' 13.37"E
6	10° 54' 12.24"N	77° 03' 19.37"E
7	10° 54' 06.50"N	77° 03' 20.27"E

SITE SERVICES
 A - OFFICE
 B - STORE ROOM
 C - FIRST AID ROOM
 D - REST SHELTER
 E - TOILET
 M - MANAZHE

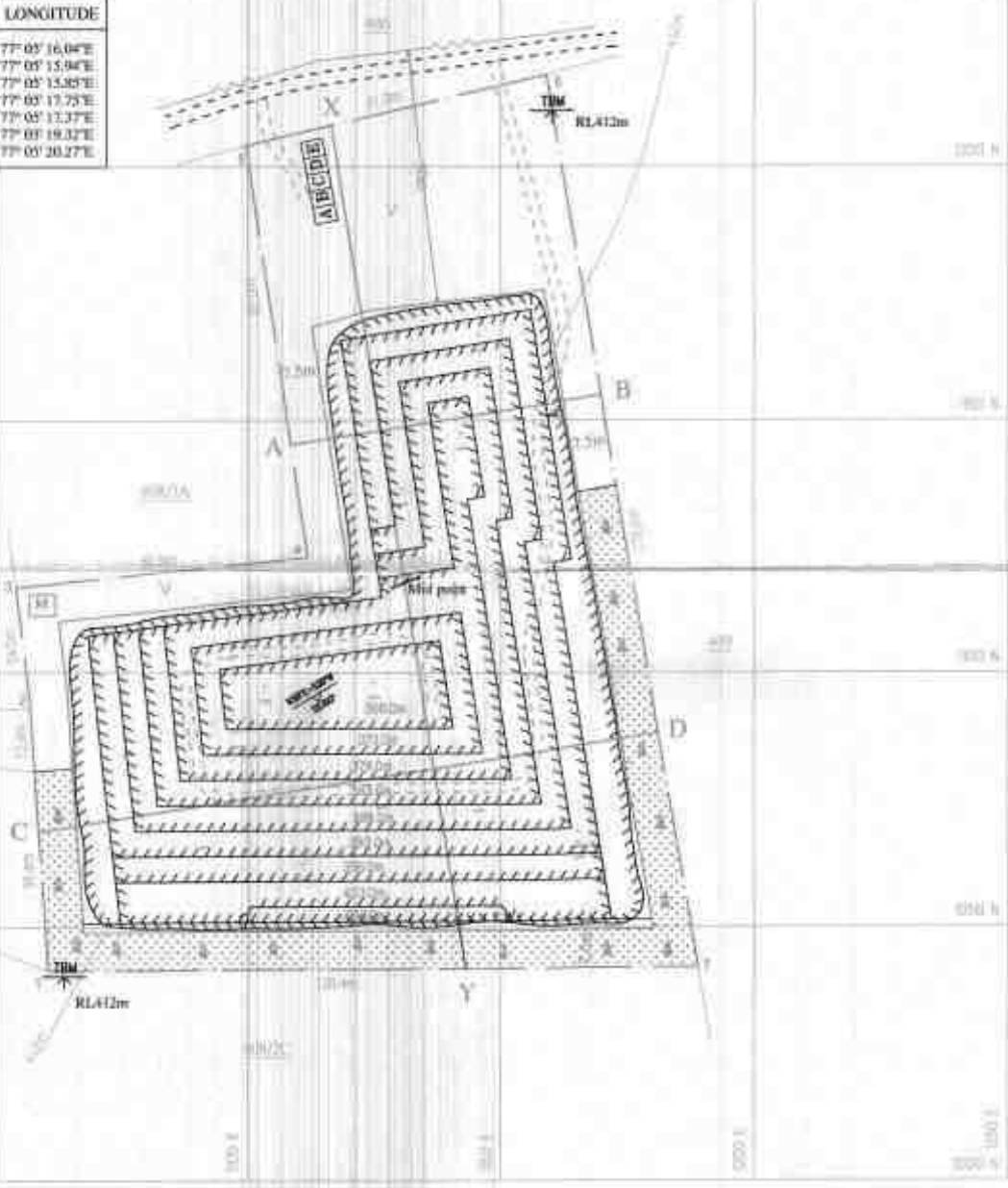


PLATE NO - IV
 DATE OF SURVEY : 28.11.2018

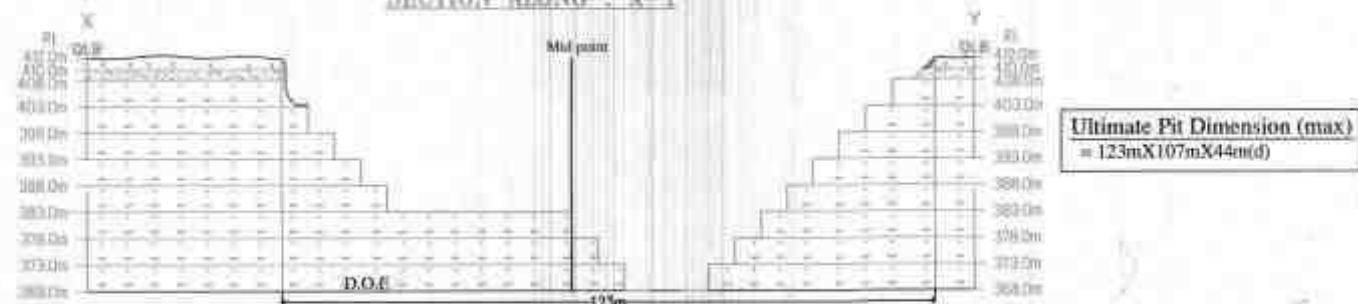
APPLICANT :
 Thiru: S. DURAIRAJ,
 S/o. SELAPPAN,
 MALAKKADU THOTTAM,
 PERIYAKUYILAI POST,
 PACHAPALAYAM,
 COIMBATORE DISTRICT.

LOCATION OF Q.L. APPLIED AREA:
 S.F.No : 408 / 38 & 3C
 EXTENT : 1.47.5 Ha.
 VILLAGE : PACHAPALAYAM,
 TALUK : SULLUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

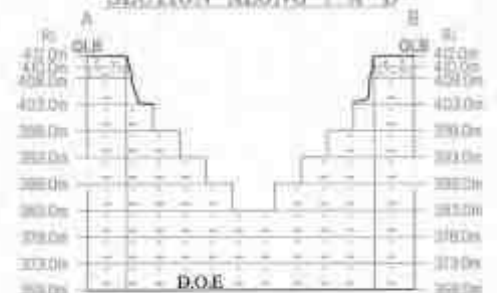
INDEX

Q.L. APPLIED AREA BOUNDARY	
50m, 10m & 7.5m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
GRAVEL	
WEATHERED GRAVEL	
ROUGH STONE	
STRIKE & DIP	
QUARRY PIT	
CONTOUR	
SHRUBS	
QUARRY HAUL ROAD	
ITTERI ROAD	
E.B. LINE	
DEPTH OF ESTIMATION	
1-4 Year PLANTATION	

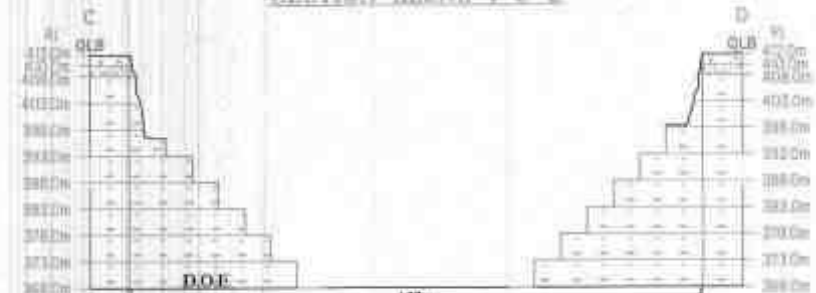
SECTION ALONG : X-Y



SECTION ALONG : A-B



SECTION ALONG : C-D



CONCEPTUAL PLAN & SECTIONS
 SCALE : 1 : 1000

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 LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

[Signature]
 S.P. THIRUGARAJAN, P.H.D.,
 QUALIFIED PERSON

திருமல திருவக அபிமான சங்கம்

கோமலபுரத்தின் மருமகன், சங்கரன் மருமகன்

43, பச்சையத்தையம் திருமல மருமகன் மருமகன் மருமகன்

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408/3C - 1.05.0 4. மருமகன் மருமகன் மருமகன்

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408/3C - 1.05.0, 408/3B - 0.042.5 மருமகன் மருமகன்

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Notary 85/2017-ன் மருமகன் மருமகன் மருமகன்

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കുടുംബ വാഗ്ദാനപത്രം അംഗീകരിക്കൽ

കോതയ്ക്കൽ ഗവണ്മെന്റ്, തൃശ്ശൂർ ജില്ല
 43 - ഹർജി പരാമർശം കുടുംബകൃതികൾ കെ.എ.
 ഫോൺ 408/3B ഗ്രൂപ്പും 408/3C ട്രാ.
 കോതയ്ക്കൽ ജില്ലാ ഓഫീസിലെ ഓഫീസിലെ ഓഫീസിലെ
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 ഓഫീസിലെ ഓഫീസിലെ ഓഫീസിലെ ഓഫീസിലെ

- 1) ~~...~~ [P. ...]
- 2) P. Poo [Pechamma]
- 3) ... [K. ...]
- 4) R. ... [R. ...]
- 5) R. ... [R. ...]
- 6) C. ... [C. ...]
- 7) ... [D. ...]
- 8) ... [D. ...]
- 9) R. ... [D. ...]
- 10) D. ... [D. KARTHIKEYAN]

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அனுப்புநர்

திரு.செ.தனலிங்கம், M.Sc.M.Phil.,
வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் தெற்கு.

பெறுநர்

மாவட்ட ஆட்சியர்,
கோயம்புத்தூர்.

ந.க.862/2018/அ2

நாள்:04.09.2018.

அய்யா,

பொருள்: கனிமங்களும் சுரங்கங்களும் - சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - பச்சாபாளையம் கிராமம் - மஜரா பெரியகுயிலை கிராமம், மலக்காடு தோட்டம் என்ற முகவரியைச் சார்ந்த செல்லப்பன் மகன் துரைராஜ் என்பவர் க.ச.எண்கள்:408/3B மற்றும் 408/3C நெ.காலைகளில் சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் கோரியது - அறிக்கை அனுப்புதல் - தொடர்பாக.

பார்வை:

1. கோயம்புத்தூர் மாவட்ட ஆட்சியர் அவர்களின் ந.க.38/கனிமம்/2018, நாள்:15.02.2018.
2. சூலூர் வட்டாட்சியரது அறிக்கை ந.க.3123/2018/அ2, நாள்:30.06.2018.

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், மஜரா பெரியகுயிலை, மலக்காடு தோட்டம் என்ற முகவரியைச் சேர்ந்த செல்லப்பன் மகன் துரைராஜ் என்பவர் புல எண்கள்:408/3B மற்றும் 408/3C நெ.காலைகளில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரி பார்வை 1-ன்படி அறிக்கை கோரியதன் பேரில் எனதறிக்கையை கீழ்க்கண்டவாறு சமர்ப்பிக்கின்றேன்.

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், க.ச.எண்:408/3B நெ.காலையில் 0.42.5 ஹெக்டேர் பூமியானது செல்லப்பன் மகன் ரவிச்சந்திரன் -1, செல்லப்பன் மகன் துரைராஜ் -2 ஆகியோருக்கு சூலூர் சார்பதிவாளர் அலுவலக உயில் ஆவண எண் 62/BK3 /05 ன்படியும் பட்டா எண்.574-ன்படியும் கூட்டாக பாத்தியப்பட்டது. மேலும் க.ச.எண் 408/3C நெ.காலையில் 1.05.0 ஹெக்டேர் பூமியானது செல்லப்பன் மனைவி சுப்புலட்சுமி என்பவருக்கு சூலூர் சார்பதிவாளர் அலுவலக ஆவண எண் 2325/2001 நாள்: 17.08.2001 ன்படியும் பட்டா எண்.471-ன்படி பாத்தியப்பட்டது.

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மேற்படி க.ச.எண் 408/3B நெ.காலையில் 0.42.5 ஹெக்டர் பூமியில் இருந்து சாதாரண கல் மற்றும் மண் வெட்டி எடுக்க (25.02.2008 முதல் 24.02.2013 முடிய) மார்ப்ப கவுண்டர் த/பெ.செல்லப்பகவுண்டர் பெயரில் கல்குவாரி உரிமம் பெற்றிருந்தார். மார்ப்ப கவுண்டர் என்பவர் கடந்த 5.02.2013ல் இறந்து விட்டார். க.ச.எண் 408/3C நெ.காலையில் 1.05.0 ஹெக்டர் பூமியில் திரு.செல்லப்பன் த/பெ.மார்ப்பகவுண்டர் என்பவர் 2.3.2011 முதல் 1.03.2016 முடிய கல்குவாரி உரிமம் பெற்றிருந்தார்.

மேலும் மனுதாரர் உரிமத்தினை கட்டணத்தொகை ரூ.1500/-ஐ ஸ்டேட் பேங்க் ஆப் இந்தியா, கோயம்புத்தூர் சலான் எண்.150 நாள்.23.01.2018-ன்படி செலுத்தியுள்ளார். கனிம வரி நிலுவையில் இல்லை என நில உரிமையாளர் நோட்டரி அபிடவிட் மூலம் சம்மதக் கடிதம் அளித்துள்ளார்.

மேற்படி மனுதாரர் துரைராஜ் என்பவருக்கு கல்குவாரி உரிமம் புதுப்பிக்க கோரி க.ச.எண் 408/3B மற்றும் 408/3C ஆகிய கால்களில் சாதாரண கல் மற்றும் மண் வெட்டி எடுக்க ஐந்தாண்டுகளுக்கு உரிமம் புதுப்பித்து தர திருமதி. சுப்புலட்சுமி -1, திரு.ரவிச்சந்திரன் -2 ஆகியோர் சம்மத கடிதம் அளித்துள்ளார்கள்.

மேற்படி கல்குவாரி உரிமம் கோரியுள்ள இடமானது

- 1) க.ச.எண் 406 இட்டேரி புறம்போக்கு தற்போது தார் சாலையாக உள்ளதற்கு தெற்கிலும்,
- 2) க.ச.எண்கள் 408/1B, 408/3A, 408/2A அப்புசாமி கல்குவாரிக்கும் க.ச.எண் 408/2B3 ராமசாமி வகையறா கல்குவாரிக்கு கிழக்கிலும்,
- 3) க.ச.எண் 408/2C ராமசாமி வகையறா கல்குவாரிக்கு வடக்கிலும்,
- 4) க.ச.எண் 409/CA1, 409/1B1 பாக்கியலட்சுமி கல்குவாரிக்கு மேற்கிலும் அமைந்துள்ளது.

மேலும், மேற்படி பூமிக்கு அருகில்

1. 300 மீட்டர் சுற்றளவில் கிராம நத்தமோ, அங்கீகரிக்கப்பட்ட வீட்டுமனைகளோ இல்லை.
2. 300 மீட்டர் சுற்றளவில் கோவில்களோ, புராதனச் சின்னங்களோ ஏதுமில்லை.
3. புறம்போக்கு நிலம் ஏதுமில்லை.
4. உயர்மின்னழுத்த கம்பிகள் ஏதும் செல்லவில்லை.

எனவே, குலூர் வட்டம், பச்சாபாளையம் கிராமம், க.ச.எண்.408/38 மற்றும் க.ச.408/3C நெ.காலைகளில் மொத்தம் 1.47.5 ஹெக்டேர் பரப்பில் திரு.துரைராஜ், க/பெ.செல்லப்பன் என்பவருக்கு மண் மற்றும் சாதாரண கல் வெட்டியெடுக்க கல்குவாரி உரிமம் வழங்கலாம் என்பதை பணிவுடன் தெரிவித்துக் கொள்கிறேன். இத்துடன் தொடர்புடைய ஆவணங்கள் இணைத்தனுப்பியுள்ளேன்.

இணைப்பு : மேற்கூறியவாறு.

தங்கள் உண்மையுள்ள,

(ஓ.ம்).செ.தனலிங்கம்,
வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் தெற்கு.

/ உத்தரவுப்படி /


நேர்முக உதவியாளர்.

சு
4.9.18

புலத்தணிக்கை

தணிக்கை நாள் : 17.06.2018
 வட்டம் : சூலூர்.
 கிராமம் : பச்சாபாளையம்
 புலஎண்கள் : 408/3B மற்றும் க.ச.408/3C

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், மஹரா பெரியகுயிலை, மலக்காடு தோட்டம் என்ற முகவரியைச் சேர்ந்த செல்லப்பன் மகன் துரைராஜ் என்பவர் க.ச.எண் 408/3B மற்றும் 408/3C நெ.காலைகளில் ஆகிய காலைகளில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் கோரியது தொடர்பாக இன்று புலத்தணிக்கை செய்யப்பட்டது. தணிக்கையின் போது வருவாய் ஆய்வாளர் மற்றும் கிராம நிர்வாக அலுவலர் ஆகியோர் உடனிருந்தனர்.

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், க.ச.எண் 408/3B நெ.காலையில் 0.425 ஹெக்டர் பூரியானது செல்லப்பன் மகன் ரவிச்சந்திரன் -1, துரைராஜ்-2 ஆகியோருக்கு சூலூர் சார்பதிவாளர் அலுவலக உயில் ஆவண எண் 62/BK3 /05 ன்படி கூட்டாக பாத்தியப்பட்டது. மேலும் க.ச.எண் 408/3C நெ.காலையில் 1.05.0 ஹெக்டர் பூரியானது செல்லப்பன் மணனி சுப்புலட்சுமி என்பவருக்கு சூலூர் சார்பதிவாளர் அலுவலக ஆவண எண் 2325/2001 நாள்: 17.08.2001 ன்படி பாத்தியப்பட்டது.

மேற்படி க.ச.எண் 408/3B நெ.காலையில் 0.425 ஹெக்டர் பூரியில் இருந்து சாதாரண கல் மற்றும் மண் வெட்டி எடுக்க (25.02.2008 முதல் 24.02.2013 முடிய) மார்ப்ப கவுண்டர் த/பெ.செல்லப்பகவுண்டர் பெயரில் கல்குவாரி உரிமம் பெற்றிருந்தார். மார்ப்ப கவுண்டர் என்பவர் கடந்த 5.02.2013ல் இறந்து விட்டார். க.ச.எண் 408/3C நெ.காலையில் 1.05.0 ஹெக்டர் பூரியில் திரு.செல்லப்பன் த/பெ.மார்ப்பகவுண்டர் என்பவர் 2.3.2011 முதல் 1.03.2016 முடிய கல்குவாரி உரிமம் பெற்றிருந்தார்.

மேற்படி மனுதாரர் துரைராஜ் என்பவருக்கு கல்குவாரி உரிமம் புதுப்பிக்க கோரி க.ச.எண் 408/3B மற்றும் 408/3C ஆகிய காலைகளில் சாதாரண கல் மற்றும் மண் வெட்டி எடுக்க ஐந்தாண்டுகளுக்கு உரிமம் புதுப்பித்து தர திருமதி. சுப்புலட்சுமி -1, திரு.ரவிச்சந்திரன் -2 ஆகியோர் சம்மத கடிதம் அளித்துள்ளார்கள்.

- மேற்படி கல்குவாரி உரிமம் கோரியுள்ள இடமானது
- 1) க.ச.எண் 406 இட்டேரி புறம்போக்கு திற்போது தார் சாலையாக உள்ளதற்கு தெற்கிலும்,
 - 2) க.ச.எண்கள் 408/1B, 408/3A, 408/2A அப்புசாயி கல்குவாரிக்கும் க.ச.எண் 408/2B ராமசாயி வகையறா கல்குவாரிக்கும் கிழக்கிலும்.

3) க.ச.எண் 408/2C ராமசாமி வகையறா கல்குவாரிக்கு வடக்கிலும்,

4) க.ச.எண் 409/CA1, 409/1B1 பாக்கியலட்சுமி கல்குவாரிக்கு மேற்கிலும் அமைந்துள்ளது.

மேற்படி பூமிக்கு அருகில்

1) 300 மீட்டர் சுற்றளவில் கிராம நத்தமோ, அங்கிகரிக்கப்பட்ட வீட்டுமனைகளோ இல்லை.

2) 300 மீட்டர் சுற்றளவில் கோவில்களோ, புராதனச் சின்னங்களோ ஏதுமில்லை.

3) அரசு புறம்போக்கு நிலம் ஏதுமில்லை.

4) உயர்மின்னழுத்த கம்பிகள் ஏதும் செல்லவில்லை.

எனவே, மனுதாரர் செல்லப்பன் மகன் துரைராஜ் என்பவருக்கு மண் மற்றும் சாதாரண கல் வெட்டியெடுக்க கல்குவாரி உரிமம் வழங்க பரிந்துரை செய்து கோயம்புத்தூர் மாவட்ட ஆட்சியர் அவர்களுக்கு முன்மொழிவுகள் அனுப்பலாம்.


வருவாய் கோட்டாட்சியர்
கோயம்புத்தூர் தேற்குடி 17618

കേരള കർഷകർക്ക് ഉപകരണങ്ങൾ വിതരണം ചെയ്യുന്നതിനുള്ള

- i) കെ.ടി.എസ് 406/- കിടപ്പിന് 4700 രൂപ (4700 രൂപ കർഷകർക്ക്) - കിടപ്പിന് വിതരണം
- ii) കെ.ടി.എസ് 408/1B, 408/3A, 408/2A, മധ്യമതിയായ കർഷകർക്ക് കെ.ടി.എസ് 408/2B - മധ്യമതിയായ കർഷകർക്ക് കിടപ്പിന് വിതരണം
- iii) കെ.ടി.എസ് 408/2C മധ്യമതിയായ കർഷകർക്ക് കിടപ്പിന് വിതരണം
- iv) കെ.ടി.എസ് 409/1A, 409/1B, ഉയർന്ന മതിയായ കർഷകർക്ക് കിടപ്പിന് വിതരണം

മുൻകൂട്ടി കർഷകർക്ക് 300 രൂപ കർഷകർക്ക് കിടപ്പിന് വിതരണം ചെയ്യുന്നതിന് വിതരണം

മുൻകൂട്ടി കർഷകർക്ക് 300 രൂപ കർഷകർക്ക് കിടപ്പിന് വിതരണം ചെയ്യുന്നതിന് വിതരണം

മുൻകൂട്ടി കർഷകർക്ക് 300 രൂപ കർഷകർക്ക് കിടപ്പിന് വിതരണം ചെയ്യുന്നതിന് വിതരണം

മുൻകൂട്ടി കർഷകർക്ക് 300 രൂപ കർഷകർക്ക് കിടപ്പിന് വിതരണം ചെയ്യുന്നതിന് വിതരണം

മുൻകൂട്ടി കർഷകർക്ക് 300 രൂപ കർഷകർക്ക് കിടപ്പിന് വിതരണം ചെയ്യുന്നതിന് വിതരണം

കേരള കർഷകർക്ക് ഉപകരണങ്ങൾ വിതരണം ചെയ്യുന്നതിനുള്ള
 43. കെ.ടി.എസ് 406/-
 കെ.ടി.എസ് 408/-

උපකාරකයන්ගේ කාර්යාලය, පුද්ගලිකයාගේ,
 වර්තමානයේ ස්ථානය, පවුලේ සාමාජිකයන්ගේ ස්ථානය
 කාර්යාලය, පවුලේ සාමාජිකයන්ගේ ස්ථානය
 ගිණිකොටුවක් පවතින පවුලකට ගිණිකොටු - 408/3B,
 408/3C වර්ග-ආකාරයෙන් මෙහි සාමාජිකයන් 2012
 ජනවාරි 15 වන දිනට පසුව කටයුතු කළ යුතු බවට
 සාධක සපයා ඇත.

මෙහිදී මෙහිදී පුද්ගලිකයාගේ, වර්තමානයේ
 ස්ථානය ඊ.පී. ගිණිකොටු 408/3B වර්ග-ආකාරයෙන් 0.42.5 ගිණිකොටු
 පවතින පවුලකට පවතින පවුලකට
 සාමාජිකයන් 2012 ජනවාරි 15 වන දිනට පසුව
 පුද්ගලිකයාගේ ස්ථානය පවුලේ සාමාජිකයන්ගේ ස්ථානය
 62/3K
 /05 හි පව පව පව පව. මෙහිදී ඊ.පී. ගිණිකොටු 408/3C
 වර්ග-ආකාරයෙන් 1.05.0 ගිණිකොටු 408/3B ගිණිකොටුවක්
 කාර්යාලය සහ පවුලේ සාමාජිකයන්ගේ ස්ථානය පවුලේ
 සාමාජිකයන්ගේ ස්ථානය පවුලේ සාමාජිකයන්ගේ ස්ථානය
 2001, 2001, 2001, 2001, 2001, 2001, 2001, 2001,
 17-08-2001

මෙහිදී ඊ.පී. ගිණිකොටු 408/3B වර්ග-ආකාරයෙන්
 0.42.5 ගිණිකොටු පවතින පවුලකට පවතින පවුලකට
 පව පව පව පව [25.02.2009 දින 24.2.13 දින]
 පව පව පව පව, 510W වර්ග-ආකාරයෙන් පව පව පව පව
 පව පව පව පව. 408/3B වර්ග-ආකාරයෙන් පව පව පව පව
 05.02.2013 හි පව පව පව පව.

ඊ.පී. ගිණිකොටු 408/3C වර්ග-ආකාරයෙන් 1.05.0
 ගිණිකොටු පවතින පව පව පව පව, 510W. පව පව පව පව



மேலும் (02.03.2011 முதல் 01.03.2016) வரைய
காலத்தில் உள்ள பங்களிப்புகள்.

மேலும் மேலும் சேர்த்து மேலும்
காலத்தில் உள்ள பங்களிப்புகள்
க.ச.எண். 408/3B மற்றும் 408/3C க்கான
காலத்தில் சேர்த்து காலத்தில்
பங்களிப்புகள் சேர்த்து சேர்த்து
காலத்தில் உள்ள பங்களிப்புகள்
காலத்தில் உள்ள பங்களிப்புகள்
காலத்தில் உள்ள பங்களிப்புகள்

மேலும் காலத்தில் உள்ள பங்களிப்புகள்

காலத்தில்

- (i) க.ச.எண்-406 - காலத்தில் உள்ள பங்களிப்புகள்
காலத்தில் உள்ள பங்களிப்புகள்
- (ii) க.ச.எண் - 408/1A, 408/3A, 408/2A
காலத்தில் உள்ள பங்களிப்புகள், க.ச.எண்-408/2B
காலத்தில் உள்ள பங்களிப்புகள்
- (iii) க.ச.எண்-408/2C காலத்தில் உள்ள பங்களிப்புகள்
காலத்தில்
- (iv) க.ச.எண்-409/1A, 409/1B பங்களிப்புகள்
காலத்தில் உள்ள பங்களிப்புகள்

மேலும் மேலும் மேலும் மேலும் மேலும்
மேலும் மேலும் மேலும் மேலும் மேலும்

மேலும் மேலும் மேலும் மேலும் மேலும்
மேலும் மேலும் மேலும் மேலும் மேலும்
மேலும் மேலும் மேலும் மேலும் மேலும்

மேலும் மேலும் மேலும் மேலும் மேலும்
மேலும் மேலும் மேலும் மேலும் மேலும்
மேலும் மேலும் மேலும் மேலும் மேலும்

மேலும் மேலும் மேலும் மேலும் மேலும்
மேலும் மேலும் மேலும் மேலும் மேலும்
மேலும் மேலும் மேலும் மேலும் மேலும்

அனுப்புகை.

பெறுந்

திரு.S.ஜெகதீசன்,Bsc.,B.Ed.,
வட்டாட்சியர்
சூலூர்.

வருவாய் கோட்டாட்சியர்
கோயம்புத்தூர் (தெற்கு)

ந.க. 3123/18/A2

நாள்-06.06.2018

அய்யா,



பொருள்: கனிமங்களும் கரங்கங்களும்: சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க - கோயம்புத்தூர் மாவட்டம் சூலூர், வட்டம் - பச்சாபாளையம் கிராமம் - மஜரா பெரியகுயிலை கிராமம் மலக்காடு தோட்டம் என்ற முகவரியைச் சேர்ந்த செல்லப்பன் மகன் துரைராஜ் என்பவர் க.ச.எண் 408/3B மற்றும் 408/3C நெ.காலைகளில் சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க சுவாரி குத்தகை உரிமம் கோரியது - அறிக்கை அனுப்பதல் - தொடர்பாக

- பாறை: 1.செலக்கரிச்சல் நிலவருவாய் ஆய்வாளர் அறிக்கை நாள்: 27.06.2018
2.செலக்கரிச்சல் கிராம நிர்வாக அலுவலர் அறிக்கை நாள்: 27.06.2018.

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், மஜரா பெரியகுயிலை கிராமம் மலக்காடு தோட்டம் என்ற முகவரியைச் சேர்ந்த செல்லப்பன் மகன் துரைராஜ் என்பவர் க.ச.எண் 408/3B மற்றும் 408/3C நெ.காலைகளில் ஆகிய காலைகளில் சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க சுவாரி குத்தகை உரிமம் கோரியது தொடர்பாக எனதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கின்றேன்.

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், க.ச.எண் 408/3B நெ.காலையில் 0.42.5 ஹெக்டர் பூமியானது செல்லப்பன் மக்கள் ரவிச்சந்திரன் -1, துரைராஜ்-2 ஆகியோருக்கு கூட்டாக பாத்தியப்பட்டது. சூலூர் சார்பதிவாளர் அலுவலக உயில் ஆவண எண் 62/BK3/05 என்பது பாத்தியம். மேலும் க.ச.எண் 408/3C நெ.காலையில் 1.05.0 ஹெக்டர் பூமியானது செல்லப்பன் மனைவி சுப்புலட்சுமி என்பவருக்கு சூலூர் சார்பதிவாளர் அலுவலக ஆவண எண் 2325/2001 நாள்: 17.08.2001 என்பது மனுதாரருக்கு பாத்தியப்பட்டது.

மேற்படி க.ச.எண் 408/3B நெ.காலையில் 0.42.5 ஹெக்டர் பூமியில் இருந்து சாதாரண கல் மற்றும் மண் வெட்டி எடுக்க (25.02.2008 முதல் 24.02.2013 முடிய) மார்ப்ப கவுண்டர் த/பெ.செல்லப்பகவுண்டர் பெயரில் கல்குவாரி உரிமம் பெற்றிருந்தார். மார்ப்ப கவுண்டர் என்பவர் கடந்த 5.02.2013ல் இறந்து விட்டார். க.ச.எண் 408/3C நெ.காலையில் 1.05.0 ஹெக்டர் பூமியில் திரு.செல்லப்பன் த/பெ.மார்ப்பகவுண்டர் என்பவர் 2.3.2011 முதல் 1.03.2016 முடிய கல்குவாரி உரிமம் பெற்றிருந்தார்.

மேற்படி மனுதாரர் துரைராஜ் என்பவருக்கு கல்குவாரி உரிமம் புதுப்பிப்பு கோரி க.ச.எண் 408/3B மற்றும் 408/3C ஆகிய காலைகளில் சாதாரண கல் மற்றும் மண் வெட்டி எடுக்க ஐந்தாண்டுகளுக்கு உரிமம் புதுப்பித்து தர திருமதி. சுப்புலட்சுமி -1, திரு.ரவிச்சந்திரன் -2 ஆகியோர் சம்மத கடிதம் அளித்துள்ளார்கள்.

மேற்படி கல்குவாரி உரிமம் கோரியுள்ள இடமானது

- 1) க.ச.எண் 406 இட்டேரி புறம்போக்கு தற்போது தூர் சாலையாக உள்ளதற்கு தெற்கிலும்,
- 2) க.ச.எண்கள் 408/1B, 408/3A, 408/2A அப்பூசாமி கல்குவாரிக்கும் க.ச.எண் 408/2B3 ராமசாமி வகையரா கல்குவாரிக்கு கிழக்கிலும்,
- 3) க.ச.எண் 408/2C ராமசாமி வகையரா கல்குவாரிக்கு வடக்கிலும்,
- 4) க.ச.எண் 409/CA1, 409/1B1 பாக்கியலட்சுமி கல்குவாரிக்கு மேற்கிலும் அமைந்துள்ளது.

மேலும், பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் கிராம நத்தமோ, அங்கிகரிக்கப்பட்ட வீட்டுமனைகளோ இல்லை.

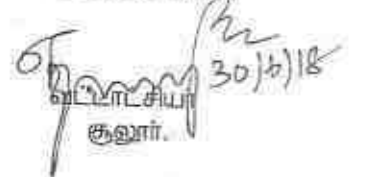
பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் கோவில்களோ, புராதனச் சின்னங்களோ ஏதுமில்லை.

பிரஸ்தாப புலத்தில் அரசு புறம்போக்கு நிலம் ஏதுமில்லை.

பிரஸ்தாப புலத்தின் மீது உயர்மின்னழுத்த கம்பிகள் ஏதும் செல்லவில்லை.

எனவே, மனுதாரர் செல்லப்பன் மகன் துரைராஜ் என்பவருக்கு மண் மற்றும் சாதாரண கல் வெட்டியெடுக்க கல்குவாரி உரிமம் வழங்கலாம் என்பதை பணிவுடன் தெரிவித்துக் கொள்கிறேன்.

தங்கள் உண்மையுள்ள,


வடாட்சியர்
குலார்.

6mm
30.6.19

நகல்: கோயம்புத்தூர் மாவட்ட ஆட்சித் தலைவர் அவர்களுக்கு பணிநிறுப்பப்படுகிறது.

புலத்தணிக்கை

இடம் : பச்சாபாளையம்
புலஎண்கள் : 408/3B மற்றும் 408/3C
நாள் : 06.2018

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், மஜூரா பெரியகுயிலை கிராமம் மலக்காடு தோட்டம் என்ற முகவரியைச் சேர்ந்த செல்லப்பன் மகன் துரைராஜ் என்பவர் க.ச.எண் 408/3B மற்றும் 408/3C நெ.காலைகளில் ஆகிய காலைகளில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் கோரியது தொடர்பாக எனதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கின்றேன்.

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், க.ச.எண் 408/3B நெ.காலையில் 0.42.5 ஹெக்டர் பூமியானது செல்லப்பன் மக்கள் ரவிச்சந்திரன் -1, துரைராஜ்-2 ஆகியோருக்கு கூட்டாக பாத்தியப்பட்டது. சூலூர் சார்பதிவாளர் அலுவலக உயில் ஆவண எண் 62/BK3 /05 ன்படி பாத்தியம். மேலும் க.ச.எண் 408/3C நெ.காலையில் 1.05.0 ஹெக்டர் பூமியானது செல்லப்பன் மனைவி சுப்புலட்சுமி என்பவருக்கு சூலூர் சார்பதிவாளர் அலுவலக ஆவண எண் 2325/2001 நாள்: 17.08.2001 ன்படி மனுதாரருக்கு பாத்தியப்பட்டது.

மேற்படி க.ச.எண் 408/3B நெ.காலையில் 0.42.5 ஹெக்டர் பூமியில் இருந்து சாதாரண கல் மற்றும் மண் வெட்டி எடுக்க (25.02.2008 முதல் 24.02.2013 முடிய) மார்ப்ப கவுண்டர் த/பெ.செல்லப்பகவுண்டர் பெயரில் கல்குவாரி உரிமம் பெற்றிருந்தார். மார்ப்ப கவுண்டர் என்பவர் கடந்த 5.02.2013ல் இறந்து விட்டார். க.ச.எண் 408/3C நெ.காலையில் 1.05.0 ஹெக்டர் பூமியில் திரு.செல்லப்பன் த/பெ.மார்ப்பகவுண்டர் என்பவர் 2.3.2011 முதல் 1.03.2016 முடிய கல்குவாரி உரிமம் பெற்றிருந்தார்.

மேற்படி மனுதாரர் துரைராஜ் என்பவருக்கு கல்குவாரி உரிமம் புதுப்பிக்க கோரி க.ச.எண் 408/3B மற்றும் 408/3C ஆகிய காலைகளில் சாதாரண கல் மற்றும் மண் வெட்டி எடுக்க ஐந்தாண்டுகளுக்கு உரிமம் புதுப்பித்து தர திருமதி. சுப்புலட்சுமி -1, திரு.ரவிச்சந்திரன் -2 ஆகியோர் சம்மத கடிதம் அளித்துள்ளார்கள்.

மேற்படி கல்குவாரி உரிமம் கோரியுள்ள இடமானது

- 1) க.ச.எண் 406 இட்டேரி புறம்போக்கு தற்போது தார் சாலையாக உள்ளதற்கு தெற்கிலும்,
- 2) க.ச.எண்கள் 408/1B, 408/3A, 408/2A அப்புசாமி கல்குவாரிக்கும் க.ச.எண் 408/ 2B ராமசாமி வகையறா கல்குவாரிக்கு கிழக்கிலும்,
- 3) க.ச.எண் 408/2C ராமசாமி வகையறா கல்குவாரிக்கு வடக்கிலும்,
- 4) க.ச.எண் 409/CA1, 409/1B1 பாக்கியலட்சுமி கல்குவாரிக்கு மேற்கிலும் அமைந்துள்ளது.

மேலும், பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் கிராம நத்தமோ, அங்கிகரிக்கப்பட்ட வீட்டுமனைகளோ இல்லை.

பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் கோவில்களோ, புராதனச் சின்னங்களோ ஏதாமில்லை.

பிரஸ்தாப புலத்தில் அரசு புறம்போக்கு நிலம் ஏதாமில்லை.

பிரஸ்தாப புலத்தின் மீது உயர்மின்னழுத்த கூம்பிகள் ஏதும் செல்லவில்லை.

எனவே, மனுதாரர் செல்லப்பன் மகன் துரைராஜ் என்பவருக்கு மண் மற்றும் சாதாரண கல் வெட்டியெடுக்க கல்குவாரி உரிமம் வழங்க பரிந்துரை செய்து வருவாய் கோட்டாட்சியர் கோயம்புத்தூர் (தெற்கு) அவர்களுக்கு முன்மொழிவுகள் அனுப்பலாம்.

18/06/2018
வட்டாட்சியர்
குவார்.

SENTHIL EXPLOSIVES

20, PANCHAYAT OFFICE STREET, SULUR, COIMBATORE - 641 402

Date 12/10/2021

To

S.Duraija,
S/O.Sellappan,
Malakkadu thottam,
Periyakuyilai Post,
Pachapalayam,
Coimbatore District.

Sir,

Sub: Regarding blasting work using Explosives in your proposed quarry.

We are having explosives license in from 22 holding No.E42667 situate in survey number SF.NO: 126/2(V) NO:80, Sulur village, Sulur Taluk, Coimbatore District, our office functioning at address.

Senthil Explosives, 20, Panchayat office street, Sulur, Coimbatore-641402.

We are enacting 4 explosives vans for transporting detonators and class: 2 separately for our magazine to our work site and well experienced and licensed blasters and mate for safe blasting work since 5 years without untoward incident.

We are willing to undertake blasting work on contract basic at your proposed quarry at SF.Nos:408/3B,408/3C, Pachapalayam village, Sulur Taluk,Coimbatore District, Tamilnadu.

FOR SENTHIL EXPLOSIVES

For SENTHIL EXPLOSIVES

Partner Signature Partner

Enclosure: 1. Licence Copies

अनुमति प्रूप एल.ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)
(See article 3(a) to (g) of Part 1 of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने
Licence to possess : (c) for use explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुमति सं. (Licence No.): E/HQ/TN/22/377(E42667)
वार्षिक फीस रूप (Annual Fee Rs): 9800/-



1. Licence is hereby granted to

M/s Senthil Explosives, (अधिभोगी / Occupier : S.S. SANKHIVELU), 20, PANCHAYAT OFFICE STREET, SULUR,
COIMBATORE Dist., Town/Village -, SULUR, District-COIMBATORE, State-Tamil Nadu, Pincode - 641402

को अनुमति अनुदत्त की जाती है।

2. अनुमतिधारी की प्रस्थिति (Status of licensee : Partnership Firm)

3. अनुमति निम्नलिखित प्रयोजनों के लिए विधिमाम्य है।

Licence is valid only for the following purpose

possess for use of Slurry Explosives, Safety Fuse, Detonating Fuse, Detonators, - के
उपयोग के लिए

4. अनुमति विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमाम्य है।

Licence is valid for the following kinds and quantity of explosives: - (क) (a)

क्र. सं.	नाम और विवरण	वर्ग और प्रभाग	उप-प्रभाग	मात्रा किसी एक समय में
Sr. No.	Name and Description	Class & Division	Sub-division	Quantity at any one time
1.	Slurry Explosives	2.0	0	4900 Kg.
2.	Safety Fuse	5.1	0	20000 Mtrs.
3.	Detonating Fuse	6.2	0	10000 Mtrs.
4.	Detonators	6.3	0	44000 Nos.

(ख) किसी एक कैलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुमति के लिए)

14 times

(b) Quantity of explosives to be purchased in a calendar month (applicable for licence under article 3(b) and (c))

as above.

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुमति परिसर की पुष्टि होती है।

The licensed premises shall conform to the following drawing(s):

रेखाचित्र क्र. (Drawing No.) E/HQ/TN/22/377(E42667)

दिनांक (Dated) 23/09/1991

6. अनुमति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:

Survey No(s), 126/2,(v) No. 80, ग्राम (Town/Village) - SULUR

जिला (District) COIMBATORE

दूरभाष (Phone)

राज्य (State)

ई.मेल (E-Mail)

Tamil Nadu

पुलिस थाना (Police Station) : COIMBATORE

पिनकोड (Pincode)

फैक्स (Fax)

7. अनुमति परिसर में निम्नलिखित सुविधाएं अंतर्भूत हैं।

The licensed premises consist of following facilities

: a main magazine room, a lobby and a detonator storage room.

8. अनुमति समय-समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपबंधों के अधीन रहते हुए अनुदत्त की जाती है।

The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2004 framed there under and the conditions, additional conditions and the following Annexures.

1. उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, संनिर्माण संबंधी और अन्य विवरण दर्शाते हुए)।

Drawings (showing site, constructional and other details) as stated in serial No. 5 above.

2. अनुमति प्राधिकारी द्वारा इस्तेमालित इस अनुमति की शर्तों और अतिरिक्त शर्तों।

Conditions and Additional Conditions of this licence signed by the licensing authority.

3. दूरी प्रूप DE-2 | Distance Form DE-2.

9. यह अनुमति तारीख 31 मार्च 1993 तक विधिमाम्य रहेगी। This licence shall remain valid till 31st day of March 1993.

यह अनुमति अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपरोक्त इस अनुमति की शर्तों का अधिभोग्य करने या यदि अनुमति परिसर योजना या उससे सलग्न उपबंध में दशित विवरण के अनुसूप नहीं पाए जाने पर निलंबित या प्रतिसंहत की जा सकती है, जहां यह लागू हो।

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

तारीख | The Date - 23/09/1991

मुख्य विस्फोटक नियंत्रक | Chief Controller of Explosives

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 27/08/2013
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 29/08/2018
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 07/01/2019

नवीनीकरण के प्रमाण के लिए स्थान
Space for Endorsement of Renewal

नवीनीकरण की तारीख
Date of Renewal

08/02/2019

अनुमति की तारीख
Date of Expiry

31/03/2024

अनुमति प्राधिकारी के हस्ताक्षर और स्टाम्प
Signature of licensing authority and stamp

Jt. Chief Controller of Explosives, South Circle, Chennai



खान अधिनियम, १९५२
THE MINES ACT, 1952

खनन भेट सम्बंधित प्रमाण-पत्र
MINING MATE'S CERTIFICATE OF COMPETENCY

(घात्विय खान विनियम, १९६१ के अधीन)
(Under Metalliferous Mines Regulations, 1961)

(केवल खुल कार्यस्वलों वाली घात्विय खानों तक सीमित)
(Restricted to metalliferous mines having open-cast workings only)

Certified that he was medically
examined on 15-10-2012, and
and found fit to carry out the
prescribed duties on 14-10-2013.

जन्म तारीख ने अपनी आयु, स्वस्थता, सदाचार, साक्षरता और अनुभव का
संतोषजनक प्रमाण दे दिया है और ता. 14-10-2013 को
Director of Mines Safety, Chennai Region.
पर हुई मौखिक परीक्षा पास कर ली है इसे घात्विय खान विनियम, १९६१ के अधीन उन घात्विय खानों के लिए जिनमें केवल खुले
कार्यस्वलों तक कार्य सीमित होता है जिनमें भेट सम्बंधित प्रमाण-पत्र दिया जाता है।

T. VEERAPPAN

of Village **PERAMACCHUR KATTVVALAVU** Thana **OMALUR** (Name)
District **SALEM** State **TAMILNADU**
born on **15th JUNE, 1949**, Son of **TEANDAVAMOORTHY**

having given satisfactory evidence of his age, medical fitness, good conduct, literacy and experience and having
passed an oral examination held at **SALEM** on **1.8.1978**.

19..... is hereby granted a MINING MATE'S CERTIFICATE under the Metalliferous Mines Regulations,
1961, restricted to metalliferous mines having open-cast workings only.

.....
सचिव
खनन परीक्षा बोर्ड।
Secretary,
Board of Mining Examinations.

.....
अध्यक्ष
खनन परीक्षा बोर्ड।
Chairman,
Board of Mining Examinations.

तारीख
Date **25-9-1978**

Certified that he was medically
examined on **19/10/2011**
and found fit to carry out the
prescribed duties on **18/10/2012**



बाएं हाथ के अंगुठे का निशान
Left hand thumb Impression
Director of Mines Safety, Chennai Region.

प्रमाणित किया जाता है कि श्री को परीक्षा की गई और उसे चहरण, धीरे-धीरे
देंको या और का मानसिक अक्षमता से रहित पाया गया, जिसका उसके दक्षतापूर्वक कार्य निष्पादन पर प्रभाव पड़ने की संभावना हो।

Certified that he was examined and found free from deafness, defective vision or any other infirmity,
mental or physical, likely to interfere with the efficient discharge of his duties.

- On **1/11/82**
On **5/4/93**
- On **8/8/88**
On **2/9/88**
- On **9/12/93**
- On **9/12/93**



THIRU.DEEPAK S.BILGI, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU

3rd Floor, Panagal Maaligai,
No.1, Jeemis Road, Saidapet,
Chennai-15.

Phone No. 044-24359973

Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No,SEIAA-TN/F.No.10099/ToR- 1515/2023 Dated:01.08.2023.

To

Thiru.N.Thangavelu,
No.153/A, Maraimalai Adigal Street,
Palladam Taluk,
Tiruppur District

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with public Hearing (ToR) for the Existing Rough Stone & Gravel Quarry lease over an extent of 4.62.0Ha S.F.No.407/2A & 407/2B, Pachapalayam Village, Sulur Taluk, Coimbatore District by N. Thangavelu - 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/429152/2023, dt:13/05/2023.
 2. Your application submitted for Terms of Reference dated: 05.06.2023.
 3. Minutes of the 393rd SEAC Meeting held on 20.07.2023.
 4. Minutes of the 643rd SEIAA meeting held on 01.08.2023. ✓

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

The proponent, Thiru.N.Thangavelu has submitted application for Terms of Reference (ToR) with public Hearing, in Form-I, Pre- Feasibility report for the Existing Rough Stone & Gravel Quarry lease over an extent of 4.62.0Ha S.F.No.407/2A & 407/2B, Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.


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Discussion by SEAC and the Remarks:-

Existing Rough Stone & Gravel Quarry lease over an extent of 4.62.0Ha S.F.No.407/2A & 407/2B, Pachapalayam Village, Sulur Taluk, Coimbatore District by N. Thangavelu - For Terms of Reference.

(SIA/TN/MIN/429152/2023, dt:13/05/2023)

The proposal was placed in the 393rd SEAC Meeting held on 20.07.2023. The project proponent gave detailed presentation. The details of the project furnished by the proponent are given in the website (parivesh.nic.in). **The SEAC noted the following:**

1. Earlier, the PP has obtained Environmental Clearance from SEIAA vide Lr. No. SEIAA-TN/F.No./5486/1(a)/ EC.No.3898/2016 Dt:05.06.2017 valid up to 04.06.2023 for the proposed Rough Stone & Gravel Quarry lease over an extent of 4.62.0Ha S.F.No.407/2A & 407/2B, Pachapalayam Village, Sulur Taluk, Coimbatore District for the Rough Stone -53130 m³ & depth up to 17m.
2. Certified Compliance Report (CCR) obtained from IRO(SZ), MoEF&CC vide Lr. EP/12.1/2023-24/SEIAA/22/TN/731 Dt:15.06.2023.
3. Existing pit details vide AD/Dept. of G&M Lr. 276/Mines/2022 Dt:07.07.2022 reveals that 3 Nos. of existing pits (Pit-1, Pit-2 & Pit-3) with pit depth of 8m, 17m, & 2m respectively.
4. The project proponent, N. Thangavelu has applied for Terms of Reference for the Existing Rough Stone & Gravel Quarry lease over an extent of 4.62.0Ha S.F.No.407/2A & 407/2B, Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.
5. 500m Radius cluster from AD/Dept. of G&M Lr. 276/Mines/2022 Dt:07.07.2022 (Cluster Area (13.73 Ha).
6. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
7. As per the precise area communication the lease period is for 5 years. The mining plan is for 5years. The production for 5 years shall not to exceed 440285m³ of Rough Stone & 3372m³ of Gravel (existing dump) and the depth up to 40m BGL.

Based on the presentation and details furnished by the project proponent, **SEAC decided to grant Terms of Reference (TOR) with Public Hearing** subject to the following TORs, 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:


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1. The PP shall furnish mitigation measures for the non-compliance stated in the Certified Compliance Report (CCR) dt:15.06.2023.
2. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.
3. SEAC has noted habitations and school (1.27km) around the proposed mining area, hence the PP shall submit details of mining methodology and impact of dust/particulate emission and vibration on the surrounding environment in regard to peak production of the cluster area along with details of transport route of quarried minerals & mitigation measures adopted for fly rock and fugitive emission due vehicular movement/ transport route.
4. The proponent shall furnish a revised EMP budget for entire life of proposed mining.

Annexure - I

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
 - (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.


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4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,


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13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
14. Quantity of minerals mined out.
 - Highest production achieved in any one year
 - Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on


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- actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
 23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
 24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
 25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
 26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
 27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 28. Impact on local transport infrastructure due to the Project should be indicated.
 29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.


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30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project


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specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.


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Appendix - I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	விலவம்
2	<i>Adenaanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றியணி
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentosa</i>	Iruvathi	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புள்ளை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon sweitenia</i>	Purasamaram	புரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjalllavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவூளி
18	<i>Creteva adansonii</i>	Mavalingum	மாவிளங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சிறு உசா
21	<i>Diospyro sebenuum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kalltchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்புலக
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயிலி
27	<i>Lanea coromandelica</i>	Odhiam	ஒதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	விலா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	பிரம்பா, பிசின்பட்டை
32	<i>Madhuca longifolia</i>	Iluppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	ஈச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்

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40	<i>Premna mollissima</i>	Munnai	முள்ளை
41	<i>Premna serratifolia</i>	Narumunnai	நறு முள்ளை
42	<i>Premna tomentosa</i>	Malaipoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Vanu maram	வன்னி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வெண்ணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	பூலவு
47	<i>Puthranjiva roxburghii</i>	Karipala	கறிபாலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manipungan, Soapukai	மணிப்புகள் சோப்புக்காய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Streblus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	எட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தான் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாண்டி
56	<i>Terminalia arjuna</i>	Ven marudhu	வெண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தன வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வால்கரா
60	<i>Wrightia tinctoria</i>	Veppalai	வெப்பாளல்
61	<i>Pithecolobium dulce</i>	Kodukkapuli	கொடுக்காய்ப்புளி

Appendix-II
Display Board
(Size 6' x5' with Blue Background and White Letters)

—கரங்கம்—

கரங்கத்தில் குவாரி செயல்பாடுகளுக்கான கட்டுத்தரல் அனுமதி கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு வழங்கப்பட்டுள்ளதாகும். தேதியிட்ட உட்படி கட்டுத்தரல் அனுமதி தேதி வரை செயலாக்கத்தாக உடனடி.

புகளில் பகுதி வார்த்தை வெளியீட்டுகின்ற கரங்கம் திட்டம்	குவாரியின் எல்லைகளில் கட்டு வேலை அளவற்ற வேண்டும். கரங்கத்தின் அளவு அனுமதி திட்டத்தில் குறிப்பிடப்பட்டிருக்கும் பிளான் இடம் வேண்டும். கரங்கம் மாசு ஏற்படாதவாறு கரங்க பணிகளை மேற்கொள்ள வேண்டும்.
பட்டினம்/புறநாடுகளை/வெளியே மரங்களை வளர்ப்பதில்	வாகனங்கள் செல்லும் பாதையில் மாசு ஏற்படாத அளவிற்கு தண்ணீரை முறையாக தண்ணீர் வழிகாட்டி மூலமாக அவ்வப்போது தெளிக்க வேண்டும். இரைச்சல் அளவைக் குறைக்க மாசுபாட்டைக் குறைப்பதற்காக குவாரியின் எல்லைகளில் கட்டு அடர்த்தியான பசுமையான ஏற்பாடுகளை வேண்டும்.
கரங்கத்தில் மரம் வளர்ப்பதற்கான உடனடி செயல்பாடுகளை வேண்டும்	கரங்கத்தில் குறிப்பிட்ட ஏற்பாடுகள் இரைச்சல் அளவு 85 டி.பி.எஸ். (DBA) அளவிற்கு மேல் ஏற்படாதவாறு தகுந்த உட்படிபாடுகளை மேல் மேற்கொள்ள வேண்டும்.
கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.	கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.
கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.	கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.
கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.	கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.
கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.	கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.
கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.	கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.
கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.	கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.
கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.	கரங்கம் உட்படி நிபந்தனை மரம் கீழ் கரங்கத்தில் உடனடி பணிகளுக்கு தகுந்த பராமுடி கட்டுவதில் வழங்குவதற்கான கட்டுத்தரல் முறை கட்டுப்பாடு செய்து தர வேண்டும்.

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Discussion by SEIAA and the Remarks:-

The proposal was placed in the 643rd Authority meeting held on 01.08.2023. The authority noted that the subject was appraised in 393rd meeting of SEAC held on 20.07.2023. SEAC has furnished its recommendations for granting Terms of Reference (ToR) along with Public Hearing subject to the conditions stated therein.

After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in 'Annexure B' of this minute.

1. The project proponent shall prepare mine closure plan considering quantity of Topsoil & Weathered rock. If any.
2. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.

Annexure 'B'**Cluster Management Committee**

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.


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7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & soil biological, physical land chemical features .
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - d) Possibilities of water contamination and impact on aquatic ecosystem health.
 - e) Agriculture, Forestry & Traditional practices.
 - f) Hydrothermal/Geothermal effect due to destruction in the Environment.
 - g) Bio-geochemical processes and its foot prints including environmental stress.
 - h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

13. Impact on surrounding agricultural fields around the proposed mining Area.
14. Impact on soil flora & vegetation around the project site.
15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.


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18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.


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Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.

33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

Risk Assessment

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/unfavorable accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others


39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.


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40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, ELA 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


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hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.

- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study


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area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted


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accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers


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- present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
 - 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
 - 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
 - 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
 - 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
 - 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
 - 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
 - 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed


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along with budgetary allocations.

- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.


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- h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
- i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

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


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Mining of Minerals published February 2010.

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


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

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

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


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Copy to:

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



From
Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.N.Thangavelu,
S/o.Nachimuthu Gounder,
153/A, Maraimalai Adigal Street,
Palladam,
Tiruppur District.

Rc.No.276/Mines/2022 Dated: 07.07.2022

Sir,

Sub: Mines & Minerals - Minor Mineral - Coimbatore District - Suler Taluk - Pachapalayam Village - Survey Nos. 407/2A (1.54.0 Hec) and 407/2B (3.08.0 Hec) - over an extent of 4.62.0 hectares of patta land - Application preferred by Thiru.N.Thangavelu for quarrying Roughstone and Gravel - Precise area communicated - Details of quarries situated within 500 meter radial distance - Requested - furnished - reg.

- Ref. 1. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.276/Mines/2022, Dated: 01.07.2022.
2. Thiru.N.Thangavelu, Coimbatore letter dated:06.07.2022.

I invite kind attention to the reference cited wherein Thiru.N.Thangavelu has been issued precise area for the grant of Rough Stone and Gravel quarry lease over an extent of 4.62.0 hectares of patta land in Survey Nos. 407/2A (1.54.0 Hec) and 407/2B (3.08.0 Hec) of Pachapalayam Village, Suler Taluk, Coimbatore District.

In the reference 2nd cited of Thiru.N.Thangavelu has requested to furnish the details of quarries situated within 500 meter radial distance from the proposed area.

In this connection the details of abandoned, expired, existing and proposed quarries situated within 500 meter radial distance from the proposed area are furnished below.

i) Existing Quarries

Sl. No.	Name of the Owner	Village &S.F.Nos.	Extent in Hect.	Lease period	Remarks
1	L.Thangarasu	Pachapalayam 408/2B, 2C	1.81.5	07.08.2017 to 06.08.2022	
2	A.Selvaraj	Pachapalayam 342/7D	1.33.5	22.01.2019 to 21.01.2024	

3.	M.Appusamy	Pachapalayam 408/2A, 3A	1.05.0	06.12.2017 to 05.12.2022	
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ii) Expired Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1	E.Anandhakumar	Pachapalayam 408/2E	1.28.5	11.05.2011 to 10.05.2016	

iii) Abandoned quarries


Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
---NIL---					

iv) Proposed quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Remarks
1	N.Thangavelu	Pachapalayam 407/2A & 407/2B	4.62.0	Subject area Precise area communicated
2	S.Durairaj	Pachapalayam 408/3B, 3C	1.47.5	Precise area communicated
3	Tmt.Bhagyavathi	Pachapalayam 337/2	1.73.0	Precise area communicated
4	K.Ganesh	Pachapalayam 407/1F, 407/1G	1.70.5	Precise area communicated

v) Future Proposed quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Remarks
---NIL---				


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

From

Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To

Thiru.N.Thangavelu,
S/o.Nachimuthu Gounder,
153/A, Maraimalai Adigal Street,
Palladam,
Tiruppur District.

Rc.No.276/Mines/2022 Dated: 07.07.2022

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Pachapalayam Village - Survey Nos. 407/2A (1.54.0 Hec) and 407/2B (3.08.0 Hec) - over an extent of 4.62.0 hectares of patta land - Application preferred by Thiru.N.Thangavelu for quarrying Rough stone and Gravel – Submission of mining plan for approval – approved – regarding.

- Ref: 1. Quarry lease application dated 21.03.2022 preferred by Thiru.N.Thangavelu, Coimbatore District.
2. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.276/Mines/2022, Dated: 01.07.2022.
3. Mining Plan submitted by Thiru.N.Thangavelu dated: 06.07.2022.


In response to the precise area communicated by the Assistant Director of Geology and Mining, Coimbatore, the applicant Thiru.N.Thangavelu vide reference 3rd cited has submitted three copies of mining plan for the grant of Roughstone and Gravel quarry lease over an extent of 4.62.0 hectares of patta land in Survey Nos. 407/2A (1.54.0 Hec) and 407/2B (3.08.0 Hec) of Pachapalayam Village, Sulur Taluk, Coimbatore District.

2. The mining plan submitted for the grant of Roughstone and Gravel quarry lease over an extent of 4.62.0 hectares of patta land in Survey Nos. 407/2A (1.54.0 Hec) and 407/2B (3.08.0 Hec) of Pachapalayam Village, Sulur Taluk, Coimbatore District has been verified in detail.

3. As per the guidelines/instructions issued by the Commissioner of Geology and Mining, Chennai vide letter Rc.No.3868/LC/2012, dated 19.11.2012, the mining plan is hereby approved, subject to the following conditions:

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way imply the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Amended Act, 2015, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv) As per the Assistant Director, Dept. of Geology and Mining, Coimbatore letter Rc.No.276/Mines/2022, Dated: 01.07.2022 the following conditions have been incorporated in the Mining Plan.
- No hindrance should be caused to the adjacent pattadars and public.
 - A safety distance of 7.5 meters should be provided for the adjacent patta lands from the lease applied area.
 - A safety distance of 10 meters should be provided to the road passing on the Northern side of the applied area.
 - A safety distance of 50 meters should be provided to the EB line passing on the Northern side of the applied area.
 - DGPS survey should be done by the Government recognized agency and boundary stones should be erected along the entire boundary of the leased out area.
 - Quarrying should be done in are seeking permission along after leaving proper safety distance.
 - Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

Encl: Two copies of Approved Mining Plan.


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

Copy submitted to:
The Director of Geology and Mining, Chennai-32.


7/7/22



From
Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.N.Thangavelu,
S/o.Nachimuthu Gounder,
153/A, Maraimalai Adigal Street,
Palladam,
Tiruppur District.

Rc.No.276/Mines/2022 Dated: 07.07.2022

Sir,

Sub : Mines & Minerals - Minor Mineral - Coimbatore District - Sulur Taluk - Pachapalayam Village - Survey Nos. 407/2A (1.54.0 Hec) and 407/2B (3.08.0 Hec) - over an extent of 4.62.0 hectares of patta land - Application preferred by Thiru.N.Thangavelu for quarrying Rough stone - Precise area communicated - Mining Plan - approved - further particulars called for - furnished - regarding.

- Ref: 1. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.276/Mines/2022, Dated: 01.07.2022.
2. Thiru.N.Thangavelu, Coimbatore letter dated: 06.07.2022.


In the reference 2nd cited Thiru.N.Thangavelu has requested to furnish certain particulars regarding the precise area granted in Survey Nos. 407/2A (1.54.0 Hec) and 407/2B (3.08.0 Hec) over an extent of 4.62.0 hectares of patta land in Pachapalayam Village, Sulur Taluk, Coimbatore District. In this connection the following details are furnished.

The area was previously held under quarry lease and the details are as follows,

Sl. No.	Name of the Exlessee	SF.No/ Extent	District Collector's proceedings No. & Date	Validity	Lease Period
1	Thiru.Nachimuthu Gounder	407 3.08.0 Hec	Rc.No.88778/94 /X6 dt: 06.08.1994	5 Years	31.08.1994 to 30.08.1999
2	Thiru.N.Thangavelu	407/2A(Part) & 407/2B(Part) 2.59.5 Hec	Rc.No.1219/1999 /MM3 Dt:28.02.2000	5 Years	10.03.2000 to 09.03.2005

3	Thiru.N.Thangavelu	407/2A & 407/2B 4.62.0 Hec	Rc.No.43/2005/M M2 Dt:07.03.2005	5 Years	14.03.2005 to 13.03.2010
4		407/2A & 407/2B 4.62.0 Hec	Rc.No.520/2010/ MM2 Dt:04.11.2010	5 Years	04.11.2010 to 03.11.2015
5		407/2A & 407/2B 4.62.0 Hec	Rc.No.664/Mines/ 2015 Dt: 07.10.2017	5 Years	07.10.2017 to 06.10.2022

At the time of inspection, the quarry pits with a dimension of Pit-I 38 Meter (length) X 107 Meter (width) X 8 Meter depth, Pit-II 254 Meter (length) X 104 Meter (width) X 17 Meter depth and Pit-III 92 Meter (length) X 51 Meter (width) X 2 Meter depth are noticed in the applied area.


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






MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR PACHAPALAYAM ROUGH STONE AND GRAVEL QUARRY

(PREPARED UNDER RULES 41 & 42 AS AMENDED IN TAMIL NADU MINOR MINERAL CONCESSION RULES, 1959)

Patta Lands / Lease Period = Five Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 4.62.0 Ha
S.F.NOS : 407/2A & 407/2B
VILLAGE : PACHAPALAYAM
TALUK : SULUR
DISTRICT : COIMBATORE
STATE : TAMIL NADU

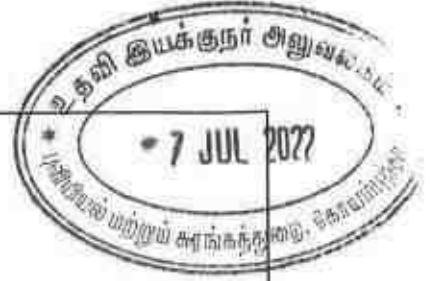
FOR

APPLICANT

Thiru.N.Thangavelu,
S/o. Nachimuthu Goundar,
No. 153/A, Maraimalai Adigal Street,
Palladam Taluk,
Tiruppur District – 641 664.

PREPARED BY

P.Viswanathan, M.Sc.,
Qualified Person
No.17, Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.
E-mail: infogeoexploration@gmail.com



N.Thangavelu,

S/o. Nachimuthu Goundar,
No. 153/A, Maraimalai Adigal Street,
Palladam Taluk,
Tiruppur District – 641 664.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Pachapalayam Rough Stone and Gravel Quarry in S.F.Nos. 407/2A & 407/2B over an extent of 4.62.0 Ha of Patta lands in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared by

P.Viswanathan, M.Sc.,

Qualified Person

I request to the Assistant Director, Department of Geology and Mining, Coimbatore District to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

P.Viswanathan, M.Sc.,

No. 17, Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.

I hereby undertake that all the modifications, if any made in the Mining Plan by the 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

N. Thangavelu

N.Thangavelu

Place: Tiruppur

Date: 02.07.2022



N.Thangavelu,

S/o. Nachimuthu Goundar,

No. 153/A, Maraimalai Adigal Street,

Palladam Taluk,

Tiruppur District – 641 664.

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Pachapalayam Rough Stone and Gravel Quarry in S.F.Nos. 407/2A & 407/2B over an extent of 4.62.0 Ha of Patta lands in Pachapalayam Village, Sulur Taluk, Coimbatore 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

N. Thangavelu

N.Thangavelu

Place: Tiruppur

Date: 02.07.2022



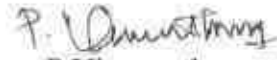
CERTIFICATE

Certified that I am, **P.Viswanathan, M.Sc.**, having an office at Regd. Off. No. 17, Advaita Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate Degree in Applied Geology (M.Sc., Applied Geology) from Periyar University, Salem and I worked in the field of Geology in a role of Geologist.

Rule 19(1) and 20 of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 stipulates the eligibility for preparing Mining plans as “(I)(a) a post graduate degree in Applied Geology granted by a university established” and (I)(b) “Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree”. Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly, I am prepare this Mining Plan and Progressive Quarry Closure Plan in Respect of Pachapalayam Rough Stone and Gravel Quarry in S.F.Nos. 407/2A & 407/2B over an extent of 4.62.0Ha of Patta lands in Pachapalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu State for **Thiru.N.Thangavelu**, S/o. Nachimuthu Goundar, residing at No. 153/A, Maraimalai Adigal Street, Palladam Taluk, Tiruppur District – 641 664, Tamil Nadu State. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person


P.Viswanathan, M.Sc.,

Place: Salem

Date: 05.07.2022

P.Viswanathan, M.Sc.,

No. 17, Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.



CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Pachapalayam Rough Stone and Gravel Quarry in S.F.Nos. 407/2A & 407/2B over an extent of 4.62.0Ha of Patta lands in Pachapalayam Village, Sular Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Thiru.N.Thangavelu,

S/o. Nachimuthu Goundar,
No. 153/A, Maraimalai Adigal Street,
Palladam Taluk,
Tiruppur District – 641 664.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the Assistant Director, Department of Geology and Mining, Coimbatore District, 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 Qualified Person

P. Viswanathan
P. Viswanathan, M.Sc.,

Place: Salem

Date: 05.07.2022

P.Viswanathan, M.Sc.,

No. 17, Advaita Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539.



CERTIFICATE FROM THE 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 Pachapalayam Rough Stone and Gravel Quarry in S.F.Nos. 407/2A & 407/2B over an extent of 4.62.0 Ha of Patta lands in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Thiru.N.Thangavelu,

S/o. Nachimuthu Goundar,

No. 153/A, Maraimalai Adigal Street,

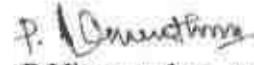
Palladam Taluk,

Tiruppur District – 641 664.

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, II 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 Qualified Person


P. Viswanathan, M.Sc.,

Place: Salem

Date: 05.07.2022



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**MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR
PACHAPALAYAM ROUGH STONE AND GRAVEL QUARRY OVER AN EXTENT
OF 4.62.0 Ha IN PACHAPALAYAM VILLAGE, SULUR TALUK, COIMBATORE
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.N.Thangavelu**, S/o. Nachimuthu Goundar, residing at No. 153/A, Maraimalai Adigal Street, Palladam Taluk, Tiruppur District – 641 664.

The applicant applied for Rough Stone and Gravel quarry over an extent of 4.62.0 Hectares of patta land in S.F.Nos. 407/2A & 407/2B of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State under Rule 19(1) & 20 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the Assistant Director, Department of Geology and Mining, Coimbatore District and passed a precise area communication letter vide **Re.No.276/Mines/2022**, **Dated: 01.07.2022** to submit an approved Mining Plan and obtain Environmental Clearance from the SEIAA, Tamil Nadu with the conditions to provide:

- a. No hindrance shall be caused to the adjoining Patta lands and Public while carrying out Rough Stone and Gravel quarrying operations.
- b. A safety distance of 7.5 meters should be provided to the adjacent patta lands.
- c. A safety distance of 10 meters should be provided to the Road on the North side of the lease applied area.
- d. A safety distance of 50 meters should be provided to the EB Line on the North side of the lease applied area.
- e. Each boundary pillar should be planted via inspected by a government approved company in accordance with DGPS (Differential Global Positioning System) in the lease area.
- f. Quarrying should be done only in the remaining areas leaving a safety distance in the area of the field numbers seeking permission.
- g. Child labor should not be engaged for quarry operation.



In order to ensure compliance of the order of the Honorable Supreme Court Dated: 27.02.2012 in I.A.No.12-13 of 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 than 5Ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state SEIAA notified by MoEF as prescribed procedure 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-1M and Pre-feasibility report to obtain environmental clearance from the SEIAA, Tamil Nadu, 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 - Pachapalayam
- b. Panchayat Union - Sulthanpet
- c. The Geological Resources are **13,04,105m³** of Rough Stone and **8,856m³** of Gravel in the entire area.
- d. The Total Mineable Reserves are **4,40,285m³** of Rough Stone in the entire area and Gravel was removed in previous quarry operation.
- e. The proposed quantity of reserves (level of production) to be mined are **4,40,285m³** of Rough Stone and **3,372m³** of Existing Gravel Dump for five years in the entire area.
- f. Total extent of the lease applied area is about 4.62.0 Ha.
- g. Topography of the area = The area is flat topography
- h. Proposed Depth of mining = 40m (2m Gravel + 38m 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 previously granted in the favour of **Thiru.N.Thangavelu**, over an extent of 4.62.0 hectares of Patta land in S.F.Nos. 407/2A & 407/2B of Pachapalayam Village, Sulur Taluk, Coimbatore District for the period of five years from 07.10.2017 to 06.10.2022 for quarrying of Rough Stone and Gravel. The lessee has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu vide letter No. **SEIAA-TN / F.No. 5486 / 1(a) / EC. No: 3898 / 2016, Dated: 05.06.2017**. Now



the applicant has once again applied a quarry lease on 21.03.2022, over an extent of 4.62.0 hectares of Patta lands in S.F.Nos. 407/2A & 407/2B of Pachapalayam Village, Sulur Taluk, Coimbatore District for the period of five years. The application was meritoriously processed by the Assistant Director, Department of Geology and Mining, Coimbatore District and recommended the quarry lease for the period of five years.

- k. The maximum dimension of the **existing quarry pit** is given table below (Refer Plate No. II).

Existing Pit Dimension (maximum)			
Pit	Length (m)	Width (m)	Depth (m)
I	38	107	8m below ground level
II	254	104	17m below ground level
III	92	51	2m below ground level

- l. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.
- m. 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).
- n. No trees will be uprooted due to this quarry operation.
- o. The approach road from the main road to quarry is already constructed and maintained in a good condition for the haulage of quarry materials and machineries.
- p. There is No Export of this Rough Stone and Gravel.
- q. Topo sketch covering 10Km and 1Km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads and major structure like bridges, wells, archaeological importance and places of worships is marked and enclosed as Plate No. IA and IB.
- r. The lease applied area is about 4.62.0 Ha bounded by eight corners; the corners are designated as 1-8 clock-wise from the Southwestern corner and the Co – ordinates for all the corners are clearly marked in the Quarry Lease Plan and Surface Plan enclosed as Plate No.II.
- s. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are and marked in the Topography, Geological Plan and section enclosed as Plate No. III & III-A.



- t. 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.
- u. There is no wastage anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- v. Around 43 employees are deploying in the quarrying operation.
- w. Total Cost of the project is about **Rs.94,12,000/-**.
- x. Infrastructures around the quarry lease applied area:

Table – 1

Particulars	Location	Approximate aerial distance from lease applied area.
Nearest Post Office	Edayapalayam	3.0km – NE
Nearest School	Pachapalayam	1.0km – W
Nearest Dispensary	Chettipalayam	6.0km – NW
Nearest Town	Kinathukadavu	12.0km – SW
Nearest Police Station	Chettipalayam	6.0km – NW
Nearest Govt. Hospital	Kinathukadavu	12.0km – SW
Nearest D.S.P. Office	Coimbatore	18.0km – NW
Nearest Railway Station	Kinathukadavu	10.0km – SW
Nearest Airport	Coimbatore	15.0km – NW
Nearest Seaport	Kochi	140km – SW
District Head quarters	Coimbatore	18.0km – NW

**2.0 GENERAL INFORMATION**

2.1 a) Name of the Applicant : Thiru.N.Thangavelu,
S/o. Nachimuthu Goundar,

b) Address of the Applicant (With Phone No and Aadhaar No.)

Address : No. 153/A, Maraimalai Adigal Street,
Palladam Taluk,
Tiruppur District.

Pin Code : 641 664

Mobile No : 98422 62639 & 98421 62639

Aadhaar No : 5375 9159 5341

E-mail : thangaminfra@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 only.

b) Precise area communication letter details received from the Competent Authority of the Government:

The precise area communication letter was received from the Assistant Director, Department of Geology and Mining, Coimbatore District vide **Rc.No. 276/Mines/2022, Dated: 01.07.2022** to submit an approved mining plan and Environmental Clearance from the SEIAA, Tamil Nadu.

c) Period of permission / lease to be granted:

Five Years

d) Name and address of the Qualified Person preparing the mining plan:

Name : **P.Viswanathan, M.Sc.,**
Qualified Person

Address : No.17, Advaita Ashram Road,
Alagapuram, Salem - 636 004.

Mobile : 94422 78601 & 94433 56539

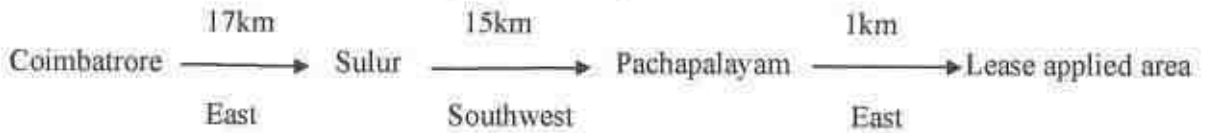
Telephone No. : 0427- 2431989

Email : infogeoexploration@gmail.com

3.0 LOCATION

a) Details of the area with location map:

The lease applied area is located about 18.0km Southeast of Coimbatore, 14.0km Southwest of Sulur and 1.0km East side of Pachapalayam Village.



Location Map of the Lease Applied area

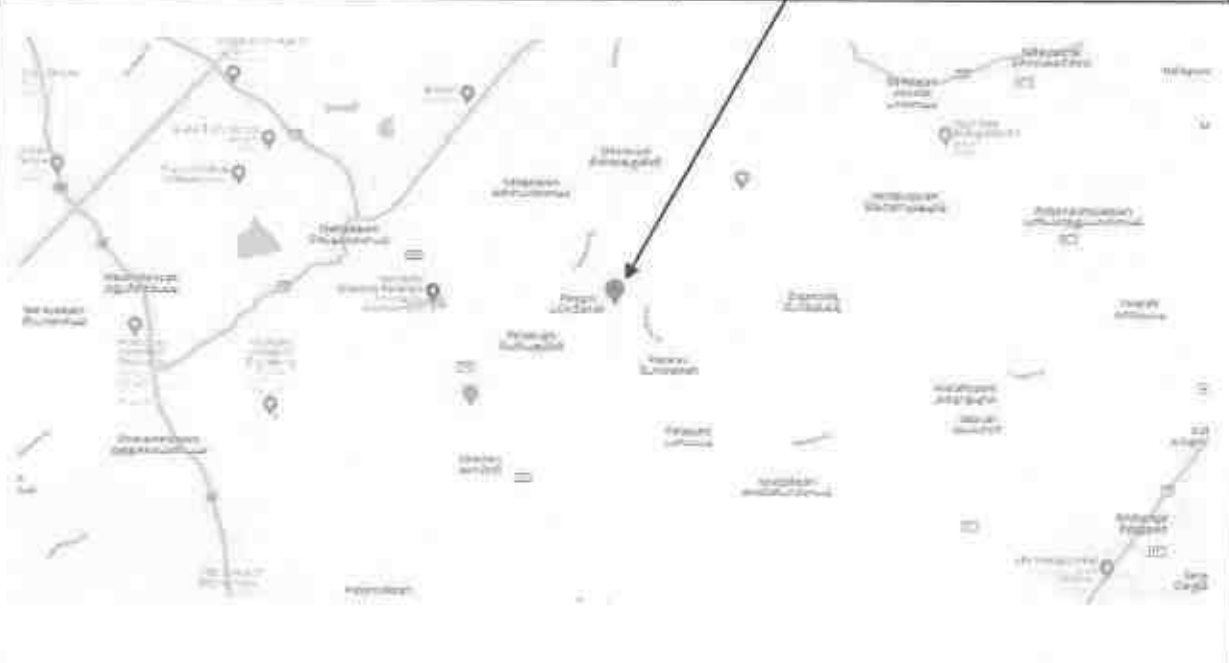
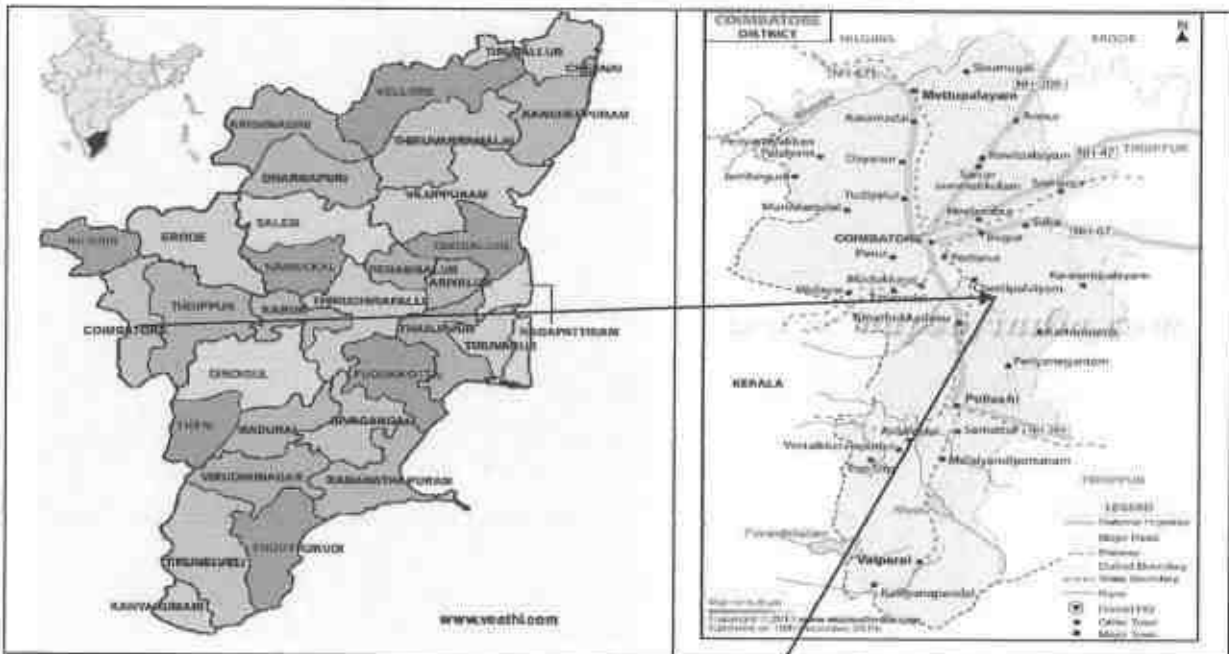




Table - 2

District	Taluk	Village	S.F. No.	Applied Area in Ha.	Patta No.	Classification
Coimbatore	Sulur	Pachapalayam	407/2A	1.54.0	629	Patta land (Refer Annexure Nos. IV to VI)
			407/2B	3.08.0	776	
Total Extent				4.62.0		

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. Registered in the name of the applicant (Thiru.N.Thangavelu). Refer the Patta copy as Annexure No. IV.

d) Toposheet No. with latitude and longitude:

The lease applied area falls in the Toposheet No: 58 - F/01 Latitude between: 10°53'58.36"N to 10°54'10.72"N and Longitude between: 77°05'08.47"E to 77°05'13.86"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 (cart track) road is situated on the North side of the area which is connects to the Pachapalayam – Edayapalayam Road located at adjutant on the North side of the area.

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 in existence, the same will be utilized for haulage and maintained during the entire lease period, tree sapling will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

The Nearest Railway line is Coimbatore - Pollachi which is located about 5.5km on the Western side of the area.

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 flat terrain. The area has gentle sloping towards Western side and altitude of the area is 405m above from Mean Sea level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the existing quarry pit.

The Water level in the surrounding area is 70m in summer and at 65m in rainy seasons below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 689mm.

**Topographical View of Pachapalayam 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 of the Charnockite body is 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 Coimbatore District. Besides, the 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 four sections have been drawn, one cross section along the strike direction as (X-Y) Length wise and another three cross sections are drawn perpendicular to strike as (A-B, C-D & E-F) Width wise to cover the maximum area considered for 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 & III-A). 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 & III-A):

The Geological Resources of Rough Stone and Gravel are calculated up to a maximum depth of 40m [2m Gravel + 38m Rough Stone] below from the general ground level. The total Geological resources are calculated by sectional method and the resources are estimated after depletion of existing quarry pits. The calculation of the geological resources is given below:



Table-3

GEOLOGICAL RESOURCES						
Section	Bench	Length (m)	Width (m)	Depth (m)	Geological Resources of Rough Stone (m ³)	Gravel (m ³)
XY-AB	I	31	32	2	-	1984
	II	32	40	3	3840	-
	III	32	41	3	3936	-
	III	76	152	2	23104	-
	IV	77	152	5	58520	-
	V	77	152	5	58520	-
	VI	77	152	5	58520	-
	VII	77	152	5	58520	-
	VIII	77	152	5	58520	-
	IX	77	152	5	58520	-
Total					382000	1984
XY-CD	I	170	20	2	-	6800
	II	170	20	3	10200	-
	III	170	20	5	17000	-
	IV	170	38	5	32300	-
	V	170	39	2	13260	-
	V	170	144	3	73440	-
	VI	170	144	5	122400	-
	VII	170	144	5	122400	-
	VIII	170	144	5	122400	-
	IX	170	144	5	122400	-
Total					635800	6800
XY-EF	I	4	9	2	-	72
	II	76	65	3	14820	-
	III	76	65	5	24700	-
	IV	77	66	5	25410	-
	V	77	115	5	44275	-
	VI	77	115	5	44275	-
	VII	77	115	5	44275	-
	VIII	77	115	5	44275	-
	IX	77	115	5	44275	-
	Total					286305	72
Grand Total					1304105	8856

Total Geological Resources of Gravel : 8,856m³

Total Geological Resources of Rough Stone : 13,04,105m³

**Existing Pit Dimension:**

The lease applied area has been quarried in earlier, the existing pit dimensions are follows:

Table-4

Existing Pit Dimension (maximum)			
Pit	Length (m)	Width (m)	Depth (m)
I	38	107	8m below ground level
II	254	104	17m below ground level
III	92	51	2m below ground level

Available Mineable Reserves:

The Available mineable reserves are calculated after leaving the safety distance and Bench loss.

Table - 5

MINEABLE RESERVES					
Section	Bench	Length (m)	Width (m)	Depth (m)	Mineable Reserves of Rough Stone (m ³)
XY-AB	III	38	102	2	7752
	IV	33	92	5	15180
	V	28	82	5	11480
	VI	23	72	5	8280
	VII	18	62	5	5580
	VIII	13	52	5	3380
	Total					51652
XY-CD	V	170	97	3	49470
	VI	170	87	5	73950
	VII	170	77	5	65450
	VIII	170	67	5	56950
	IX	170	57	5	48450
Total					294270
XY-EF	II	68	47	3	9588
	III	65	41	5	13325
	IV	61	30	5	9150
	V	56	72	5	20160
	VI	51	62	5	15810
	VII	46	52	5	11960
	VIII	41	42	5	8610
	IX	36	32	5	5760
Total					94363
Grand Total					440285

The mineable reserves have been computed as 4,40,285m³ of Rough Stone at the rate of 100% recovery upto a depth of 40m below ground level for a period of five years and Gravel was removed in previous quarry operation.

**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 pits 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 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 was already removed during previous quarry lease period and dumped on the North, South and West side. The Existing Gravel Dump 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 & III-A.

Year wise Development and Production

Table - 6

YEARWISE RESERVES								
Section	Year	Bench	Length (m)	Width (m)	Depth (m)	Recoverable Reserves of Rough Stone (m ³)	Existing Gravel Dump (m ³)	
XY-EF	I	Dump-I	148	5	2		1480	
		II	68	47	3	9588		
		III	65	41	5	13325		
		IV	61	30	5	9150		
		V	56	72	5	20160		
		VI	51	62	5	15810		
		VII	46	52	5	11960		
XY-CD	I	V	15	97	3	4365		
		VI	10	87	5	4350		
	Total						88708	1480
	II	Dump-II	125	5	2		1250	
		V	60	97	3	17460		
		VI	60	87	5	26100		
		VII	65	77	5	25025		
		VIII	60	67	5	20100		
	Total						88685	1250
	XY-CD	III	Dump-III	107	3	2		642
V			80	97	3	23280		
VI			80	87	5	34800		
VII			80	77	5	30800		
Total						88880	642	
IV		V	15	97	3	4365		
		VI	20	87	5	8700		
	VII	25	77	5	9625			
	VIII	45	67	5	15075			
	III	38	102	2	7752			
	IV	33	92	5	15180			
	V	28	82	5	11480			
	VI	23	72	5	8280			
XY-AB	VII	18	62	5	5580			
	VIII	13	52	5	3380			
	Total						89417	
	XY-CD	V	VIII	65	67	5	21775	
			IX	170	57	5	48450	
	XY-EF		VIII	41	42	5	8610	
			IX	36	32	5	5760	
	Total						84595	
Grand Total						440285	3372	

The Recoverable reserves have been computed as 4,40,285m³ of Rough Stone and 3,372m³ of Existing Gravel Dump for the five years at 100% recovery upto a depth of 40m below ground level.



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 these five years plan period	=	4,40,285m ³
Hence total Lorry loads per day	=	4,40,285m ³ /6m ³
	=	73,381 Lorry loads
	=	73,381/5 years
	=	14,676/300 days
Rough Stone	=	48 - 49 Lorry loads per day

Total quantity of Existing Gravel Dump to be removed during three years = 3,372m³

Hence total Lorry loads per day	=	3,372m ³ /6m ³
	=	562 Lorry loads
	=	562/3 years
	=	187/300 days
Existing Gravel Dump	=	0.6 Lorry loads per day

Working hours = 8.00 am to 5.00 pm (with 12.00-1.00 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	11	30-35	1.2m to 2.0m	Compressed air
2	Compressor	3	-	400 psi	Diesel Drive

II. EXCAVATION & LOADING EQUIPMENT:

S.No.	Type	Nos	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	2	300	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S.No.	Type	Nos	Capacity	Motive Power
1	Tipper	4	20 tonnes	Diesel Drive

**5.6. Disposal of Overburden/Waste:**

The overburden in the form of Gravel formation, the Gravel was already removed during previous quarry lease period and dumped on the North, South and West side. The Existing Gravel Dump 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 (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 (m) (Max)	Width (m) (Max)	Depth(m) (Max)
288	134	40m 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. It is proposed 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

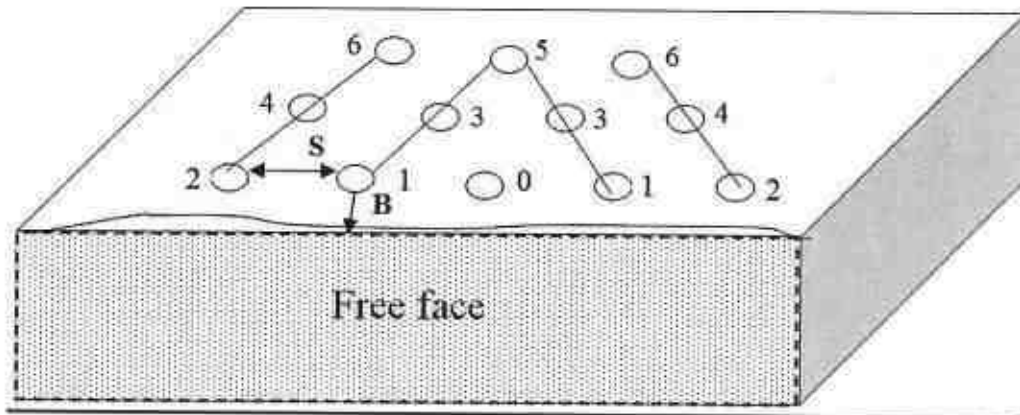
6.1 Blasting pattern:

The quarrying operation is proposed to be carried out by Mechanized Opencast Method in conjunction with conventional method of mining using Jack hammer drilling and blasting of shattering effect for loosening 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° 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	=	254 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	= 254 Holes
Yield	= 763 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 127 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30 P.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 having 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 70m in summer season and 65m in Rainy season which is observed from the 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	55m North side	10°54'12.45"N 77°05'13.17"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):

The EB line is passing on the North side of the lease applied area, hence 50m safety distance has been maintained. There is no other EB Lines (HT/LT) within 50m radius from the lease applied area.

8.3 Water bodies (river, pond, lake, odai, canal, etc.,):

There is no River, Pond, Lake, Canal, Odai, Reservoir located within 50m radius of the lease applied area.

8.4 Archaeological / historical monuments:

There are no Archaeological / historical monuments within 500m radius of the area.

8.5 Road (NH, SH others):

The Nearest National Highway (NH - 83) Nagapattinam – Coimbatore Road is situated about 9.0km on the Southwestern side of the lease applied area.

The State Highway (SH-163) Palladam – Cochin Frontier Road is about 5.0km on the Northwestern side of the lease applied area.

The Major District Road (MD-522) Vadachittur - Chettipalayam Road is situated about 3.0km on the Southern side of the lease applied area

8.6 Places of worships:

There is no place of worships within the radius of 500m 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 1.0km radius of the lease applied area.

**SALIENT FEATURES**

Table - 10

S. No.	Salient Features Present around the site	Prescribed safety distance	If any present within Prescribed distance - Actual Distance and direction from the site																	
1.	Railways, Highways, Reservoirs or Canal	50m	None of the above situated within 50m radius.																	
2.	Village Road	10m	Panchayat Road is situated on the North side of the lease applied area; hence 10 meters safety distance has been maintained. No other Village Road is located within 10m radius of the area.																	
3.	Habitation / Village	300m	There is no approved habitation within 300m radius from the lease applied area.																	
4.	Adjacent Patta/Govt. Land	7.5m/10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td rowspan="2">North</td> <td>Panchayat Road</td> <td>10m</td> </tr> <tr> <td>EB Line</td> <td>50m</td> </tr> <tr> <td>East</td> <td>Patta Land</td> <td>7.5m</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> </tbody> </table> <p>(Refer Plate No. II).</p>	Direction	Classification	Safety Distance	North	Panchayat Road	10m	EB Line	50m	East	Patta Land	7.5m	South	Patta Land	7.5m	West	Patta Land	7.5m
Direction	Classification	Safety Distance																		
North	Panchayat Road	10m																		
	EB Line	50m																		
East	Patta Land	7.5m																		
South	Patta Land	7.5m																		
West	Patta Land	7.5m																		
5.	Power House, EB line (HT & LT Line)	50m	The EB line is passing on the North side of the lease applied area, hence 50m safety distance has been maintained. There is no other EB Lines (HT/LT) within 50m radius from the lease applied area.																	
6.	Boundaries of the permitted area	7.5m/10m	The boundaries of the permitted areas as follows: North - S.F.No. 406 East - S.F.No. 408 South - Pogampatty Village West - S.F.No. 407/1G, 407/1D & 407/1C2 (Refer Plate No. II).																	
7.	Reserve forest / protected area / ECO sensitive area	1km	There is no reserved forest located within the radius of 1.0km from the lease applied area.																	
8.	Protected area / ECO sensitive area/ Wild Life Sanctuary/ Interstate Border	10km	There is no ECO sensitive Zone/ Wild Life Sanctuary/ Interstate Border/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area.																	

**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. Mine official & Competent Persons:

Mines Manager/Mines Foreman : 1

Mate/Blaster : 1

b. Machinery Operators

Hand jack hammer operator : 22

Excavator Operator : 2

Tippers Driver : 4

c. Ordinary Employee

Helper : 5

Cleaner & Co-Operator : 6

Security : 2

Total : 43

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 Pachapalayam which is located about 1.0km on the Western side of the lease applied area.

b) Sanitary Facilities:

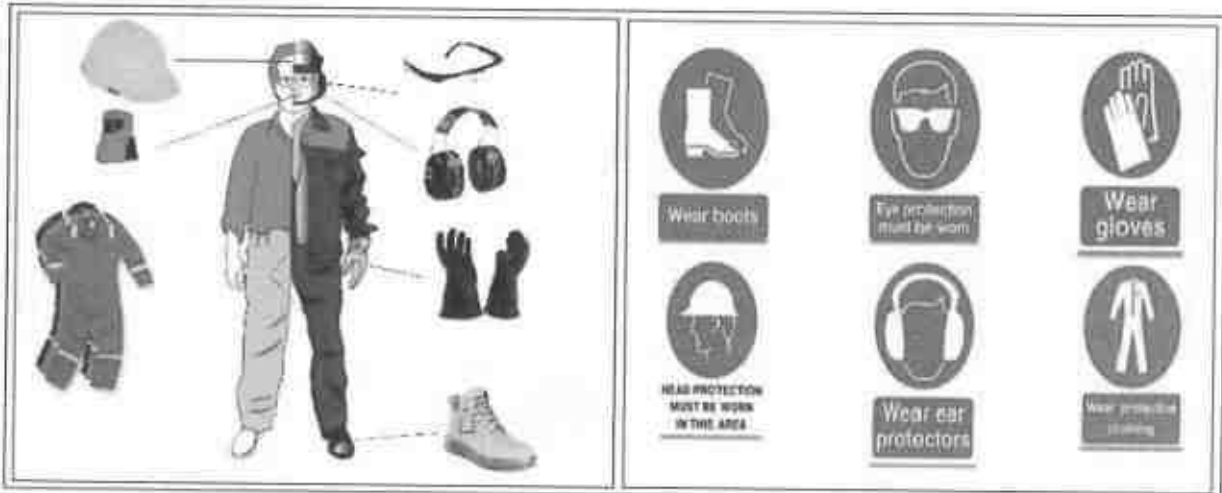
Hygienic modern Sanitary Facilities will be constructed in the safety area as semi permanent structure and it will be maintained periodically.

**c) First aid facility:**

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be 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 Kinathukadavu located at a distance of 12.0km on the Southwestern side.

d) Labour Health:

Periodically medical check-up related to occupational health safety will be conducted to all the workers in applicant own cost.

f) Precautionary safety measures to the labourers:

- Helmets,
- Mine Goggles,
- Ear plugs,
- Ear muffs,
- Dust mask,
- Reflector jackets
- Safety Shoes

All personnel protective devices will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic Rough Stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men and machinery and to create awareness about conventional opencast quarrying operations.

**PART – B****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 land is not used for any specific vegetation.

LAND USE PATTERN

Table – 11

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area under quarrying	3.41.0	3.41.0
Infrastructure	0.04.0	0.04.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.30.0
Unutilized Area	1.15.0	0.85.0
Grand Total	4.62.0	4.62.0







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 Climate change.

10.3 Flora and Fauna:

Table – 12

S.No	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Prosopis juliflora</i>	Fabaceae	Seemai karuvelam	Tree	
2.	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree	
3.	<i>Cocos nucifera</i>	Areaceae	Thennai	Tree	
4.	<i>Aloe vera</i>	Asphodelaceae	Katralai	Shrub	
5.	<i>Borassus flabellifer</i>	Areaceae	Panai	Tree	
6.	<i>Cissus quadrangularis</i>	Vitaceae	Pirandai	Shrub	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	<i>Capra aegagrus hircus</i>	Goat	
2.	<i>Funambulus palmarum</i>	Squirrel	
3.	<i>Bos taurus</i>	Cow	
4.	<i>Danaus plexippus</i>	Striped tiger	
5.	<i>Corvus leuillantii</i>	Crow	
6.	<i>Agrion sp & Petalura sp</i>	Dragon fly	

**10.4 Climatic Conditions:**

The area receives rainfall of about 689mm/annum and the rainy season is mainly from Oct-Dec during monsoon. The summer is hot with maximum temperature of 35°C and winter encounters a minimum temperature of 21°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.	Edayapalayam	3.0km – NE	2,400
2.	Ponakani	2.0km – SE	1,800
3.	Pachapalayam	1.0km – W	3,100
4.	Chinnakuyili	3.0km – N	1,500

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Kinathukadavu located at a distance of 12.0km on the Southwestern 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 40m has been envisaged as workable depth for safe & economic mining during entire lease applied area. The quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. There is no waste hence, no proposal for backfilling. The barbed wire fencing cost would be around **Rs.2,76,000/-**.



10.11 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):

The safety zone along the boundary barrier 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 trees proposed to be planted	Survival %	Area to be covered sq.m.	Name of the species	No. of trees expected to be grown
I	70	80%	600	Neem, Pongamia pinnata, Casuarina, etc.,	56
II	70	80%	600		56
III	70	80%	600		56
IV	70	80%	600		56
V	70	80%	600		56

Nearly 3,000 sq.m area is proposed to use under Greenbelt by planting 350 Numbers of trees during mining plan period 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.35,000/-** for the period of five years.

The Greenbelt Development will be formed in around quarried out top benches, Approach Road and Panchayat Road. The cost would be around **Rs.20,000/-**

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

Budget Provision for the Mining Plan 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 is calculated as follows, <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>S.F.No</th> <th>Extent</th> <th>Cost/Ha</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>407/2A</td> <td>1.54.0</td> <td>1987000</td> <td>3059980</td> </tr> <tr> <td>407/2B</td> <td>3.08.0</td> <td>1987000</td> <td>6119960</td> </tr> <tr> <td>Total</td> <td>4.62.0</td> <td>Total</td> <td>9179940</td> </tr> </tbody> </table> <p>i.e., Rs.17,97,000/- (Source: https://tnreginet.gov.in/portal/)</p>	S.F.No	Extent	Cost/Ha	Total	407/2A	1.54.0	1987000	3059980	407/2B	3.08.0	1987000	6119960	Total	4.62.0	Total	9179940	Rs.17,97,000/-
S.F.No	Extent	Cost/Ha	Total															
407/2A	1.54.0	1987000	3059980															
407/2B	3.08.0	1987000	6119960															
Total	4.62.0	Total	9179940															
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.50,00,000/-																
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattle cost would be around	Rs.2,76,000/-																
iv) Labourers shed	Labour sheds already constructed as semi permanent structure. The cost is around	Rs. 3,00,000/-																
v) Sanitary facility	Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around	Rs. 1,20,000/-																
vi) Others items	First aid room & accessories	Rs. 1,50,000/-																
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	Rs. 2,00,000/-																
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	Rs. 1,00,000/-																
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. 3,00,000/-																



x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	Rs. 3,00,000/-
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. 2,49,000/-
xii) Greenbelt etc.	Greenbelt development and maintenance will be carried out in the boundary barriers the cost would be around	Rs. 35,000/-
xiii)	Greenbelt development and maintenance will be carried out in the quarried out top benches, approach road and panchayat road	Rs. 20,000/-
Total Project Cost		Rs.88,47,000/-
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/-		
Description		Amount (Rs.)
A. Operational Cost		88,47,000
B. EMP Cost		3,80,000
Total Project Cost (A+ B)		92,27,000
The applicant indents to involve corporate environment responsibilities (CER) activity like Water purifier, Cot & Bed and Medicine storage rack facilities to the nearby Govt. Primary Health Centre and Water Purifier, Bench & Table and Sanitary facilities to the nearby Govt. School at 2.0% from the total project cost. The Cost would be around Rs. 1,85,000/- .		1,85,000
Total Cost		94,12,000
The Total cost would be around ninety four lakhs and twelve thousand 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 of 4.62.0 Hectares of patta land in S.F.Nos. 407/2A & 407/2B of Pachapalayam Village, Sular Taluk, Coimbatore District, Tamil Nadu State has been prepared for **Thiru.N.Thangavelu**, S/o. Nachimuthu Goundar, residing at No. 153/A, Maraimalai Adigal Street, Palladam Taluk, Tiruppur District – 641 664.

11.2 Present Land use pattern:

Land Use Table – 16

Description	Present area (Ha)
Quarrying Pit	3.41.0
Infrastructure	0.04.0
Roads	0.02.0
Green Belt	Nil
Unutilized Area	1.15.0
Grand Total	4.62.0

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 Rough Stone.

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 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 stipulated in the precise area communication letter before grant of quarry lease and during the course of quarry operations.

11.7 Progressive quarry closure plan preparation:

Name and address of the 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.

Name : **P.Viswanathan, M.Sc.,**
 Qualified Person
 Address : No.17, Advaita Ashram Road,
 Alagapuram, Salem District – 636 004.
 Telephone : 0427- 2431989 (Office)
 Cell No : +91 94422 78601 & 94433 56539

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:

There is no waste generated during entire life of quarry, hence backfilling is not possible in the quarried out pit. The entire quarry area is an active also no proposal given for Progressive quarry closure plan in the previous mining plan hence, the applicant has not taken any action for progressive quarry closure. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure plan during this plan period, it will be discuss in the ensuing Mining Plan.

11.9 Closure Plan:

(i) Mined Out Land:

At the end of mining plan period, about 3.41.0 Ha of area will be mined out. Land use at various stages is given in the table below.

Land Use Table – 17

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area Under Quarrying	3.41.0	3.41.0
Infrastructure	0.04.0	0.04.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.30.0
Unutilized Area	1.15.0	0.85.0
Grand Total	4.62.0	4.62.0

The Greenbelt Development will be formed in around the quarried out top benches, approach road and panchayat road 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 Rough Stone and Gravel is 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 unauthorized person 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 and proper signal by siren alarm will be given to the public before blasting to prevent accident.
- 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 Greenbelt Development will be formed in around the quarried out top benches, approach road and panchayat road 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:
 - Quarry roads and approach roads,
 - Fencing on approach roads,
 - Checking and maintenance of machines and equipment,
 - Drinking water arrangements,
 - Quarry 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 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	COST (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	70	70	70	70	70	@100 Rs Per sapling	35,000/-
	Cost	7000	7000	7000	7000	7000		
Plantation in the quarried out top benches, approach road and panchayat road	Nos.	40	40	40	40	40	@300 Rs Per Meter	20,000/-
	Cost	4000	4000	4000	4000	4000		
Wire Fencing (In Mtrs) 920 Mtrs		2,76,000	-	-	-	-	@300 Rs Per Meter	2,76,000/-
Garland drain (In Mtrs) 830 Mtrs		2,49,000	-	-	-	-	@300 Rs Per Meter	2,49,000/-
TOTAL								5,80,000/-

- 7 JUL 2022

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

P. Viswanathan
P. Viswanathan, M.Sc.,
Qualified Person

Place: Salem

Date: 05.07.2022

DONATE RED

SPREAD GREEN

SAVE BLUE

This Mining Plan is Approved
subject to the conditions / stipulation
& indicated in the Mining Plan Approval
Letter No: 276/Mines/2022 dt 7-7-22
office of the A.D. Geology & Mining, Coimbatore

This Mining Plan is Approved based on the
incorporation of the particulars specified
in the letter of the commissioner of Geology
and Mining, Chennai ref No: 3663/1.C/2012
Dated 19.11.2012 and subjected to further
fulfilment of the condition laid down under
Tamil Nadu Minor Mineral Concession Rule: 10*

[Signature]
ASSISTANT DIRECTOR
DEPARTMENT OF GEOLOGY & MINING
COIMBATORE DISTRICT.



ந.க.எண்.276/கனிமம்/2022

நாள்: 01.07.2022

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - கோயம்புத்தூர் மாவட்டம் - தூலூர் வட்டம் - பச்சாபாளையம் கிராமம் - புல எண்கள். 407/2A-ல் 1.54.0 ஹெக்டேர் மற்றும் 407/2B-ல் 3.08.0 ஹெக்டேர் ஆக மொத்தம் 4.62.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு.N.தங்கவேலு என்பவருக்கு - குவாரி குத்தகை அனுமதி வழங்குவது - தொடர்பாக.

- பார்வை:**
1. திரு.நா.தங்கவேலு, த/பெ.நாச்சிமுத்துகவுண்டர், 153/A, மறைமலை அடிகள் வீதி, பல்லடம், திருப்பூர் மாவட்டம் என்பவரது விண்ணப்பம் நாள்: 21.03.2022.
 2. இவ்வலுவலக கடிதம் இதே எண். நாள்: 24.03.2022.
 3. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு அவர்களின் கடித ந.க.எண். 1987/2022/அ2 நாள்: 13.05.2022.
 4. உதவி புலியியலாளர், புலியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் அவர்களின் தணிக்கை அறிக்கை நாள்: 07.06.2022.
 5. இயக்குநர், புலியியல் மற்றும் சுரங்கத்துறை, சென்னை கடிதம் எண். 1870/எம்.எம்-1/2020 நாள்: 12.08.2020.

பார்வை 1-ல் திருப்பூர் மாவட்டம், 153/A, மறைமலை அடிகள் வீதி, பல்லடம் என்ற முகவரியில் வசிக்கும் திரு.நாச்சிமுத்து கவுண்டர் என்பவரின் மகன் திரு.N.தங்கவேலு என்பவர் கோயம்புத்தூர் மாவட்டம், தூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண். 407/2A-ல் 1.54.0 ஹெக்டேர் மற்றும் புல எண். 407/2B-ல் 3.08.0 ஹெக்டேர் ஆக மொத்தம் 4.62.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரி உரிய ஆவணங்களுடன் விண்ணப்பித்துள்ளார்.

மேற்படி மனு தொடர்பாக, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு மற்றும் கோயம்புத்தூர் புலியியல் மற்றும் சுரங்கத்துறை உதவி புலியியலாளர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு திருப்பூர் மாவட்டம், 153/A, மறைமலை அடிகள் வீதி, பல்லடம் என்ற முகவரியில் வசிக்கும் திரு.நாச்சிமுத்து கவுண்டர் என்பவரின் மகன் திரு.N.தங்கவேலு என்பவருக்கு

கோயம்புத்தூர் மாவட்டம், தூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள் 407/2A-ல் 1.54.0 ஹெக்டேர் மற்றும் 407/2B-ல் 3.08.0 ஹெக்டேர் ஆக மொத்தம் 4.62.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க சில நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளார்கள்.



அனுமதி கோரும் புல எண்கள் 407/2A மற்றும் 407/2B ஆகியவை பட்டா எண்கள் முறையே 629 மற்றும் 776-ன் படி மனுதாரர் திரு.தங்கவேலு பெயரில் தனிப்பட்டவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. எனவே மேற்படி பூமியில் மனுதாரர் குவாரி குத்தகை உரிமம் பெற தகுதியுடையவர் ஆவார்.

எனவே, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு மற்றும் உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் ஆகியோரின் பரிந்துரைகளின் அடிப்படையில் திருப்பூர் மாவட்டம், 153/A, மறைமலை அடிகள் வீதி, பல்லடம் என்ற முகவரியில் வசிக்கும் திரு.நாச்சிமுத்து கவுண்டர் என்பவரின் மகன் திரு.N.தங்கவேலு என்பவருக்கு கோயம்புத்தூர் மாவட்டம், தூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்கள். 407/2A-ல் 1.54.0 ஹெக்டேர் மற்றும் 407/2B-ல் 3.08.0 ஹெக்டேர் ஆக மொத்தம் 4.62.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 1959-ஆம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் விதி 19(1) மற்றும் 20-ன் படி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றும் நாளிலிருந்து 5 (ஐந்து) ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு குவாரி குத்தகை வழங்குவதற்குரிய நிலப்பரப்பாக (Precise Area Communication) கருதப்படுகிறது.

நிபந்தனைகள்

1. அருகிலுள்ள பட்டா நிலங்களுக்கும் மற்றும் பொது மக்களுக்கும், எவ்வித இடையூறும் இன்றி சாதாரண கல் மற்றும் கிராவல் குவாரிப்பணி மேற்கொள்ள வேண்டும்.
2. அருகில் உள்ள பட்டா நிலத்திற்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
3. அனுமதி கோரும் புலத்திற்கு வடக்கு பகுதியில் அமைந்துள்ள சாலைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
4. அனுமதி கோரும் புலத்திற்கு வடக்கு பகுதியில் செல்லும் மின்னழுத்த கம்பி பாதைக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
5. அனுமதி கோரும் புலத்தினை அரசு அங்கீகாரம் பெற்ற நிறுவனத்தினரால் DGPS (Differential Global Positioning System)-ன் படி ஆய்வு செய்யப்பட்டு ஒவ்வொரு எல்லைத்

- தூண்களும் நடப்பட வேண்டும்.
6. அனுமதி கோரும் புல எண்களுக்குரிய விஸ்தரணத்தில் பாதுகாப்பு இடைவெளி விட்டு மீதமுள்ள பகுதிகளில் மட்டுமே குவாரிப்பணி மேற்கொள்ள வேண்டும்.
 7. குழந்தை தொழிலாளர்களை வேலைக்கு அமர்த்தல் கூடாது.



மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள்-1959 விதி எண். 41 மற்றும் 42-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு அதிகார அமைப்பின் அனுமதியினை பெற்று சமர்ப்பிக்கவும் மனுதாரரை கேட்டுக் கொள்ளப்படுகிறது.

~~உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை
கோயம்புத்தூர்.~~

பெறுநர்:
திரு.நா.தங்கவேலு,
த/பெ.நாச்சிமுத்துகவுண்டர்,
153/A, மறைமலை அடிகள் வீதி,
பல்லடம், திருப்பூர் மாவட்டம்.

11/7/22

District : Coimbatore

Survey No : 407

ANNEXURE II

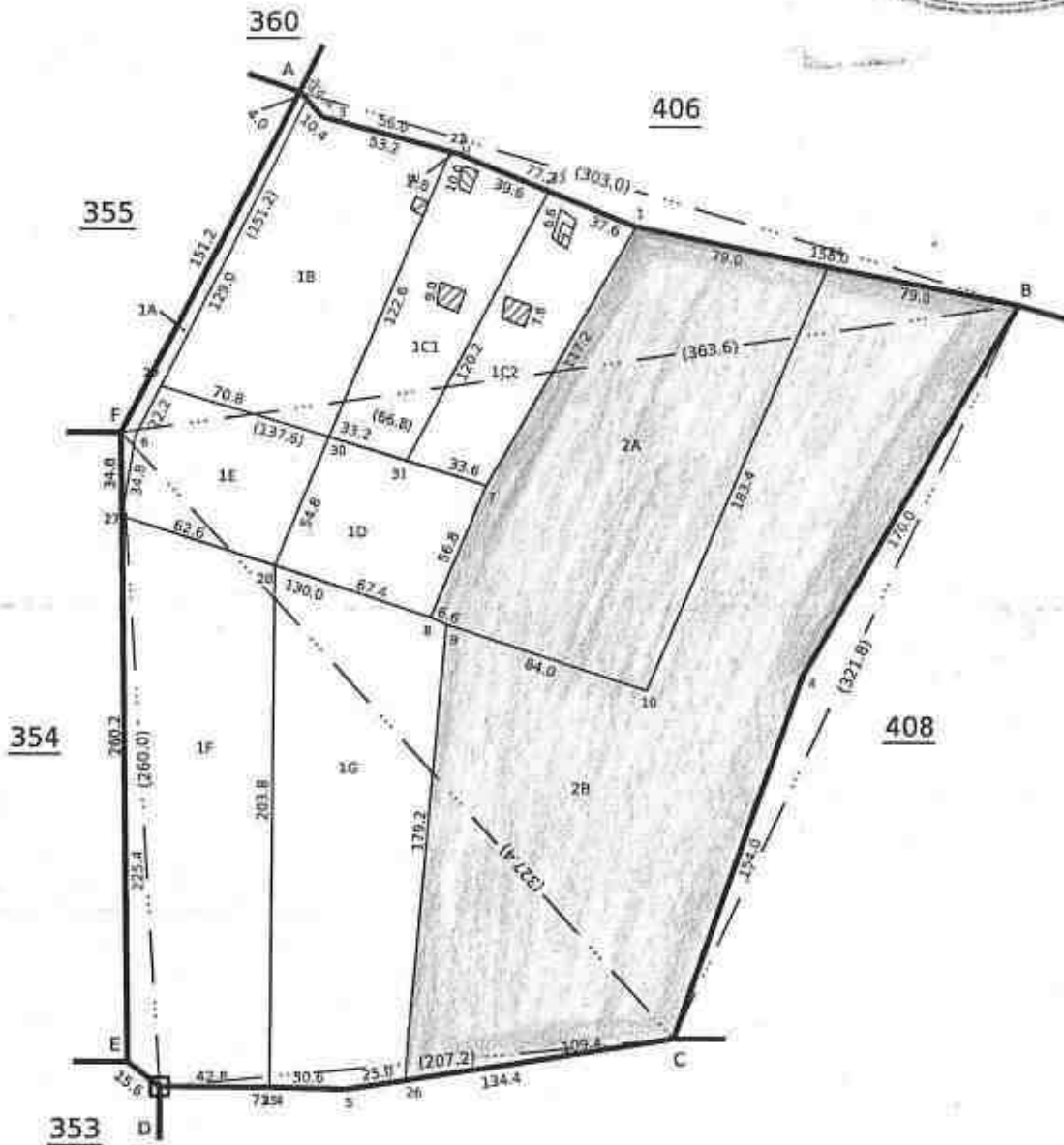
Taluk : SULUR

Area : Hect 09 Acres 58.00

Village : Pachapalayam. [25]

Scale : 1 : 2000

7 JUL 2022




V.NO: 44.BOGAM PATTY

LEASE APPLIED AREA 



ANNEXURE III



LEASE APPLIED AREA 



தமிழக அரசு

வருவாய்த் துறை

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

ANNEXURE IV



வட்டம் : தலூர்

பட்டா எண் : 629

மாவட்டம் : கோயம்புத்தூர்

வருவாய் கிராமம் : பச்சாபாளையம்

உரிமையாளர்கள் பெயர்

1. பி.நாச்சிமுத்து கவுண்டர்

மகன்

என்.தங்கவேலு

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
407	2A	1 - 54.00	3.10	--	--	--	--	R10/1086C--- -- 02-02-2001
		1 - 54.00	3.10					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/025/00629/80597 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 30-04-2022 அன்று 10:28:28 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழக அரசு
வருவாய்த் துறை

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

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

வருவாய் கிராமம் : பச்சாபாளையம்

பட்டா எண் : 776

உரிமையாளர்கள் பெயர்

1. நாச்சிமுத்துக் கவுண்டர்

மகன்

தங்கவேல்



புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
407	2B	3 - 8.00	6.21	--	--	--	--	R10/1086A---- - 02-02-2001
		3 - 8.00	6.21					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/025/00776/90560 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 02-07-2022 அன்று 10:39:06 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

அ-பதிவேடு விவரங்கள்



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : தூலூர்

கிராமம் : பச்சாபாளையம்

1. புல எண்	407	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	2A	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-2P	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 54.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	3.10
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	629
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. மூல போகமா	1	16. பெயர்	1.என்.தங்கவேலு

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60597 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : துலூர்

கிராமம் : பச்சாபாளையம்

1. புல எண்	407	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	2B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-2P	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	3 - 8.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	6.21
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	776
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	1	16. பெயர்	1.தங்கவேல்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60560 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

பெரும்புள்ளி எண் / PERMANENT ACCOUNT NUMBER

ACJPT2528F



பெயர் / NAME

NACHIMUTHUGOUNDER
THANGAVELU

அவரின் பெயர் / FATHER'S NAME

NACHIMUTHUGOUNDER

பிறந்த தேதி / DATE OF BIRTH

04-03-1951

கையொப்பம் / SIGNATURE

கருவாசல் அமைப்பு மற்றும் தகவல் துறை
Commissioner of Income Tax (Computer Operation)



பெரும்புள்ளி எண் அலுவலகம்
கட்டுப்பாட்டுத் துறை
பெரும்புள்ளி எண் அலுவலகம்
கட்டுப்பாட்டுத் துறை
கட்டுப்பாட்டுத் துறை

கருவாசல் அமைப்பு
மற்றும் தகவல் துறை
67-A, Race Course Road,
Columbature - 641 018

In case this card is lost/found, kindly inform/return to the issuing authority :

Commissioner of Income-tax,
67-A, Race Course Road,
Columbature - 641 018.



இந்திய அரசாங்கம்

भारत सरकार



Thangavelu

Male

5375 9159 5341



முகவர் உதவி
கல்யாண சிவசாமிநாதன்
மங்கலம் ரோடு, மலையாளம், மலையாளம்
மலையாளம் திருப்பூர் தலைநகரம்
641664

Address: S/O Nachimuthu
Goundar, 153/A,
MARAIMALADI GALSTREET,
MANGALAM ROAD,
PALLADAM TALUK,
Tiruppur, Tamil Nadu,
641664

5375 9159 5341

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

1947
1800 200 1947

help@uidai.gov.in

www.uidai.gov.in



பெரியார் பல்கலைக்கழக ஆட்சிக்குழு 2010 ஆம் ஆண்டு ஏப்ரல் மாதம் நடந்த பயன்பாட்டுப்புவிமையமைப்பியல் தேர்வில் அரசு கலைக் கல்லூரி, சேலம் - 636 007 (தன்னாட்சி) பயின்ற P விஸ்வநாதன் என்பவர் முதல் வகுப்பு A++ தரத்தில் தேர்ச்சி பெற்றார் என்று தக்க தேர்வாளர்கள் சான்றளித்தபடி அறிவியல் நிறைஞர் என்னும் பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சினையுடன் வழங்குகிறது.

The Syndicate of the Periyar University hereby makes known that
VISWANATHAN P *has been admitted to the*
DEGREE OF MASTER OF SCIENCE in APPLIED GEOLOGY
he/she having been certified by duly appointed Examiners to be qualified to receive the same and was placed in the
FIRST CLASS WITH A++ GRADE *at the Examination held in*
APR-2010 *through*
GOVERNMENT ARTS COLLEGE, SALEM - 636 007 (AUTONOMOUS).



Given under the seal of this university

நாள்
Dated 28/02/2011
சேலம் 636011, தமிழ்நாடு, இந்தியா.
Salem 636011, Tamil Nadu, India.

பதிவாளர்
Registrar

துணைவேந்தர்
Vice-Chancellor

TIN. No. : 3312 2703755
C.S.T. No. : 880783 / 29.11.2005
Area Code : 142



ANNEXURE IX

Pb : Mines - 0427 - 2403645

Fact : 0400046



SUDHARSHAAN MINING CORPORATION

Mfrs : Dead Burnt Magnesite, Lightly Calcined Magnesite, Dunite Chips & Powder. ...
S.F. No. 77, Kuduvampatty Road, Vinayagampatti, SALEM - 636 008.

Date : 28.12.2015.....

EXPERIENCE CERTIFICATE

This is to certify that **Shri.P.Viswanathan, S/o. P.Paramasivam, Geologist,** has worked in our Magnesite Mines from **13.09.2010 to 25.11.2015** as our company Geologist. During his service he used to maintain all records and returns submitted to Government Departments.

His nature of work in the mines was to show the plan of working and demarcate Magnesite reserve areas. He was looking after production of Magnesite and was maintaining quality of the Mineral as per the specifications given by the buyers.

During his tenor of his service he was very sincere and prompt in his duties.

I wish him the best of luck in all his future endeavours.

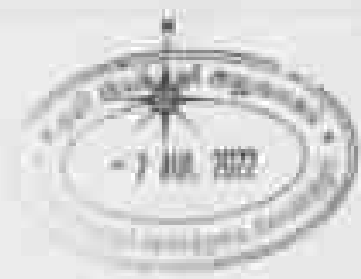
For M/s.SUDHARSHAAN MINING CORPORATION,

SUDHARSHAAN MINING CORPORATION
SF-77, KUDUVAMPATTI ROAD,
SALEM - 636 008, Tamilnadu.


G.PASUPATHY,
Proprietor

28 Dec 2015

Resi : "Garuda" 14/315, Kalyapillai Garden Ind Cross, Fairlands, Salem - 636 004, Tamilnadu.



INDEX

Q.L.A.PPLIED AREA : ●
 TOPO SHEET NO. : 50 (VI)
 LATITUDE : 10°28'N TO 10°35'N
 LONGITUDE : 77°05'E TO 77°15'E

APPLICANT

MR. N. SANKAR
 Mr. SANKAR
 No. 10, SANKAR STREET
 PALLAVI ENCLAVE
 CHENNAI DISTRICT

LOCATION OF Q.L.A. AREA

SR NO : 470A & 470B
 EXTENT : 4.50 HECTARE
 VILLAGE : PACHAPALA TALUK
 TALUK : SULLUR
 DISTRICT : COMBATORE
 STATE : TAMIL NADU

PLATE NO. - J

DATE OF SURVEY : 14/07/2001

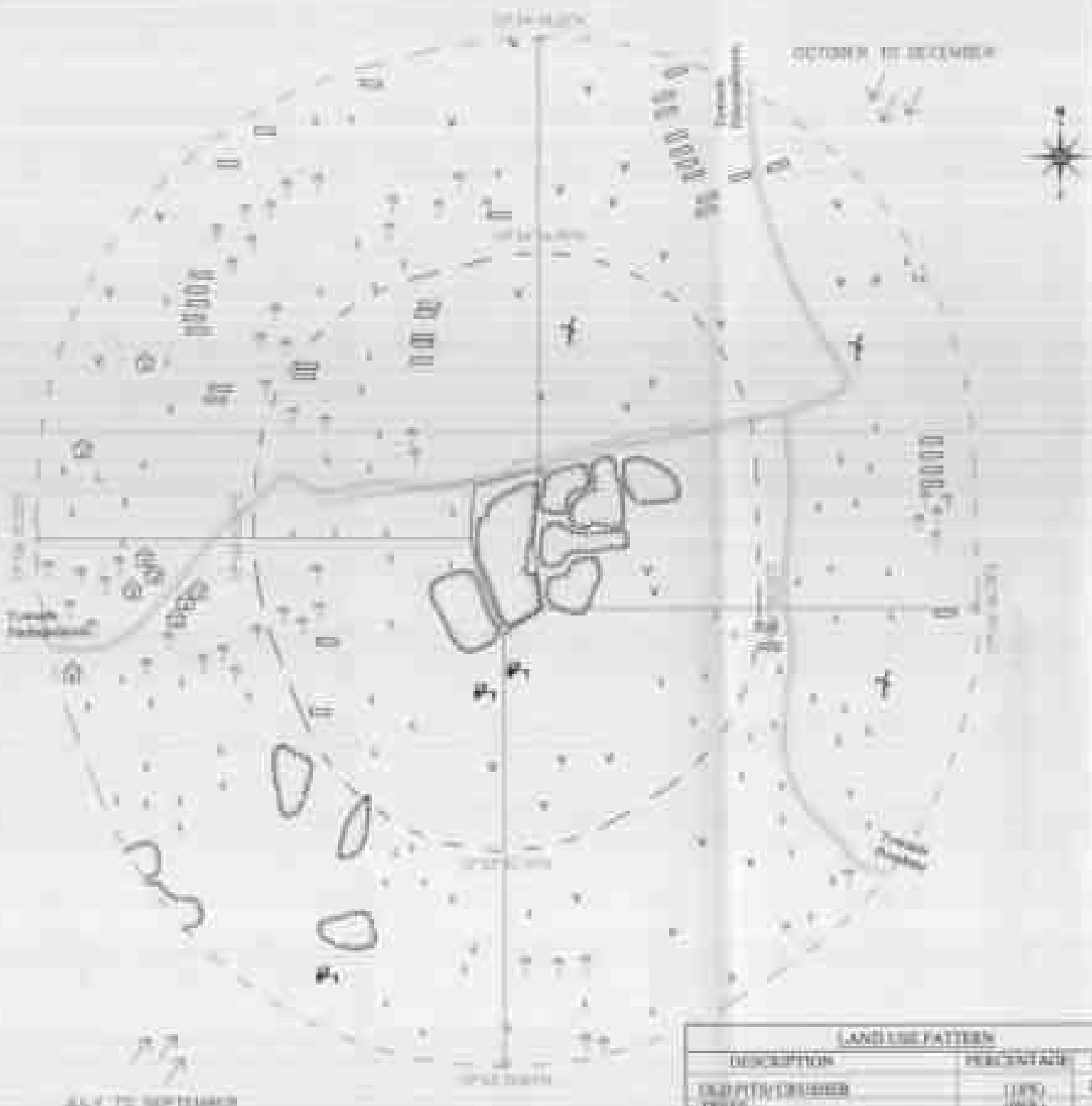
LOCATION PLAN

SCALE : 1:50,000

PREPARED BY :

THIS SURVEY WAS CONDUCTED BY THE SURVEY OF INDIA, CHENNAI OFFICE, IN THE MONTH OF JULY 2001. THE SURVEY WAS CONDUCTED BY THE SURVEY OF INDIA, CHENNAI OFFICE, IN THE MONTH OF JULY 2001.

[Signature]
 SURVEYOR GENERAL
 CHENNAI OFFICE



- Q1
- IRRIGATION INFRASTRUCTURE
- WIND DIRECTION
- PANCHAYAT ROAD
- APPROACH ROAD
- QUARRY PITS & CRUSHER
- GARDEN LAND
- WELLS
- E-GRID

APPLICANT:
 M/s. H. Srinivasan,
 310, Pachamethi Colony,
 No. 1037 A, Mahapalaya Road, Street,
 Palladam Taluk,
 Tiruppur District.

LOCATION OF QUA AREA:
 LEAD : 4073A & 4106
 EXTENT : 4.823 Hrs.
 VILLAGE : PACHAPALAYAM
 TALUK : TIRUPUR
 DISTRICT : COIMBATORE
 STATE : TAMIL NADU

FLAT NO. - 18
 DATE OF SURVEY : 04/07/2022

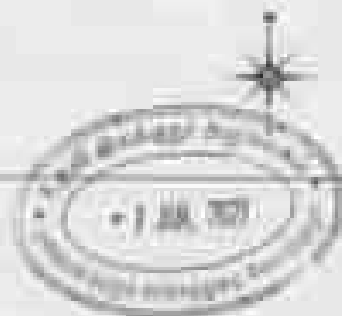
ENVIRONMENTAL & LAND USE PLAN
 SCALE : 1:5000

PREPARED BY:
 M/s. P. Srinivasan, 310, Pachamethi Colony, No. 1037 A, Mahapalaya Road, Street, Palladam Taluk, Tiruppur District.
 P. Srinivasan
 15/08/2022

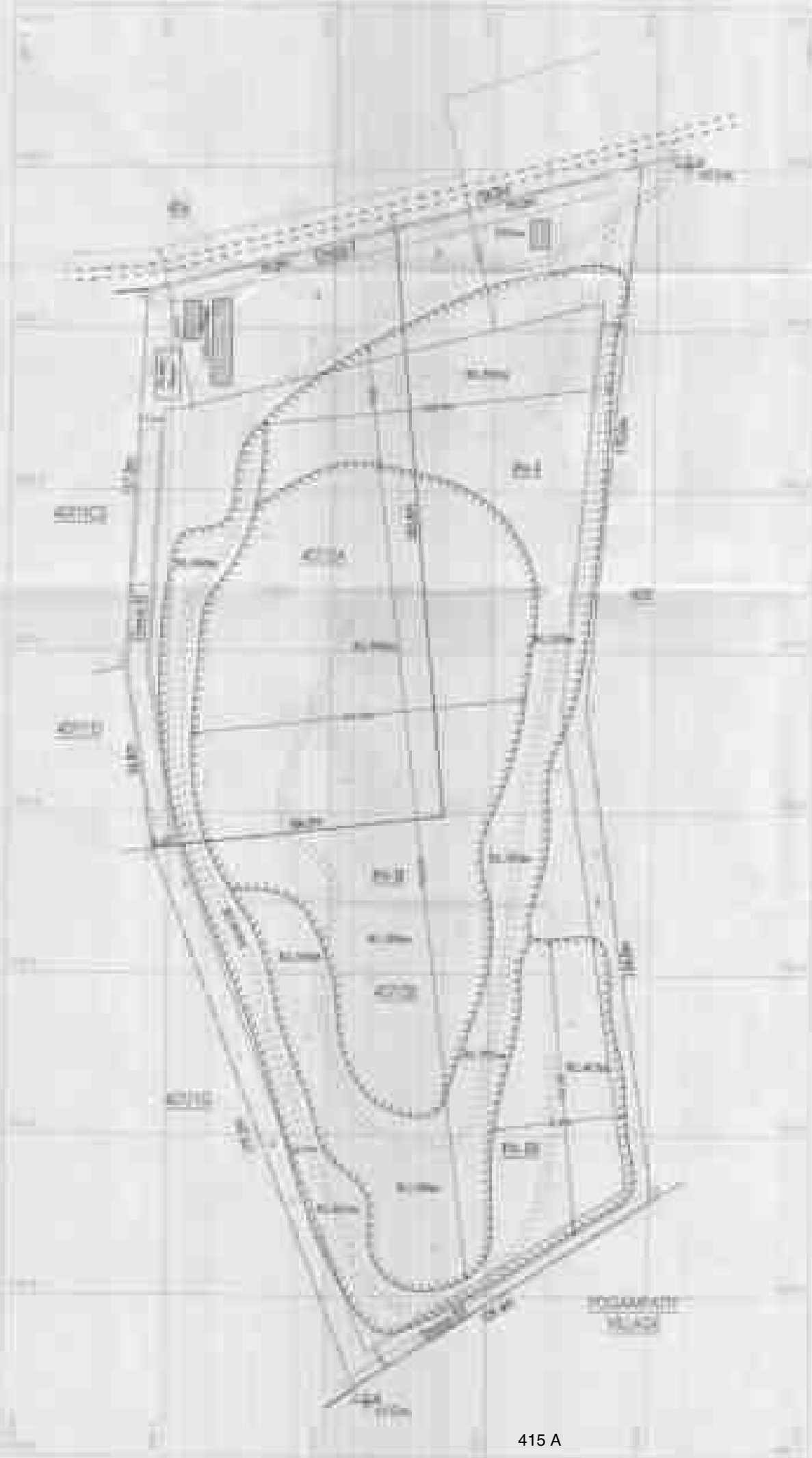
TOPO SHEET NO. : 38 P 01
 LATITUDE : 11°58'34"N to 11°59'12"N
 LONGITUDE : 77°58'47"E to 77°59'18"E

LAND USE PATTERN		
DESCRIPTION	PERCENTAGE	NOTE
QUARRY PITS & CRUSHER	11.0%	Q1
TREES	28.0%	E-7
ROADS	10.0%	
IRRIGATION INFRASTRUCTURE	11.0%	
AGRICULTURE LAND	20.0%	
GARDEN LAND	18.0%	
TOTAL	100%	

PLATE NO. 16
ROUTE MAP



<p>INDEX</p> <p>LEASING APPLIED AREA </p> <p>BOUNDARY </p> <p>PANCHAYAT BOUNDARY </p> <p>APPROXIMATE ROAD </p>	<p>APPLICANT:</p> <p>MR. S. MANUEL S/O. NICHOLAS MANUEL NO. 121, MARINA AVE. STREET, PASADENA TOWN, MAYAGUAY DIVISION</p>	<p>SCALE: 1:10,000</p>
<p>LOCATION OF QUA AREA</p> <p>SP. NO. - 10714 & 10715 EXTENT - 4.42 HA. MUNICIPALITY - PASADENA TOWN - PASADENA DISTRICT - COMBATOON ISLAND - TAIKI ISLAND</p>	<p>PREPARED BY:</p> <p>MR. S. MANUEL S/O. NICHOLAS MANUEL NO. 121, MARINA AVE. STREET, PASADENA TOWN, MAYAGUAY DIVISION</p> <p><i>S. Manuel</i> S. MANUEL PASADENA TOWN</p>	



Symbol	Description
—	Property Boundary
---	Lease Boundary
...	Proposed Boundary
—+—	Right-of-Way
—	Water
—	Drainage
—	Structure
—	Survey Line
—	Section Line
—	Other

PROPERTY INFORMATION
 Section 12, Township 14N, Range 10E, T14N, R10E, S45
 Section 12, Township 14N, Range 10E, T14N, R10E, S45

QUARRY LEASE PLAN
 Prepared by: [Name]
 Date: [Date]

Symbol	Description
—	Section Boundary
---	Lease Boundary
...	Proposed Boundary
—+—	Right-of-Way
—	Water
—	Drainage
—	Structure
—	Survey Line
—	Section Line
—	Other

APPROVAL:
 [Signature]
 [Name]
 [Title]

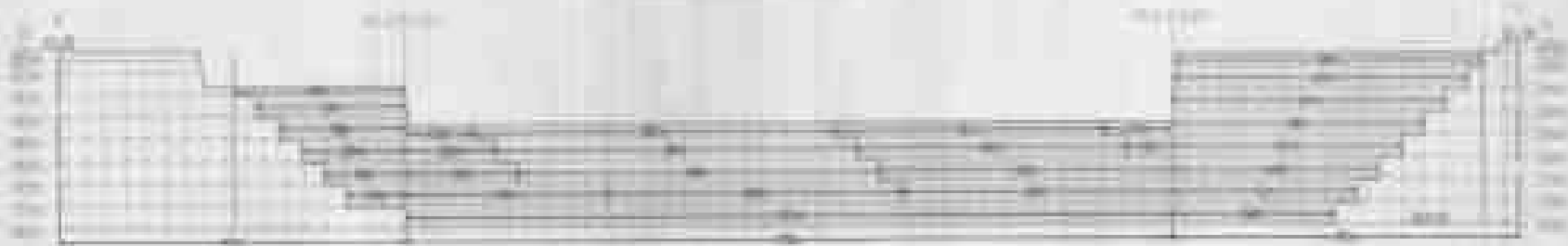
QUARRY LEASE AREA:
 [Area 1]
 [Area 2]
 [Area 3]
 [Area 4]
 [Area 5]

PLANNING:
 [Name]
 [Title]

QUARRY LEASE PLAN & EXPLANATION
 Scale: 1" = 100'

NOTES:
 [Note 1]
 [Note 2]
 [Note 3]

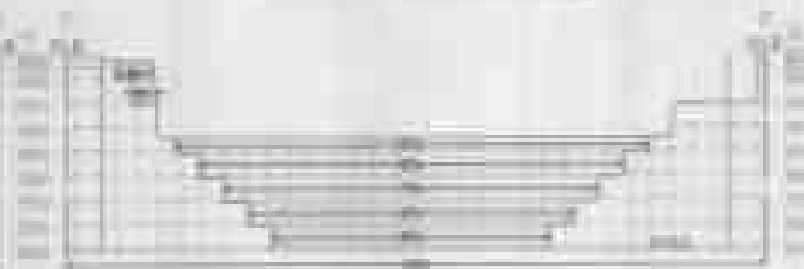
SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



SECTION ALONG E-F



- 1. 1st Floor level to ground
- 2. 2nd Floor level to ground
- 3. 3rd Floor level to ground
- 4. 4th Floor level to ground
- 5. 5th Floor level to ground

PROJECT

NATIONAL ENGINEERING COUNCIL OF THE PHILIPPINES

GRADE: **1st Year**

COURSE: **Engineering**

SCHOOL YEAR: **2019-2020**

TOPIC: **DEPTH OF CONVICTION**

APPRAISAL

This is a theoretical design and construction project. It is not a real-world project. It is a design project.

LOCATION OF QUA. AREA

1. 1st Floor level to ground

2. 2nd Floor level to ground

3. 3rd Floor level to ground

4. 4th Floor level to ground

5. 5th Floor level to ground

PLATE NO. 018

DATE OF SUBMIT: 04/11/2020

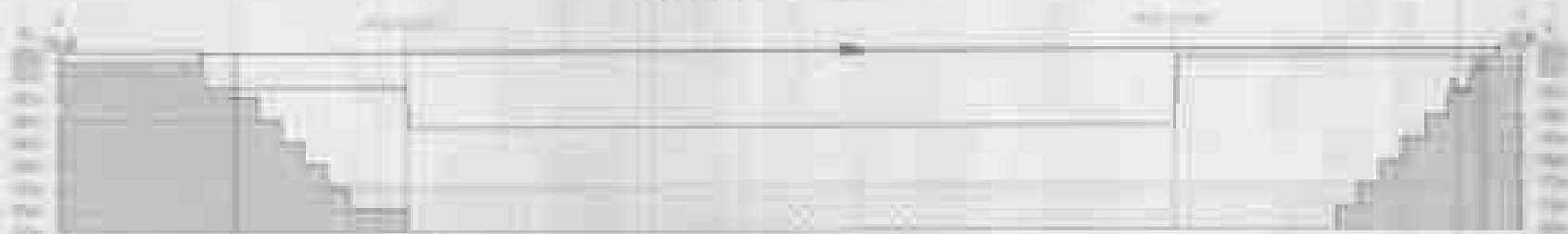
THE NATIONAL ENGINEERING COUNCIL OF THE PHILIPPINES

PROTECTION DIVISION

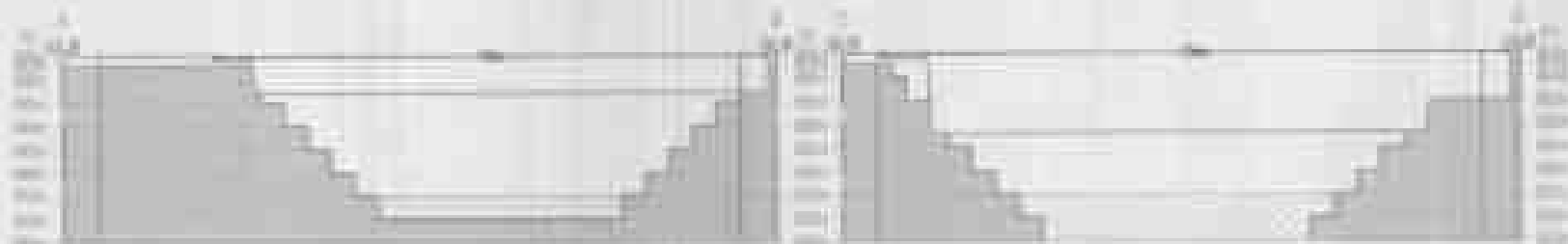
DATE: 11/11/20

REMARKS:

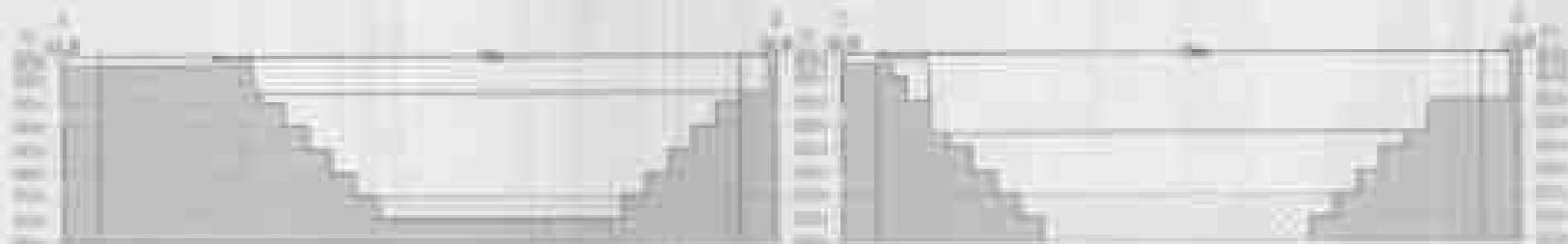
SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



SECTION ALONG E-F



- _____ PROPOSED EXISTING DRIVE
- _____ DRIVE
- _____ SIDEWALK
- _____ INTERSECTION
- _____ SIDE WALK
- _____ EXISTING DRIVE
- _____ INTERSECTION
- _____ SIDE WALK

APPRAISER
 MR. R. THOMAS
 CIVIL ENGINEER
 1000 N. BROADWAY
 FRESNO, CALIF. 93701

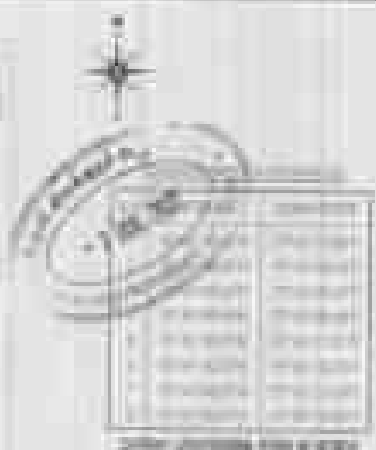
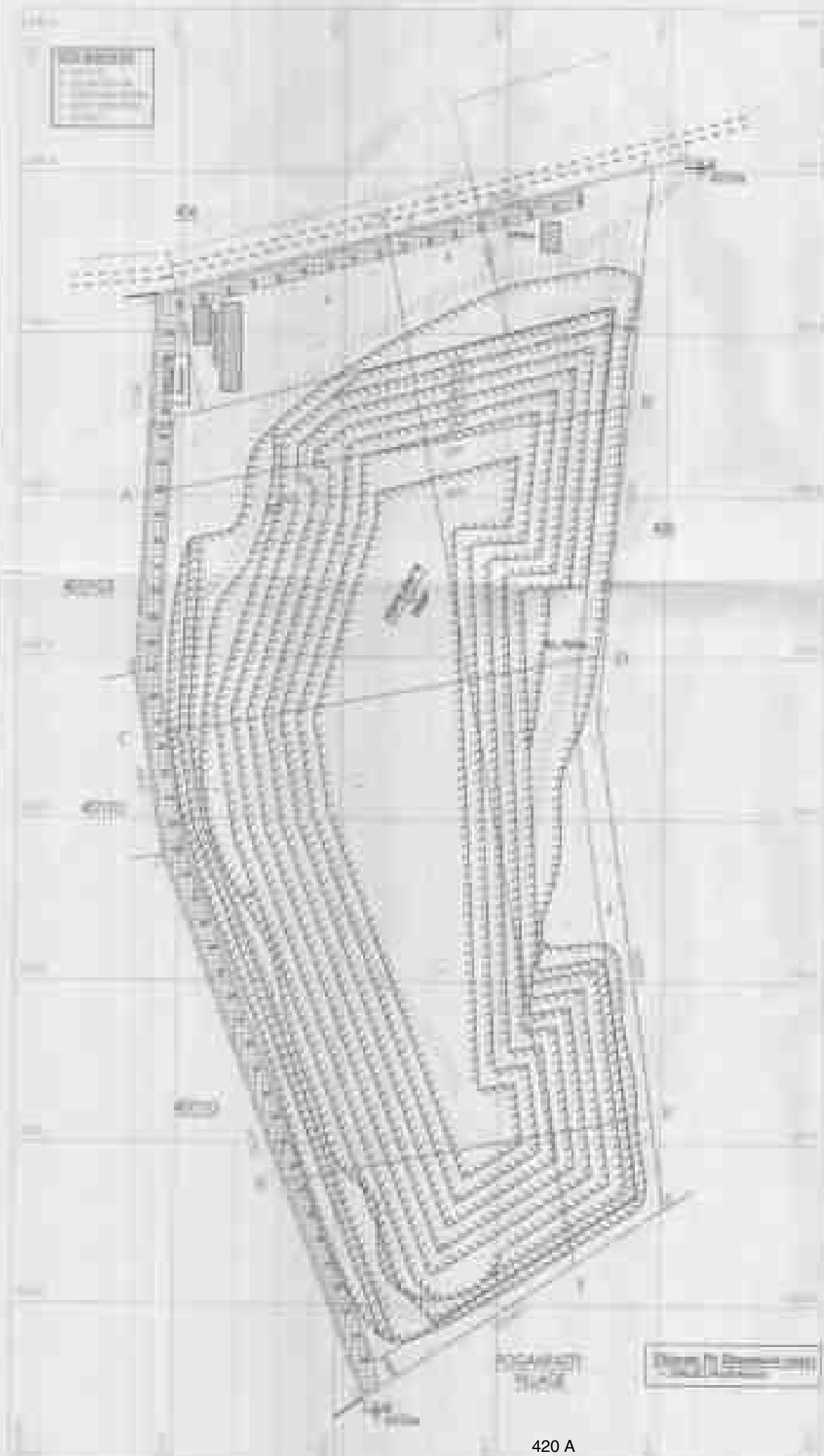
PLAT NO. 17584
 DATE OF SURVEY: 1972-10-01

PROCESSED BY ARMY CLEARING SECTION
 DATE: 1-1982

Proposed Dr. [unclear] [unclear]

LOCATION OF G.A. AREA
 17584 - 17584
 17584 - 17584
 17584 - 17584
 17584 - 17584
 17584 - 17584

REMARKS:
 THIS IS A COPY OF THE ORIGINAL SURVEY
 RECORDS FOR THE PROJECT.



KEY

	EXISTING PROPERTY BOUNDARY
	NEW PROPERTY BOUNDARY
	PROPOSED DRIVEWAY
	WALKWAY
	BIKEWAY
	LANDSCAPE
	WATER
	SEWER
	WATER MAIN
	STORM SEWER
	UTILITY
	EXISTING DRIVEWAY
	NEW DRIVEWAY

NOTES:
 1. ALL DIMENSIONS ARE IN METERS.
 2. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
 3. SEE ATTACHED DRAWINGS FOR DETAILS.

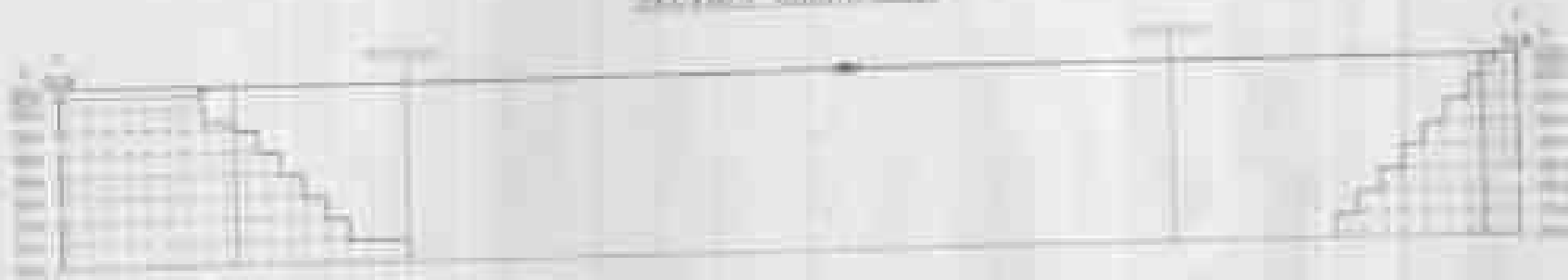
LOCATION/SCALE:
 1:1000
 1:500
 1:250
 1:125
 1:62.5
 1:31.25

PLANNING:
 1. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
 2. SEE ATTACHED DRAWINGS FOR DETAILS.

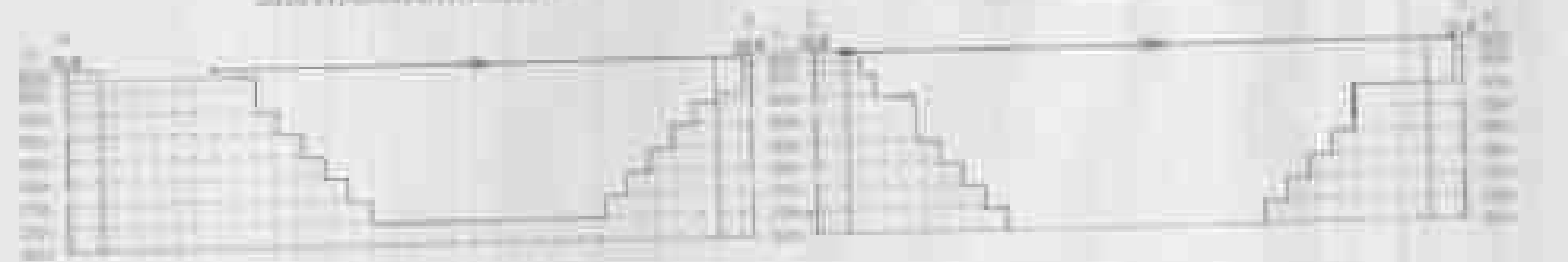
REVISIONS:
 1. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE SPECIFIED.
 2. SEE ATTACHED DRAWINGS FOR DETAILS.



SECTION ALONG X-Y

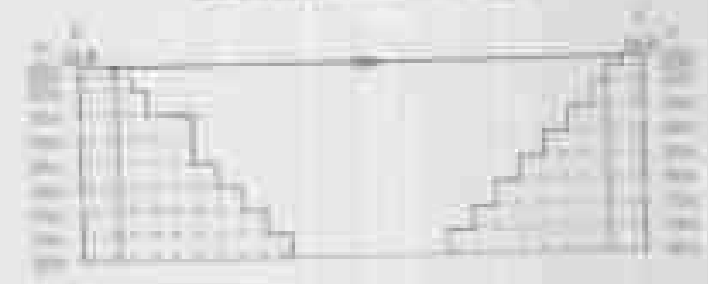


SECTION ALONG A-B



SECTION ALONG C-D

SECTION ALONG E-F



Checked by: [Signature]

APPRAISAL

Mr. A. [Name]
[Address]
[City, State, Zip]

LOCATION OF O.G. AREA

SPRINKLER SYSTEM
[Address]
[City, State, Zip]

PLAT NO. & C.A. NO.

[Plat No.] [C.A. No.]

CONCEPTUAL DESIGN

[Date]

REVISIONS

[Revision 1]
[Revision 2]

[Signature]

6

தூய்மை மாண்புமிகு உட்கட்சி
மாண்புமிகு உட்கட்சி மாண்புமிகு உட்கட்சி
153 A சுகவாயை சார்ந்த நகராட்சி ஆணைமீது மகன்
தங்கவேலு என்பவர் சிறை உரிமை புதுப்பிக்கவேண்டும்
என்ற உரிமை கோரி உண்ணப்படுத்தி மீது உரிமை கோரி மாற்றம்
407/2A-ல் உள்ள உரிமை கோரி மாற்றம் செய்யப்படுகிறது

சுகவாயை மாண்புமிகு சுகவாயை மாண்புமிகு

மாண்புமிகு உட்கட்சி மாண்புமிகு உட்கட்சி 407/2A - 1.54.0
4.08.0, மாண்புமிகு உட்கட்சி 407/2B 4.08.0
புதுப்பிக்கவேண்டும் சுகவாயை சுகவாயை சுகவாயை
அதற்கான பாகவரிசெய்யப்படுத்தினால் 70.88/2009-ல்
மாண்புமிகு 2865/2010 -ல் தங்கவேலு என்பவருக்கு
புதுப்பிக்கவேண்டும். மாண்புமிகு உட்கட்சி மாண்புமிகு
அதற்கான மகன் 2-ம் தரத்தில் உள்ள 300 மீட்டர்
சுகவாயை சுகவாயை சுகவாயை சுகவாயை சுகவாயை
407/2A-ல் உள்ள உரிமை கோரி மாற்றம் செய்யப்படுகிறது
மாண்புமிகு உட்கட்சி மாண்புமிகு உட்கட்சி 407/2B 4.08.0
புதுப்பிக்கவேண்டும் சுகவாயை சுகவாயை சுகவாயை
அதற்கான பாகவரிசெய்யப்படுத்தினால் 70.88/2009-ல்
மாண்புமிகு 2865/2010 -ல் தங்கவேலு என்பவருக்கு
புதுப்பிக்கவேண்டும். மாண்புமிகு உட்கட்சி மாண்புமிகு
அதற்கான மகன் 2-ம் தரத்தில் உள்ள 300 மீட்டர்
சுகவாயை சுகவாயை சுகவாயை சுகவாயை சுகவாயை
407/2A-ல் உள்ள உரிமை கோரி மாற்றம் செய்யப்படுகிறது
மாண்புமிகு உட்கட்சி மாண்புமிகு உட்கட்சி 407/2B 4.08.0
புதுப்பிக்கவேண்டும் சுகவாயை சுகவாயை சுகவாயை
அதற்கான பாகவரிசெய்யப்படுத்தினால் 70.88/2009-ல்
மாண்புமிகு 2865/2010 -ல் தங்கவேலு என்பவருக்கு
புதுப்பிக்கவேண்டும். மாண்புமிகு உட்கட்சி மாண்புமிகு
அதற்கான மகன் 2-ம் தரத்தில் உள்ள 300 மீட்டர்
சுகவாயை சுகவாயை சுகவாயை சுகவாயை சுகவாயை

V. Jayaram
கிராம நிர்வாக அலுவலர்
43, பச்சாபாளையம்,
சுகவாயை மாண்புமிகு

6

**TOPOGRAPHICAL VIEW OF PACHAPALAYAM ROUGH STONE
AND GRAVEL QUARRY LEASE APPLIED AREA**



Name of the Applicant : **N.Thangavelu,**
S/o. Nachimuthu Goundar,
Address : No. 153/A, Maraimalai Adigal Street,
Palladam Taluk,
Tiruppur District – 641 664.

LOCATION DETAILS

Extent : 4.62.0 Ha
S.F.Nos. : 407/2A & 407/2B
Village : Pachapalayam
Taluk : Sulur
District : Coimbatore
State : Tamil Nadu

Signature of the applicant

N. Thangavelu

N.Thangavelu

V. Joy KM 25.7.2022
கிராம நிர்வாக அலுவலர்
(Village Administrative Officer)
43, பச்சாபாளையம்,
Attestation
ச.மு.நி.ம.உ.உ.ம்

SELVA NANDHINI EXPLOSIVES AND CHEMICALS

LICENSE NO-E/SC/TN/22/654(E85920)

7/182, Nandini illam , Bharathi Nagar, Kadampady , Kangamyampalayam(po),
City- Sulur , District -Coimbatore, State -Tamilnadu. 641401.

Date: 22/07/2022

Place: Sulur.

To,

N.Thangavelu,
S/o Nachimuthu,
153-A- Maraimalai adigal street,
Mangalam (Post),
Palladam (tk),
Tirupur district.

Sub: Regarding Blasting Work using explosives in your proposed quarry.

Sir,

We are having explosive license no. in Form 22, (E85920),(E95326),(E95332),(E95340) and (E95342),
Situating Magazine at Sirukinaru Village, Sangarandapalayam via, Tirupur district. Our office is at, 7/225, Bharathi
Nagar, Kadampady, Sulur, Coimbatore-641401.

We are having eight Explosive Vans for transporting detonators and class 2 explosives separately from our
magazine to work Sites and we have well Experienced and licensed blasters and shot fires for safety blasting
works for the last five years without any untoward incidents.

We are willing to undertake blasting work on contract basis at your site S.F No: 407/2A, 407/2B
Pachapalayam, Village Sulur (tk), Coimbatore district.

Thanking you,

Yours faithfully,

For SELVA NANDHINI EXPLOSIVES AND CHEMICALS


Authorized Signatory

For SELVA NANDHINI EXPLOSIVES AND CHEMICALS

Enclosed: License Copy.

From
Dr.A. Kalaiselvan,
Joint Director /
Assistant Director(i/c),
Dept of Geology and Mining,
Coimbatore.

To
Thiru.K.Ganesh,
S/o. Krishnasamy,
No.7A/15, K.G.Pudur,
Chettipalayam,
Coimbatore District – 641 201.

Rc.No.786/Mines/2019, Dated: 10.03.2020

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Pachapalayam Village - Survey Nos.407/1F (1.23.50 Hectares) and 407/1G (1.22.50 Hectares) - over an extent of 2.46.0 hectares of patta land - Application preferred by Thiru.K.Ganesh for quarrying Roughstone and gravel – Submission of mining plan for approval – Approved – Regarding.

- Ref: 1. Quarry lease application dated 19.11.2019 preferred by Thiru.K.Ganesh, S/o. Krishnasamy, No.7A/15, K.G.Pudur, Chettipalayam, Coimbatore District.
2. District Collector, Coimbatore Letter Rc.No.786/Mines/2019, Dated: 27.02.2020.
3. Mining Plan submitted by Thiru.K.Ganesh dated: 10.03.2020.

In response to the precise area communicated by the District Collector, Coimbatore, the applicant Thiru.K.Ganesh vide reference 3rd cited has submitted three copies of mining plan for the area applied for the grant of quarry lease for Roughstone & Gravel over an extent of 2.46.0 hectares of patta land in Survey Nos. 407/1F (1.23.50 Hectares) and 407/1G (1.22.50 Hectares) of Pachapalayam Village, Sulur Taluk, Coimbatore District.

2. The mining plan submitted for the grant of quarry lease for Roughstone & Gravel over an extent of 2.46.0 hectares of patta land in Survey Nos. 407/1F (1.23.50 Hectares) and 407/1G (1.22.50 Hectares)

of Pachapalayam Village, Sulur Taluk, Coimbatore District has been verified in detail.

3. As per the guidelines/instructions issued by the Commissioner of Geology and Mining, Chennai vide letter Rc.No.3868/LC/2012, dated 19.11.2012, the mining plan is hereby approved, subject to the following conditions:

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way imply the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Amended Act, 2015, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv) As per the District Collector, Coimbatore letter Rc.No.786/Mines/2019, Dated: 27.02.2020 the following conditions have been incorporated in the Mining Plan.
 - a) A safety distance of 7.5 meters should be provided for adjacent patta land from the lease applied area.

- v) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

Encl: Two copy of Approved Mining Plan.

S. S. Srinivasan
10.3.2020
Joint Director /
Assistant Director (i/c),
Dept. of Geology and Mining,
Coimbatore.

Copy submitted to:

S. S. Srinivasan
10/3/20

The Director of Geology and Mining, Chennai-32.



KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-125			
Site Location		Pachupalayam Rough Stone and Gravel Quarry, Pachupalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-125
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ1- Core Zone

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms ^a	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)
01.03.2022	25.3	47.7	9.9	26.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	25.7	46.9	9.3	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	23.9	43.6	6.1	27.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.03.2022	25.4	41.7	8.9	26.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	24.7	47.9	8.5	25.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.03.2022	24.5	45.9	8.9	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	23.4	42.7	9.6	28.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.03.2022	22.8	42.7	9.7	26.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	22.6	41.9	9.5	25.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.04.2022	23.5	45.4	9.4	26.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	25.8	44.9	9.3	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
06.04.2022	24.7	44.6	9.4	28.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	24.7	43.8	9.1	25.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
13.04.2022	22.1	44.3	8.6	24.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-125			
Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sular Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-125
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ1- Core Zone

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ µg/m ³	BaP, ng/m ³
NAAQ Norms*	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)
19.04.2022	25.8	46.6	8.4	24.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
20.04.2022	25.6	46.5	8.8	27.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	24.7	44.2	8.4	25.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
27.05.2022	23.6	43.7	8.1	27.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	26.8	42.9	9.7	24.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.05.2022	24.2	44.3	8.4	26.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	25.3	45.5	10.7	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.05.2022	24.8	44.7	9.1	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	22.4	42.3	9.8	25.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
18.05.2022	23.6	43.9	10.6	26.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	24.8	44.1	10.2	25.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.05.2022	24.3	43.2	10.1	26.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-126			
Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-126
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ2- Core Zone

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	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)
01.03.2022	23.7	42.7	7.6	27.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	21.9	44.3	7.1	27.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	22.5	43.4	9.2	28.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.03.2022	24.3	42.7	9.7	26.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	22.5	41.9	9.1	26.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.03.2022	24.3	43.6	7.3	28.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	22.9	42.5	7.7	27.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.03.2022	23.8	41.8	8.1	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	22.5	43.3	8.6	26.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.04.2022	22.1	42.7	9.2	29.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	23.6	42.5	9.8	27.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
06.04.2022	25.7	43.5	8.5	28.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	24.3	43.6	7.2	28.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
13.04.2022	23.8	41.8	7.1	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-126			
Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Suler Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-126
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ2- Core Zone

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, µg/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms [*]	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)
19.04.2022	22.5	44.6	8.6	28.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
20.04.2022	24.6	42.7	8.6	29.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	23.7	41.3	9.1	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
27.05.2022	22.9	42.8	9.7	27.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	25.5	44.7	8.6	27.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.05.2022	24.7	42.3	8.4	24.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	23.2	43.5	8.1	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.05.2022	25.6	41.9	8.7	25.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	23.5	42.5	7.8	24.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
18.05.2022	25.8	44.3	8.1	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	24.5	43.8	9.6	25.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.05.2022	25.0	43.3	9.7	25.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-127			
Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-127
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ3 - Pachapalayam

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	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)
01.03.2022	22.3	41.4	7.0	25.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	21.2	42.7	7.7	26.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	20.5	41.3	7.2	26.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.03.2022	22.8	41.8	7.6	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	22.5	41.9	8.8	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.03.2022	21.9	42.7	8.3	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	23.5	41.5	7.6	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.03.2022	22.4	41.6	8.2	26.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	20.6	40.7	7.1	27.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.04.2022	20.5	41.5	6.4	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	21.7	40.6	7.5	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
06.04.2022	23.3	42.5	7.1	25.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	21.8	44.2	6.3	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
13.04.2022	20.9	41.6	8.4	26.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No:KGS/0522/TR/A-127

Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-127
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ3 - Pachapalayam

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)					
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³	
NAAQ Norms*	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)	
19.04.2022	20.4	40.3	8.5	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0	
20.04.2022	20.3	41.7	6.9	25.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0	
26.04.2022	20.7	41.9	9.6	24.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0	
27.05.2022	21.3	40.8	8.4	26.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0	
03.05.2022	22.6	42.2	5.2	28.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0	
04.05.2022	24.7	41.6	5.9	26.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0	
10.05.2022	23.3	43.7	7.3	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0	
11.05.2022	22.9	41.2	7.1	26.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0	
17.05.2022	20.7	40.5	7.8	27.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0	
18.05.2022	22.4	42.8	7.2	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0	
24.05.2022	21.3	40.6	7.3	25.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0	
25.05.2022	21.7	40.7	7.2	25.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0	

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No: KGS/0522/TR/A-128			
Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 3&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-128
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ4 - Panapatti

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	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)
01.03.2022	23.2	41.3	8.0	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	24.4	40.9	7.3	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	22.8	40.2	9.6	24.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.03.2022	23.1	40.5	8.5	26.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	23.5	41.6	8.4	25.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.03.2022	21.6	40.3	7.3	25.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	21.5	40.8	9.5	26.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.03.2022	20.7	40.5	8.5	26.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	21.5	41.9	7.6	27.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.04.2022	21.2	40.3	7.5	24.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	21.7	41.3	8.5	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
06.04.2022	22.7	41.6	9.3	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	22.9	40.5	8.4	25.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
13.04.2022	23.6	41.7	9.6	24.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No: KGS/0522/TR/A-128			
Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Suler Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-128
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ4 - Panapatti

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	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)
19.04.2022	22.8	40.8	6.3	25.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
20.04.2022	23.4	41.5	8.4	26.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	22.7	41.9	7.5	25.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
27.05.2022	21.9	40.7	6.7	24.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	23.4	41.5	5.6	26.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.05.2022	21.7	41.6	6.3	25.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	20.9	40.5	8.7	28.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.05.2022	21.6	41.4	5.4	26.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	20.4	41.7	6.8	25.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
18.05.2022	21.5	40.3	7.4	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	20.3	40.1	7.4	25.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.05.2022	20.1	40.5	7.1	25.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS - National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No: KGS/0522/IR/A-129			
Site Location		Pachapalayam Rough Stone and Gravel Quarries, Pachapalayam Village, Sular Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-129
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ5 - Edayapalayam

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	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)
01.03.2022	19.9	39.9	6.9	25.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	19.6	39.7	7.3	24.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	19.7	40.2	5.9	23.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.03.2022	19.4	40.5	6.8	26.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	19.6	40.6	7.7	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.03.2022	19.2	40.7	7.2	24.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	19.4	40.9	5.9	26.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.03.2022	19.3	39.9	6.2	27.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	18.6	39.8	5.4	25.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.04.2022	18.9	39.8	6.8	26.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	20.3	39.2	7.9	28.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
06.04.2022	20.5	39.2	6.8	25.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	20.4	39.4	7.9	24.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
13.04.2022	20.9	38.5	8.9	22.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No: KGS/0522/TR/A-129

Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sular Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-129
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ5 - Edayapalayam

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	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)
19.04.2022	21.4	38.6	7.3	25.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
20.04.2022	18.9	38.3	7.1	28.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	19.5	41.1	6.5	25.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
27.05.2022	19.4	41.3	5.4	26.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	19.3	41.5	6.3	25.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.05.2022	20.1	40.4	8.9	25.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	20.5	40.7	5.9	24.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.05.2022	20.3	40.3	7.3	25.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	20.1	40.7	7.9	27.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
18.05.2022	20.4	40.2	6.6	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	20.5	41.5	6.5	24.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.05.2022	21.4	41.1	6.8	24.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS- National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No: KGS/0522/TR/A-130			
Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-130
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ6 - Kallapalayam

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	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)
01.03.2022	22.6	39.8	7.3	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	21.6	39.8	8.2	24.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	22.3	39.1	6.5	23.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.03.2022	23.7	39.4	7.8	25.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	22.4	39.2	8.3	24.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.03.2022	23.4	40.2	5.9	25.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	21.9	40.5	6.4	26.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.03.2022	22.8	40.8	7.9	24.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	24.4	40.4	8.9	24.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.04.2022	23.9	39.6	7.1	23.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	22.7	39.4	8.2	25.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
06.04.2022	23.5	39.1	8.9	25.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	21.7	39.8	7.4	26.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
13.04.2022	23.9	40.2	7.9	24.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No: KGS/0522/TR/A-130			
Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-130
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ6 - Kallapalayam

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Ph, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ µg/m ³	BaP, ng/m ³
NAAQ Norms*	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)
19.04.2022	23.5	40.6	9.6	25.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
20.04.2022	22.9	40.4	8.5	26.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	23.5	40.9	5.9	25.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
27.05.2022	24.8	41.6	5.6	25.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	23.6	41.6	6.3	24.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.05.2022	24.7	42.5	8.7	23.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	23.3	41.3	5.5	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.05.2022	25.9	41.8	7.2	24.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	24.3	41.2	6.3	25.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
18.05.2022	23.1	40.5	7.9	23.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	22.9	41.6	7.1	22.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.05.2022	22.7	40.9	7.3	22.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No: KGS/0522/TR/A-131			
Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-131
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ7 -Karachery

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	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)
01.03.2022	23.3	44.8	8.7	26.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	21.9	43.2	6.3	24.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	22.7	42.5	5.9	23.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.03.2022	23.4	43.9	5.4	25.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	22.9	41.5	7.8	23.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.03.2022	23.7	42.8	5.9	25.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	22.3	43.3	5.1	25.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.03.2022	25.9	44.5	5.1	23.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	24.4	42.7	7.3	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.04.2022	23.9	43.4	6.3	25.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	25.7	42.9	5.0	26.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
06.04.2022	24.5	44.6	7.9	25.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	23.9	42.6	6.3	26.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
13.04.2022	25.7	44.7	8.1	25.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No: KGS/0522/TR/A-131			
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-131
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ7 -Karachery

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Ph. µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ µg/m ³	BaP, ng/m ³
NAAQ Norms*	50 (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)
19.04.2022	24.4	43.3	5.9	26.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
20.04.2022	23.3	42.5	6.9	25.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	25.8	41.8	8.7	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
27.05.2022	26.6	42.7	5.3	25.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	25.8	42.5	6.9	25.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.05.2022	24.3	43.6	5.8	25.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	25.9	42.5	6.3	25.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.05.2022	24.4	44.9	5.9	26.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	23.9	44.1	7.4	24.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
18.05.2022	22.3	43.2	5.2	25.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	21.6	42.6	7.6	24.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.05.2022	21.1	42.8	7.8	24.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-132			
Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Suler Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-132
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ8 -Bogampatti

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	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)
01.03.2022	22.8	41.9	8.7	27.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	24.4	42.3	9.1	26.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	22.3	41.7	5.3	26.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.03.2022	23.9	41.8	6.7	23.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	21.5	40.5	5.8	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.03.2022	23.9	40.6	6.2	25.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	25.7	41.2	8.4	26.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.03.2022	23.5	43.9	5.3	25.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	21.4	40.8	9.3	26.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.04.2022	22.5	42.5	6.6	25.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	23.3	40.6	5.7	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
06.04.2022	23.7	41.5	5.3	27.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	21.5	41.4	8.4	25.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
13.04.2022	22.6	42.7	6.7	26.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-132			
Site Location		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sular Taluk, Coimbatore District.	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-132
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ8 -Bogampatti

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₂ H ₆ , µg/m ³	BaP, µg/m ³
NAAQ Norms*	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)
19.04.2022	23.4	40.3	8.5	25.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
20.04.2022	21.9	40.9	6.3	26.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	23.6	41.7	9.5	25.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
27.05.2022	21.5	41.2	5.3	26.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	23.9	40.9	5.6	26.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.05.2022	24.9	40.9	5.2	23.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	21.5	42.5	5.7	26.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.05.2022	23.3	42.9	6.3	25.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	21.4	42.5	9.9	25.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
18.05.2022	22.4	41.3	8.1	25.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	21.3	40.3	7.6	25.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.05.2022	21.6	40.8	7.3	24.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No: KGS/0322/TR/N-82		Report Date : 12.03.2022	
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-82
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	08.03.2022
Sample Description	Ambient Noise	Noise Level Received On	09.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	12.03.2022

Location		N1 - Core Zone			N2 - Core Zone			N3 - Pachapalayam		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)
01.	0600	39.7	46.1	44.0	38.9	43.7	41.9	34.4	37.8	36.4
02.	0700	40.2	46.2	44.2	40.2	43.9	42.4	35.9	38.5	37.4
03.	0800	41.5	47.1	45.1	41.8	44.7	43.5	36.9	39.5	38.4
04.	0900	42.7	47.3	45.6	41.1	45.5	43.8	35.4	38.9	37.5
05.	1000	43.6	45.4	44.6	42.9	45.9	44.7	36.7	41.3	39.6
06.	1100	42.8	46.5	45.0	43.7	44.3	44.0	35.8	42.5	40.3
07.	1200	42.3	44.5	43.5	44.1	43.1	43.6	35.1	44.5	42.0
08.	1300	42.5	44.8	43.8	41.6	46.9	45.0	35.1	45.5	42.9
09.	1400	42.9	45.3	44.3	45.8	46.1	46.0	30.8	41.5	38.8
10.	1500	43.2	45.2	44.3	42.2	47.2	45.4	34.5	45.6	42.9
11.	1600	42.3	44.8	43.7	42.7	42.3	42.5	33.9	44.3	41.7
12.	1700	41.7	44.5	43.3	40.2	42.1	41.3	31.2	45.7	42.8
13.	1800	40.2	42.1	41.3	42.2	45.8	44.4	32.6	46.7	43.9
14.	1900	44.2	46.5	45.5	41.1	43.2	42.3	38.4	46.6	44.2
15.	2000	43.4	45.1	44.3	43.3	45.1	44.3	35.6	45.5	42.9

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TEST REPORT

Test Report No: KGS/0322/TR/N-82		Report Date : 12.03.2022	
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Suler Taluk, Coimbatore District.	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-82
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	08.03.2022
Sample Description	Ambient Noise	Noise Level Received On	09.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	12.03.2022

Location		N1 - Core Zone			N2 - Core Zone			N3 - Pachapalayam				
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)		
16.	2100	37.1	39.1	38.2	37.1	39.2	38.3	32.6	41.6	39.1		
17.	2200	36.2	38.1	37.3	34.2	36.1	35.3	35.8	46.3	43.7		
18.	2300	35.9	37.2	36.6	33.2	35.3	34.4	31.9	38.5	36.3		
19.	0000	34.1	36.6	35.5	31.2	33.7	32.6	34.2	39.4	37.5		
20.	0100	33.2	35.4	34.4	34.2	36.2	35.3	32.8	39.8	37.6		
21.	0200	35.8	37.6	36.8	33.1	35.1	34.2	33.7	38.9	37.0		
22.	0300	33.5	35.6	34.7	32.4	34.2	33.4	32.8	36.8	35.2		
23.	0400	32.4	36.7	35.1	34.2	36.9	35.8	33.5	37.1	35.7		
24.	0500	36.2	38.1	37.3	36.2	38.1	37.3	34.1	36.5	35.5		
Day Mean dB(A)				39.7	Day Mean dB(A)			42.9	Day Mean dB(A)			40.8
Night Mean dB(A)				40.2	Night Mean dB(A)			34.7	Night Mean dB(A)			36.4

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No: KGS/0322/TR/N-83		Report Date : 12.03.2022	
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village , Sulur Taluk , Coimbatore District.	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-83
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	08.03.2022
Sample Description	Ambient Noise	Noise Level Received On	09.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	12.03.2022

Location		N4 - Panapatti			N5 - Edayapalayam			N6 - Kallapalayam		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)
01.	0600	32.9	35.5	34.4	37.1	40.1	38.9	31.5	38.1	35.9
02.	0700	31.3	39.7	37.3	35.9	43.5	41.2	32.6	40.7	38.3
03.	0800	32.6	41.6	39.1	36.5	43.9	41.6	33.9	41.4	39.1
04.	0900	33.7	42.8	40.3	35.6	40.1	38.4	31.4	39.5	37.1
05.	1000	34.6	44.6	42.0	33.8	46.6	43.8	32.5	40.2	37.9
06.	1100	36.2	45.8	43.2	31.2	38.5	36.2	33.8	41.4	39.1
07.	1200	38.2	46.2	43.8	36.4	41.3	39.5	35.6	43.6	41.2
08.	1300	36.4	45.1	42.6	35.5	40.3	38.5	31.8	38.4	36.2
09.	1400	36.9	45.4	41.3	32.7	42.9	40.3	33.9	41.7	39.4
10.	1500	34.6	42.9	40.5	36.5	43.8	41.5	32.5	40.9	38.5
11.	1600	32.7	40.7	38.3	32.3	40.9	38.5	34.8	43.6	41.1
12.	1700	36.9	43.2	41.1	34.2	43.2	40.7	32.6	40.4	38.1
13.	1800	32.1	40.6	38.2	35.5	44.9	42.4	35.1	43.1	40.7
14.	1900	34.9	43.2	40.8	36.9	40.7	39.2	36.1	40.2	38.6
15.	2000	32.6	40.7	38.3	32.8	36.6	35.1	34.2	43.6	41.1

.....Continue Report.....




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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No: KGS/0322/TR/N-83		Report Date: 12.03.2022	
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-83
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	08.03.2022
Sample Description	Ambient Noise	Noise Level Received On	09.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	12.03.2022

Location		N4 - Panapatti			N5 - Edayapalayam			N6 - Kallapalayam				
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)		
16.	2100	33.7	41.3	39.0	33.6	38.4	36.6	36.5	47.1	44.5		
17.	2200	34.3	36.4	35.5	32.5	38.6	36.5	33.8	41.2	38.9		
18.	2300	32.6	42.8	40.2	36.4	37.2	36.8	33.9	42.1	39.7		
19.	0000	35.8	40.2	38.5	37.1	35.5	36.4	31.5	39.4	37.0		
20.	0100	33.6	38.8	36.9	34.9	36.1	35.5	32.9	40.2	37.9		
21.	0200	31.2	37.1	35.1	32.6	35.5	34.3	33.4	41.7	39.3		
22.	0300	32.4	35.7	34.4	35.6	36.9	36.3	31.7	38.5	36.3		
23.	0400	31.6	39.5	37.1	36.6	38.8	37.8	32.6	40.8	38.4		
24.	0500	33.9	36.6	35.5	36.8	37.8	37.3	31.3	38.6	36.3		
Day Mean dB(A)				39.7	Day Mean dB(A)			39.4	Day Mean dB(A)			39.2
Night Mean dB(A)				36.8	Night Mean dB(A)			36.4	Night Mean dB(A)			37.9

.....End of Report.....




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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No: KGS/0322/TR/N-84		Report Date : 12.03.2022	
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-84
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	08.03.2022
Sample Description	Ambient Noise	Noise Level Received On	09.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	12.03.2022

Location		N7 - Karachery			N8 - Bogampatti		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)
01	0600	33.9	40.5	38.3	35.6	40.1	38.4
02	0700	36.1	43.6	41.3	34.2	38.2	36.6
03	0800	33.2	44.9	42.2	33.1	38.8	36.8
04	0900	34.7	43.2	40.8	35.8	40.3	38.6
05	1000	31.6	40.9	38.4	34.6	42.3	40.0
06	1100	32.5	41.2	38.7	32.6	38.2	36.2
07	1200	36.2	43.2	41.0	33.8	35.2	34.6
08	1300	35.9	44.8	42.3	36.1	40.3	38.7
09	1400	31.9	39.1	36.8	34.6	44.3	41.7
10	1500	33.6	41.4	39.1	36.4	45.1	42.6
11	1600	31.5	39.2	36.9	31.5	41.2	38.6
12	1700	32.8	40.7	38.3	32.6	38.2	36.2
13	1800	32.6	40.3	38.0	31.8	36.5	34.8
14	1900	32.7	41.7	39.2	32.4	35.4	34.2
15	2000	33.9	42.5	40.1	34.2	38.6	36.9

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No: KGS/0322/TR/N-84		Report Date: 12.03.2022	
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-84
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	08.03.2022
Sample Description	Ambient Noise	Noise Level Received On	09.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	12.03.2022

Location		N7 - Karachery			N8 - Bogampatti		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)
16.	2100	34.2	43.1	40.6	33.5	35.2	34.4
17.	2200	36.1	45.9	43.3	32.6	34.6	33.7
18.	2300	33.8	41.7	39.3	31.2	33.2	32.3
19.	0000	31.9	40.3	37.9	32.6	34.1	33.4
20.	0100	33.1	41.9	39.4	34.2	36.5	35.5
21.	0200	32.9	33.9	33.4	36.1	38.4	37.4
22.	0300	31.3	34.8	33.4	33.8	35.2	34.6
23.	0400	33.8	36.5	35.4	31.5	32.6	32.1
24.	0500	31.9	38.5	36.3	33.6	35.1	34.4
Day Mean dB(A)				39.7	Day Mean dB(A)		37.2
Night Mean dB(A)				36.5	Night Mean dB(A)		34.2

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/S- 85			
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		SI	
Sample Description	SOIL	Sample Reference	KGS/0322/S- 85
Sample Mark	Core Zone	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.87
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff : 2016)	398
03.	Texture	%	Gravimetric Method	Sandy Loam
04.	Sand	%		63.9
05.	Silt	%		20.5
06.	Clay	%		15.6
07.	Water Holding Capacity	%	By Gravimetric Method	35.7
08.	Bulk Density	g/cm ³	By Cylindrical Method	0.97
09.	Porosity	%	By Gravimetric Method	23.9
10.	Exchangeable Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	140
11.	Exchangeable Magnesium as Mg	mg/kg		23.3
12.	Exchangeable Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	25.1
13.	Exchangeable Zinc as Zn	mg/kg		0.55
14.	Available Boron as B	mg/kg		0.58

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/S- 85			
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorupalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		SI	
Sample Description	SOIL	Sample Reference	KGS/0322/S- 85
Sample Mark	Core Zone	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S. No	Parameters	Units	Test Methods	Result
15.	Soluble Chloride as Cl ₁	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	129
16.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	1.13
17.	Available Potassium as K	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	32.5
18.	Available Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	0.76
19.	Available Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	1.58
20.	Cadmium as Cd	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)
21.	Chromium as Cr	mg/kg		BDL (DL:0.05)
22.	Copper as Cu	mg/kg		BDL (DL:0.05)
23.	Lead as Pb	mg/kg		0.55
24.	Total Iron as Fe	mg/kg		2.54
25.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.96
26.	Organic Carbon	%		0.56
27.	Cation Exchange Capacity	meq/100g of soil	USEPA 9080 - 1986	32.8

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/S- 86			
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S2	
Sample Description	SOIL	Sample Reference	KGS/0322/S- 86
Sample Mark	Core Zone	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	8.55
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff : 2016)	450
03.	Texture	%	Gravimetric Method	Sandy Clay Loam
04.	Sand	%		58.4
05.	Silt	%		15.6
06.	Clay	%		26.0
07.	Water Holding Capacity	%	By Gravimetric Method	40.6
08.	Bulk Density	g/cm ³	By Cylindrical Method	0.93
09.	Porosity	%	By Gravimetric Method	29.3
10.	Exchangeable Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	164.7
11.	Exchangeable Magnesium as Mg	mg/kg		25.5
12.	Exchangeable Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	29.1
13.	Exchangeable Zinc as Zn	mg/kg		0.59
14.	Available Boron as B	mg/kg		0.62

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/S- 86			
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S2	
Sample Description	SOIL	Sample Reference	KGS/0322/S- 86
Sample Mark	Core Zone	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S. No	Parameters	Units	Test Methods	Result
15.	Soluble Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	138.5
16.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	121.7
17.	Available Potassium as K	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	34.2
18.	Available Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	0.97
19.	Available Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	200.5
20.	Cadmium as Cd	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)
21.	Chromium as Cr	mg/kg		BDL (DL:0.05)
22.	Copper as Cu	mg/kg		BDL (DL:0.05)
23.	Lead as Pb	mg/kg		0.64
24.	Total Iron as Fe	mg/kg		1.9
25.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.67
26.	Organic Carbon	%		0.97
27.	Cation Exchange Capacity	meq/100g of soil	USEPA 9080 - 1986	39.1

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TEST REPORT

Test Report No.: KGS/0322/TR/S- 87			
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S3	
Sample Description	SOIL	Sample Reference	KGS/0322/S-87
Sample Mark	Pachapalayam	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.93
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff : 2016)	610
03.	Texture	%	Gravimetric Method	Clay Loam
04.	Sand	%		40.9
05.	Silt	%		24.7
06.	Clay	%		34.4
07.	Water Holding Capacity	%	By Gravimetric Method	42.8
08.	Bulk Density	g/cm ³	By Cylindrical Method	1.09
09.	Porosity	%	By Gravimetric Method	27.2
10.	Exchangeable Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	149
11.	Exchangeable Magnesium as Mg	mg/kg		30.5
12.	Exchangeable Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	33.8
13.	Exchangeable Zinc as Zn	mg/kg		1.04
14.	Available Boron as B	mg/kg		0.79

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TEST REPORT

Test Report No.: KGS/0322/TR/S- 87

Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S3	
Sample Description	SOIL	Sample Reference	KGS/0322/S-87
Sample Mark	Pachapalayam	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S. No	Parameters	Units	Test Methods	Result
15.	Soluble Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	139
16.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	138
17.	Available Potassium as K	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	41.5
18.	Available Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	0.88
19.	Available Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	253.6
20.	Cadmium as Cd	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)
21.	Chromium as Cr	mg/kg		BDL (DL:0.05)
22.	Copper as Cu	mg/kg		BDL (DL:0.05)
23.	Lead as Pb	mg/kg		1.05
24.	Total Iron as Fe	mg/kg		1.61
25.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.17
26.	Organic Carbon	%		1.26
27.	Cation Exchange Capacity	meq/100g of soil	USEPA 9080 - 1986	44.7

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No.: KGS/0322/TRANS- 88			
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S4	
Sample Description	SOIL	Sample Reference	KGS/0322/S-88
Sample Mark	Kallapalayam	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.71
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff: 2016)	657
03.	Texture	%	Gravimetric Method	Sandy Loam
04.	Sand	%		72.1
05.	Silt	%		12.6
06.	Clay	%		15.3
07.	Water Holding Capacity	%	By Gravimetric Method	34.2
08.	Bulk Density	g/cm ³	By Cylindrical Method	1.02
09.	Porosity	%	By Gravimetric Method	26.4
10.	Exchangeable Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	155.8
11.	Exchangeable Magnesium as Mg	mg/kg		24.7
12.	Exchangeable Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	30.4
13.	Exchangeable Zinc as Zn	mg/kg		0.68
14.	Available Boron as B	mg/kg		0.67

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No.: KGS/0322/TR/S- 88			
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S4	
Sample Description	SOIL	Sample Reference	KGS/0322/S-88
Sample Mark	Kallapalayam	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S. No	Parameters	Units	Test Methods	Result
15.	Soluble Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	154
16.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	127
17.	Available Potassium as K	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	32.2
18.	Available Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	0.42
19.	Available Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	250
20.	Cadmium as Cd	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)
21.	Chromium as Cr	mg/kg		BDL (DL:0.05)
22.	Copper as Cu	mg/kg		BDL (DL:0.05)
23.	Lead as Pb	mg/kg		1.06
24.	Total Iron as Fe	mg/kg		1.47
25.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.72
26.	Organic Carbon	%		1.58
27.	Cation Exchange Capacity	meq/100g of soil	USEPA 9080 - 1986	46.2

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No.: KGS/0322/TR/S- 89			
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District. Extent: 2.20.0 Ha	
Sample Code :		S5	
Sample Description	SOIL	Sample Reference	KGS/0322/S-89
Sample Mark	Karacherry	Sample Drawn-by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	8.68
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff: 2016)	710
03.	Texture	%	Gravimetric Method	Clay
04.	Sand	%		36.1
05.	Silt	%		13.5
06.	Clay	%		50.4
07.	Water Holding Capacity	%	By Gravimetric Method	47.2
08.	Bulk Density	g/cm ³	By Cylindrical Method	1.05
09.	Porosity	%	By Gravimetric Method	35.7
10.	Exchangeable Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	183.5
11.	Exchangeable Magnesium as Mg	mg/kg		38.5
12.	Exchangeable Manganese as Mn	mg/kg		40.7
13.	Exchangeable Zinc as Zn	mg/kg		1.37
14.	Available Boron as B	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	0.91

.....Continue Report.....




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TEST REPORT

Test Report No.: KGS/0322/TR/S- 89			
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S5	
Sample Description	SOIL	Sample Reference	KGS/0322/S-89
Sample Mark	Karacherry	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S. No	Parameters	Units	Test Methods	Result
15.	Soluble Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	178
16.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	165.5
17.	Available Potassium as K	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	59.4
18.	Available Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	1.08
19.	Available Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	310.1
20.	Cadmium as Cd	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)
21.	Chromium as Cr	mg/kg		BDL (DL:0.05)
22.	Copper as Cu	mg/kg		BDL (DL:0.05)
23.	Lead as Pb	mg/kg		1.14
24.	Total Iron as Fe	mg/kg		2.01
25.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	3.62
26.	Organic Carbon	%		2.10
27.	Cation Exchange Capacity	meq/100g of soil	USEPA 9080 – 1986	41.0

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TEST REPORT

Test Report No.: KGS/0322/TR/S- 90

Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20,0 Ha	
Sample Code :		S6	
Sample Description	SOIL	Sample Reference	KGS/0322/S-90
Sample Mark	Bogampatti	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.28
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff : 2016)	297
03.	Texture	%	Gravimetric Method	Clay Loam
04.	Sand	%		42.6
05.	Silt	%		20.6
06.	Clay	%		36.8
07.	Water Holding Capacity	%	By Gravimetric Method	35.5
08.	Bulk Density	g/cm ³	By Cylindrical Method	0.97
09.	Porosity	%	By Gravimetric Method	32.6
10.	Exchangeable Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	122
11.	Exchangeable Magnesium as Mg	mg/kg		21.6
12.	Exchangeable Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	20.5
13.	Exchangeable Zinc as Zn	mg/kg		0.78
14.	Available Boron as B	mg/kg		0.57

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TEST REPORT

Test Report No.: KGS/0322/TR/S- 90			
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S6	
Sample Description	SOIL	Sample Reference	KGS/0322/S-90
Sample Mark	Bogampatti	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S. No	Parameters	Units	Test Methods	Result
15.	Soluble Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	135.4
16.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	122
17.	Available Potassium as K	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	31.5
18.	Available Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	0.35
19.	Available Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	183
20.	Cadmium as Cd	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	BDL(DL:0.003)
21.	Chromium as Cr	mg/kg		BDL (DL:0.05)
22.	Copper as Cu	mg/kg		BDL (DL:0.05)
23.	Lead as Pb	mg/kg		0.56
24.	Total Iron as Fe	mg/kg		16.9
25.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.99
26.	Organic Carbon	%		1.16
27.	Cation Exchange Capacity	meq/100g of soil	USEPA 9080 - 1986	40.0

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TEST REPORT

Test Report No.: KGS/0322/TR/W-91			
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sular Taluk, Coimbatore District.	
Sample Description	SW1	Sample Reference	KGS/0322/W-91
Sample Mark	Core Zone	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4 :1983	5
2	Odour	-	IS 3025 Part 5 :1983	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11 :1983	7.29
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14 :1984	588
5	Turbidity	NTU	IS 3025 Part 10 :1984	12.8
6	Total Dissolved Solids	mg/l	IS 3025 Part 16 :1984	347
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21 :1984	192.4
8	Calcium as Ca	mg/l	IS 3025 Part 40 :1991	36.1
9	Magnesium as Mg	mg/l	IS 3025 Part 46 :1994	24.9
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23 :1986	137.5
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32 :1988	74.2
12	Sulphate as SO ₄	mg/l	IS 3025 Part 24 :1986	25.8
13	Iron as Fe	mg/l	IS 3025 Part 53 :2003	0.29
14	Free Residual Chlorine	mg/l	IS 3025 Part 26 :1986	BDL (DL: 2.0)
15	Fluoride as F	mg/l	IS 3025 Part 60 :2008	0.25
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34 :1988	9.7
17	Copper as Cu	mg/l	IS 3025 Part 42 :1992	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 59 :2006	BDL (DL:0.05)
19	Mercury as Hg	mg/l	IS 3025 Part 48 :1999	(BDL (DL: 0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 41 :2003	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 56 :2003	5

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TEST REPORT

Test Report No.: KGS/0322/TR/W-91			
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sular Taluk, Coimbatore District.	
Sample Description	SW1	Sample Reference	KGS/0322/W-91
Sample Mark	Core Zone	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No.	Parameters	Units	Test Methods	Result
22	Aluminium as Al	mg/l	IS 3025 Part 55:2003	BDL (DL: 0.05)
23	Lead as Pb	mg/l	IS 3025 Part 47:1994	BDL (DL: 0.03)
24	Zinc as Zn	mg/l	IS 3025 Part 49:2003	BDL (DL:0.01)
25	Total Chromium	mg/l	IS 3025 Part 52:2003	BDL (DL:0.02)
26	Boron as B	mg/l	IS 3025 Part 57:2005	BDL (DL: 0.05)
27	Mineral Oil	mg/l	IS 3025 Part 39:2011	BDL (DL:0.1)
28	Phenolic Compounds as C ₁₁ OH	mg/l	IS 3025 Part 43:1992	BDL (DL:1.0)
29	Anionic Detergents as MBAS	mg/l	IS 13428 - 2005	Absent
30	Cynaide as CN	mg/l	IS 3025 Part 27:1986	BDL (DL:0.1)
31	Biological Oxygen Demand	mg/l	IS 3025 Part 44:1993	Absent
32	Chemical Oxygen Demand	mg/l	IS 3025 Part 58:2006	5.9
33	Dissolved Oxygen	mg/l	IS 3025 Part 38:1989	28
34	Total Coliform	Per 100ml	IS 1622 : 1981	5.6
35	E-Coli	Per 100ml	IS 15185	present
36	Barium as Ba	mg/l	IS 13428 - 2005	present
37	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 34:1988	BDL (DL:0.5)
38	Sulphide as H ₂ S	mg/l	IS 3025 Part 29:1986	2.5
39	Molybdenum as Mo	mg/l	KGS/SOP/W-004 : 2018	BDL (DL:0.05)
40	Total Arsenic as As	mg/l	IS 3025 Part 37:1997	BDL (DL:0.5)
41	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984	BDL (DL:0.01)

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TEST REPORT

Test Report No.: KGS/0322/TR/W-92			
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Suler Taluk, Coimbatore District.	
Sample Description	SW2	Sample Reference	KGS/0322/W-92
Sample Mark	Pallapalayam Lake	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4:1983	10
2	Odour	-	IS 3025 Part 5:1983	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11:1983	7.24
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14:1984	559
5	Turbidity	NTU	IS 3025 Part 10:1984	7.9
6	Total Dissolved Solids	mg/l	IS 3025 Part 16:1984	350
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21:1984	141.44
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991	26.7
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994	18.2
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23:1986	140
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32:1988	62.4
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24:1986	20.1
13	Iron as Fe	mg/l	IS 3025 Part 53:2003	0.33
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986	BDL (DL: 2.0)
15	Fluoride as F	mg/l	IS 3025 Part 60:2008	0.28
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34:1988	11.0
17	Copper as Cu	mg/l	IS 3025 Part 42:1992	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 59:2006	BDL (DL:0.05)
19	Mercury as Hg	mg/l	IS 3025 Part 48:1999	(BDL (DL: 0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 41:2003	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 56:2003	BDL (DL: 0.05)

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TEST REPORT

Test Report No.: KGS/0322/TR/W-92			
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Sample Description	SW2	Sample Reference	KGS/0322/W-92
Sample Mark	Pallapalayam Lake	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No.	Parameters	Units	Test Methods	Result
22	Aluminium as Al	mg/l	IS 3025 Part 55:2003	BDL (DL:0.03)
23	Lead as Pb	mg/l	IS 3025 Part 47:1994	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 49:2003	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 52:2003	BDL (DL:0.05)
26	Boron as B	mg/l	IS 3025 Part 57:2005	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 39:2011	BDL (DL:1.0)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43:1992	Absent
29	Anionic Detergents as MBAS	mg/l	IS 13428 - 2005	BDL (DL:0.1)
30	Cyanide as CN	mg/l	IS 3025 Part 27:1986	Absent
31	Biological Oxygen Demand	mg/l	IS 3025 Part 44:1993	7.8
32	Chemical Oxygen Demand	mg/l	IS 3025 Part 58:2006	36
33	Dissolved Oxygen	mg/l	IS 3025 Part 38:1989	5.2
34	Total Coliform	Per 100ml	IS 1622 : 1981	present
35	E-Coli	Per 100ml	IS 15185	present
36	Barium as Ba	mg/l	IS 13428 - 2005	BDL (DL:0.5)
37	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 34:1988	2.1
38	Sulphide as H ₂ S	mg/l	IS 3025 Part 29:1986	BDL (DL:0.05)
39	Molybdenum as Mo	mg/l	KGS/SOP/W-004 : 2018	BDL (DL:0.5)
40	Total Arsenic as As	mg/l	IS 3025 Part 37:1997	BDL (DL:0.01)
41	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984	15.5

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TEST REPORT

Test Report No.: KGS/0322/TR/W-93			
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Suler Taluk, Coimbatore District.	
Sample Description	WW-1	Sample Reference	KGS/0322/W-93
Sample Mark	Core Zone	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4 :1983	< 5
2	Odour	-	IS 3025 Part 5 :1983	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11 :1983	7.36
4	Electrical Conductivity @ 25°C	us/cm	IS 3025 Part 14 :1984	625
5	Turbidity	NTU	IS 3025 Part 10 :1984	< 1
6	Total Dissolved Solids	mg/l	IS 3025 Part 16 :1984	369
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21: 1984	174.5
8	Calcium as Ca	mg/l	IS 3025 Part 40 :1991	34.2
9	Magnesium as Mg	mg/l	IS 3025 Part 46 :1994	21.7
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23 :1986	126.7
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32 :1988	78.8
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24:1986	26.8
13	Iron as Fe	mg/l	IS 3025 Part 53 :2003	BDL(DL:0.1)
14	Free Residual Chlorine	mg/l	IS 3025 Part 26: 1986	BDL(DL: 2.0)
15	Fluoride as F	mg/l	IS 3025 Part 60: 2008	0.24
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34: 1988	9.5
17	Copper as Cu	mg/l	IS 3025 Part 42:1992	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 59:2006	BDL (DL:0.05)
19	Mercury as Hg	mg/l	IS 3025 Part 48:1999	(BDL (DL:0.0005))

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No.: KGS/0322/TR/W-93			
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Suler Taluk, Coimbatore District.	
Sample Description	WW-1	Sample Reference	KGS/0322/W-93
Sample Mark	Core Zone	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No.	Parameters	Units	Test Methods	Result
20	Cadmium as Cd	mg/l	IS 3025 Part 41:2003	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 56:2003	BDL (DL:0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 55:2003	BDL (DL:0.03)
23	Lead as Pb	mg/l	IS 3025 Part 47:1994	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 49:2003	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 52:2003	BDL (DL:0.05)
26	Boron as B	mg/l	IS 3025 Part 57:2005	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 39:2011	BDL (DL:1.0)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43:1992	Absent
29	Anionic Detergents as MBAS	mg/l	IS 13428 - 2005	BDL (DL:0.1)
30	Cyanide as CN	mg/l	IS 3025 Part 27:1986	Absent
31	Total Coliform	Per 100ml	IS 1622 : 1981	< 2
32	E-Coll	Per 100ml	IS 15185	< 2
33	Barium as Ba	mg/l	IS 13428 - 2005	BDL (DL:0.5)
34	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 34:1988	BDL (DL:0.1)
35	Sulphide as H ₂ S	mg/l	IS 3025 Part 29:1986	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	KGS/SOP/W-004 : 2018	BDL (DL:0.5)
37	Total Arsenic as As	mg/l	IS 3025 Part 37:1997	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984	BDL (DL:2)

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TEST REPORT

Test Report No.: KGS/0322/TR/W-94			
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sular Taluk, Coimbatore District.	
Sample Description	WW-2	Sample Reference	KGS/0322/W-94
Sample Mark	Edayapalayam	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4 :1983	< 5
2	Odour	-	IS 3025 Part 5 :1983	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11 :1983	7.10
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14 :1984	557
5	Turbidity	NTU	IS 3025 Part 10 :1984	< 1
6	Total Dissolved Solids	mg/l	IS 3025 Part 16 :1984	328
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21 :1984	127.2
8	Calcium as Ca	mg/l	IS 3025 Part 40 :1991	27.6
9	Magnesium as Mg	mg/l	IS 3025 Part 46 :1994	14.2
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23 :1986	120
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32 :1988	75
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24 :1986	30.1
13	Iron as Fe	mg/l	IS 3025 Part 53 :2003	BDL (DL:0.1)
14	Free Residual Chlorine	mg/l	IS 3025 Part 26 :1986	BDL (DL: 2.0)
15	Fluoride as F	mg/l	IS 3025 Part 60 :2008	0.59
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34 :1988	8.0
17	Copper as Cu	mg/l	IS 3025 Part 42 :1992	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 59 :2006	BDL (DL:0.05)
19	Mercury as Hg	mg/l	IS 3025 Part 48 :1999	(BDL (DL:0.0005)

.....Continue Report.....



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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-94			
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Suler Taluk, Coimbatore District.	
Sample Description	WW-2	Sample Reference	KGS/0322/W-94
Sample Mark	Edayapalayam	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No.	Parameters	Units	Test Methods	Result
20	Cadmium as Cd	mg/l	IS 3025 Part 41:2003	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 56:2003	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 55:2003	BDL (DL: 0.03)
23	Lead as Pb	mg/l	IS 3025 Part 47:1994	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 49:2003	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 52:2003	BDL (DL: 0.05)
26	Boron as B	mg/l	IS 3025 Part 57:2005	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 39:2011	BDL (DL:1.0)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43:1992	Absent
29	Anionic Detergents as MBAS	mg/l	IS 13428 - 2005	BDL (DL:0.1)
30	Cyanide as CN	mg/l	IS 3025 Part 27:1986	Absent
31	Total Coliform	Per 100ml	IS 1622 : 1981	< 2
32	E-Coli	Per 100ml	IS 15185	< 2
33	Barium as Ba	mg/l	IS 13428 - 2005	BDL (DL:0.5)
34	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 34:1988	BDL (DL:0.1)
35	Sulphide as H ₂ S	mg/l	IS 3025 Part 29:1986	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	KGS/SOP/W-004 : 2018	BDL (DL:0.5)
37	Total Arsenic as As	mg/l	IS 3025 Part 37:1997	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984	BDL (DL:2)

.....End of Report.....




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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-95			
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Suler Taluk, Coimbatore District.	
Sample Description	BW-1	Sample Reference	KGS/0322/W-95
Sample Mark	Core Zone	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4 :1983	< 5
2	Odour	-	IS 3025 Part 5 :1983	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11 :1983	7.37
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14 :1984	679
5	Turbidity	NTU	IS 3025 Part 10 :1984	< 1
6	Total Dissolved Solids	mg/l	IS 3025 Part 16 :1984	400
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21 :1984	246.6
8	Calcium as Ca	mg/l	IS 3025 Part 40 :1991	41.5
9	Magnesium as Mg	mg/l	IS 3025 Part 46 :1994	34.8
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23 :1986	155
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32 :1988	86
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24 :1986	32.1
13	Iron as Fe	mg/l	IS 3025 Part 53 :2003	0.33
14	Free Residual Chlorine	mg/l	IS 3025 Part 26 :1986	BDL (DL: 2.0)
15	Fluoride as F	mg/l	IS 3025 Part 60 :2008	0.41
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34 :1988	7.5
17	Copper as Cu	mg/l	IS 3025 Part 42 :1992	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 59 :2006	BDL (DL:0.05)
19	Mercury as Hg	mg/l	IS 3025 Part 48 :1999	(BDL (DL: 0.0005))

.....Continue Report.....




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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-95

Site Location;		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Sample Description	BW-1	Sample Reference	KGS/0322/W-95
Sample Mark	Core Zone	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No.	Parameters	Units	Test Methods	Result
20	Cadmium as Cd	mg/l	IS 3025 Part 41:2003	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 56:2003	BDL (DL:0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 55:2003	BDL (DL:0.03)
23	Lead as Pb	mg/l	IS 3025 Part 47:1994	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 49:2003	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 52:2003	BDL (DL:0.05)
26	Boron as B	mg/l	IS 3025 Part 57:2005	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 39:2011	BDL (DL:1.0)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43:1992	Absent
29	Anionic Detergents as MBAS	mg/l	IS 13428 - 2005	BDL (DL:0.1)
30	Cyanide as CN	mg/l	IS 3025 Part 27:1986	Absent
31	Total Coliform	Per 100ml	IS 1622 : 1981	< 2
32	E-Coli	Per 100ml	IS 15185	< 2
33	Barium as Ba	mg/l	IS 13428 - 2005	BDL (DL:0.5)
34	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 34:1988	BDL (DL:0.1)
35	Sulphide as H ₂ S	mg/l	IS 3025 Part 29:1986	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	KGS/SOP/W-004 : 2018	BDL (DL:0.5)
37	Total Arsenic as As	mg/l	IS 3025 Part 37:1997	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	IS 3025 Part 17-1984	BDL (DL:2)

.....End of Report.....



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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-96			
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Sample Description	BW-2	Sample Reference	KGS/0322/W-96
Sample Mark	Karachery	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4 :1983	<5
2	Odour	-	IS 3025 Part 5 :1983	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11 :1983	7.55
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14 :1984	618
5	Turbidity	NTU	IS 3025 Part 10 :1984	<1
6	Total Dissolved Solids	mg/l	IS 3025 Part 16 :1984	364
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21 :1984	191.3
8	Calcium as Ca	mg/l	IS 3025 Part 40 :1991	55.5
9	Magnesium as Mg	mg/l	IS 3025 Part 46 :1994	25
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23 :1986	142.7
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32 :1988	89.3
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24 :1986	34.8
13	Iron as Fe	mg/l	IS 3025 Part 53 :2003	0.19
14	Free Residual Chlorine	mg/l	IS 3025 Part 26 :1986	BDL (DL: 2.0)
15	Fluoride as F ⁻	mg/l	IS 3025 Part 60 :2008	0.28
16	Nitrates as NO ₃ ⁻	mg/l	IS 3025 Part 34 :1988	9.4
17	Copper as Cu	mg/l	IS 3025 Part 42 :1992	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 59 :2006	BDL (DL:0.05)
19	Mercury as Hg	mg/l	IS 3025 Part 48 :1999	(BDL (DL: 0.0005))

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TEST REPORT

Test Report No.: KGS/0322/TR/W-96			
Site Location:		Pachapalayam Rough Stone and Gravel Quarry, Pachapalayam Village, Sulur Taluk, Coimbatore District.	
Sample Description	BW-2	Sample Reference	KGS/0322/W-96
Sample Mark	Karachery	Sample Drawn by	Chemisi
Sample Quantity	2.0ltr	Sample Collected on	09.03.2022
Sample Received on	10.03.2022	Test Commenced on	10.03.2022
Test Completed on	15.03.2022	Test Reported on	15.03.2022

S.No.	Parameters	Units	Test Methods	Result
20	Cadmium as Cd	mg/l	IS 3025 Part 41:2003	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 56:2003	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 55:2003	BDL (DL: 0.03)
23	Lead as Pb	mg/l	IS 3025 Part 47:1994	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 49:2003	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 52:2003	BDL (DL: 0.05)
26	Boron as B	mg/l	IS 3025 Part 57:2005	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 39:2011	BDL (DL:1.0)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43:1992	Absent
29	Anionic Detergents as MBAS	mg/l	IS 13428 - 2005	BDL (DL:0.1)
30	Cyanide as CN	mg/l	IS 3025 Part 27-1986	Absent
31	Total Coliform	Per 100ml	IS 1622 : 1981	< 2
32	E-Coli	Per 100ml	IS 15185	< 2
33	Barium as Ba	mg/l	IS 13428 - 2005	BDL (DL:0.5)
34	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 34-1988	BDL (DL:0.1)
35	Sulphide as H ₂ S	mg/l	IS 3025 Part 29-1986	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	KGS/SOP/W-004 : 2018	BDL (DL:0.5)
37	Total Arsenic as As	mg/l	IS 3025 Part 37:1997	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	IS 3025 Part 17-1984	BDL(DL:2)

.....End of Report.....




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National Accreditation Board for Education and Training



Certificate of Accreditation

Geo Exploration & Mining Solutions, Salem

No. 17, Advaita Ashram Road, Fairlands, Salem – 636 004, Tamilnadu, India.

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

S.No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals opencast only	1	1 (a) (i)	A
2	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
3	Building and construction projects	38	8(a)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Jan 06, 2023 and 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/23/2684 dated Feb 20, 2023. The accreditation needs to be renewed before the expiry date by Geo Exploration & Mining Solutions, Salem following due process of assessment.

Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

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