

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENT MANAGEMENT PLAN

FOR OBTAINING

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

“B1” CATEGORY (Cluster) – MINOR MINERAL – CLUSTER –

PATTA LAND - EXISTING QUARRY

PACHAPALAYAM AND KALLAPALAYAM ROUGH STONE AND GRAVEL QUARRIES

Cluster Extent – 19.55.9Ha


Project Proponents

Code	Project Proponents	PROJECT LOCATION	PROPOSED PRODUCTION
P1	Thiru. V.Gopalakrishnan	291/1A Extent: 2.43.5Ha of Pachapalayam Village, Sulur Taluk, Coimbatore District	Reserves: 2,26,170m ³ of Rough stone, Gravel = 7,764m ³ Peak Production = 51,660m ³ of Rough Stone, Gravel= 6,620 m ³ Proposed Depth = 46m (1m Gravel + 45m Rough stone) bgl
P2	M/s.Tamilnadu Blue metals	263/1A(P), 264/1(P) Extent: 1.91.0 ha of Kallapalayam Village, Sulur Taluk, Coimbatore District,	Reserves: 1,51,295m ³ of Rough stone Peak Production = 30,810m ³ of Rough Stone Proposed Depth = 27m bgl

Complied as per ToR Obtained Vide

Lr. No. SEIAA-TN/F.No.10502/SEAC/1(a)ToR-1666/2023 Dated:08.02.2024 - P1

Lr.No. F.No.10786/ToR Identification No: TO24B0108TN5672058N Dated: 31/05/2024 – P2

<p>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’, 31 & 38 Category ‘B’ Certificate No: NABET/EIA/2225/RA0276 Phone: 0427-2431989, Email: ifthiahmed@gmail.com, geothangam@gmail.com Web: www.gemssalem.com</p>	<p>Laboratory EHS 360 LABS PRIVATE LIMITED, 10/2 Ground floor, 50th street, 7th Avenue, Ashok Nagar, Chennai – 600 083.</p>
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Baseline Monitoring Period: March to May 2024

JUNE-2024

For easy representation of Proposed and Existing, Expired and Abandoned Quarries in the Cluster are given unique codes and identifies and studied in this EIA/ EMP Report.

PROPOSED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru. V.Gopalakrishnan	Pachapalayam	291/1A	2.43.5	Lr.No. SEIAA-TN/F.No.10502/SEAC/1(a)ToR-1666/2023 Dated:08.02.2024
P2	Tvl.Tamilnadu Blue metals	Kallapalayam	263/1A(P), 264/1(P)	1.91.0	F.No.10786/ToR Identification No: TO24B0108TN5672058N Dated: 31/05/2024
P3	Thiru.D.Ramesh	Pachapalayam	291/1B1A	0.91.0	F.No.7812/ ToR Identification No TO24B0108TN5380920A Dated:03.06.2024
P4	M/s.Ultra sahara Sand	Orattukuppai	320 (P)	6.36.0	Application Processed
TOTAL EXTENT				11.61.5Ha	
EXISTING QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Lease Period
E-1	M/S. Ultra Readymix Concrete P Ltd,	Orattukuppai	320 (P), 332/2A (P)	3.07.4	22.12.2018 -21.12-2023
E-2	M/S.Ultra sahara Sand P Ltd	Orattukuppai	188 (P), 190/1	2.37.0	14.12.2022 -13.12-2027
E-3	M/S.Ultra sahara Sand P Ltd	Orattukuppai	191(P), 198(P)	2.50.0	14.12.2022 -13.12-2027
TOTAL EXTENT				7.94.4Ha	
EXPIRED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Lease Period
Ex-1	Thiru.V. Velusamy	Pachapalayam	291/1B2,291/1D1,291/1D2	2.43.5	07.04.2017 -06.04-2020
Ex-2	Thiru.K. Balakrishnan	Pachapalayam	291/1B1B(P)	2.40.5	15.09.2017 -14.09-2022
Ex-3	Thiru.K. Natarajan	Pachapalayam	291/2A2,291/2B	1.83.5	02.06.2016-01.06.2021
Ex-4	M/s.Tamilnadu Blue metals	Kallapalayam	263/2A	6.09.0	EC granted Lr. No. SEIAA-TN/F.No.5418/1(a)/EC No:3288/2016 Dated:11.07.2016
TOTAL EXTENT				12.76.5Ha	
ABANDONED QUARRIES					
A-1	Thiru.N.Boopathyraja	Orattukuppai	291/2A2, 291/2B	1.06.5	02.06.2016 to 01.06.2021
A-2	Tvl.Tamil Nadu Blue metals	Kallapalayam	263/2A	1.60.0	22.05.2011 to 21.05.2016
TOTAL EXTENT				2.66.5Ha	
CLUSTER EXTENT				19.55.9Ha	

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

TERMS OF REFERENCE (ToR) COMPLIANCE**Thiru. V.Gopalakrishnan****Lr. No. SEIAA-TN/F.No.10502/SEAC/1 (a)ToR-1666/2023 Dated:08.02.2024**

TOR ADDITIONAL CONDITIONS		
1	The Project Proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to proposed quarrying operations on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation.	Revised EMP based on the study carried out chapter 10.
2	Since the structures are situated within a radial distance of 500 m, the PP shall carry out the scientific studies by involving anyone of these reputed Research and Academic Institutions - CSIR-Central institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus to design the controlled blast parameters and safe blasting practices in the cluster of mines for reducing the blast-induced ground/air- vibrations and eliminating the fly rock from the blasting operations, through conducting the trial blasts in the adjacent operating located in the same cluster to monitor the blast-induced ground & air vibration (noise) by installing the DGMS approved 'Vibration Monitoring System (VMS)' near the all the structures (house/temples/public roads) located within 500 m radial distance from the mine leases of the cluster and also at the distances of 750 m & 1000 m. Apart from the above, the PP shall capture the level & direction fly rock produced through slow-motion video. The PP shall submit a copy of the aforesaid report to the SEIAA during the time of appraisal for obtaining the EC after incorporating the same in the revised EIA being submitted at the Public Hearing.	Noted and agreed
3	The PP shall undertake Hydrogeology study considering nearby existing wells, Aquifers, Ground water & surface water levels etc within the radius of 1km.	Detailed in Hydrogeology report attached annexure volume with 1km radius details in chapter-3 water environment.
TOR 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	Existing Pit Dimension Pit I: 140m(L) x 98m(W) x 21m(D) Pit II: 79m(L) x 34m(W) x 1m(D) Year wise Production for 5years 2,26,170 m ³ 46m (1m Gravel + 45m Rough stone) bgl EC certificate: Lr. No. SEIAA – TN / F.No.5797 / 1(a) / EC.No.3873 / 2016, Dated: 19.06.2017 Non-Violation during the past working this quarry.

	(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.	VAO letter stating the details of habitations, temples etc., is enclosed as Annexure
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants. whether it belongs to the owner (or) not places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.	Details in Chapter-3 structures located within the radius of 300m in socioeconomic environment
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tank, etc are located within 1 km of the proposed quarry.	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. 4
5	The Proponent shall carry out Bio diversity study through reputed institution and the same shall be included in EIA Report.	Biodiversity study has been carried out by Functional Area Expert by the NABET accredited consultant. The detailed study is given in the Chapter No.3
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.	Bolampatti-I R.F – 12.88km –West
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.	It is a fresh lease application but, the quarry lease was previously granted in favour of Thiru.R. Palaniappan, over an extent of 2.43.5 Hectares of Patta land in S.F.No.291/1A of Pachapalayam Village, Sulur Taluk, Coimbatore District vide Rc.No.418/Mines/2015, dated: 07.10.2017 for the period of five years from 07.10.2017 to 06.10.2022. The applicant (Thiru.R. Palaniappan) has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu vide Lr. No. SEIAA – TN / F.No.5797 / 1(a) / EC.No.3873 / 2016, Dated: 19.06.2017. Now the applicant (Thiru. V.Gopalakrishnan) has applied a quarry lease for the period of five years on 12.07.2022 over an extent of 2.43.5 Hectares of patta lands in S.F.No. 291/1A of Pachapalayam Village, Sulur Taluk, Coimbatore District.
8	However, in case of the fresh/virgin quarries, 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.	For the first five years plan period the mining operation is proposed to carry out upto the depth of 46m bgl. It is ensured that the slope stability will be carried out after 30m bgl.

		The Blasting will be carried out by controlled blasting adopting muffle blasting and line drilling. The cost for the controlled blasting is allotted in the EMP, Chapter No.10 Table No. 10.10 Page No.133
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.	Proponent given Affidavit stating that the blasting operation will be carried out by the competent person as per the MMR 1961.
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 Coordinator shall obtain and furnish the details of quarry /quarries operated by the PP in the past, either in the same location or elsewhere in the state with video and Photographic evidences.	Noted and agreed. There are three quarries including this proposal in the cluster belongs to the Proponent Thiru.D.Ramesh and TvI.Tamilnadu Blue metals and M/S.Ultra sahara Sand
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	Lr. No. SEIAA – TN / F.No.5797 / 1(a) / EC.No.3873 / 2016, Dated: 19.06.2017.
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Existing Proposal Lease
14	Quantify of minerals mined out A. Highest production achieved in any one year B. Detail of approved depth of mining. C. Actual depth of the mining achieved earlier. D. Name of the person already mined in that leases area. E. 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.	Peak Production per year 51,660 m ³ Proposed Depth of Mining 46m Bgl Existing: Pit I: 140m(L) x 98m(W) x 21m(D) Pit II: 79m(L) x 34m(W) x 1m(D) EC: Lr. No. SEIAA – TN / F.No.5797 / 1(a) / EC.No.3873 / 2016, Dated: 19.06.2017.
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).	Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2, Figure No.2.2, Page No.11. Geomorphology of the area is given in Chapter No 2, Figure No.2.9, Page No.21 Land use pattern of the project area is tabulated in the Chapter No.2. Table no 2.3, Pg.No.18 Land use pattern of the Study area is tabulated in the Chapter No.2, Table no 2.3, Pg.No.17.
16	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	Drone video survey covering the Cluster, Greenbelt and fencing will be submitted during appraisal.
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.	The area has been fenced and the photographs are given in the Chapter No.2, Figure No.2.1 Page No.11 No trees within the proposed excavation area, no transplanted is required.

		Water bodies near to the project site is given in the Chapter No.2 Table No.2.13 Page No.26
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.	The Total Mineable Reserves of Rough stone is 2,26,170m ³ Production for the five-year plan period is 2,26,170 m ³ of Rough stone Peak production capacity is 51,660 m ³ of Rough stone Details of Reserves and methodology of mining is given in the 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.	Noted and agreed. Detailed under Chapter 6.
20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	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 of open wells and borewells within 1km radius along with water level is given in the Chapter No.3
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 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 to assess the cumulative impact of the proposed project on the environment is prepared. The details of Baseline study is given in the 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 No.7,
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	The rain water will be collected in the mine pit at the lower point later it will be utilized for the haul road maintenance, Greenbelt development etc.,
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 Land cover study within the radius of 10km is detailed in the Chapter No. 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, There are no wastages anticipated, the entire quarried out rough stone material will be utilized.
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.	The area is not declared as Critically polluted area, no court case pending against the project. Proponent obtained Precise area communication letter, Approval for the Mining plan. The Details are enclosed as Annexure.
27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
28	Impact on local transport infrastructure due to the Project should be indicated.	There is no group of Houses, Schools in the proposed transportation route. Proposed Transportation route with mitigation measures is given in the Chapter No.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.	The Flora study in the core zone has been carried out and the details are given in the Chapter No.3
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	The mine closure plan is detailed in the Chapter No.4 Page No.49 The budget for the mine closure is included in the Environmental Management plan in Chapter No.10 ,Table:10.10
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.	The Flora and Fauna study around the vicinity of the site is carried out by the Functional area experts along with Local School Students.
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.	The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4 Table No.4.10
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.	Noted and agreed. The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4 Table No.4.10
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan is detailed in the Chapter No.7

35	A Risk Assessment and management Plan shall be prepared and included in the ELA/EMP Report.	A Risk Assessment and management Plan detailed in the Chapter No.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 of the project with mitigation measures are detailed in the Chapter No.7 Details of Periodical Medical Examination given in the Chapter No.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.	The details of the population in the impact zone (within 500m radius) are detailed in the Chapter No.3, Page No.76
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.	Socio Economic study covering 10 km radius is detailed in the Chapter No.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 court case and litigation pending against the project.
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc	It is explained in Chapter 8- Benefits of the Project
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.	Not applicable, the project is Existing proposal.
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.	The EMP has been prepared for the entire life of the mine. Proponent given affidavit stating the EMP will be submitted during the appraisal after completion of Public hearing.
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 & agreed.

ADDITIONAL CONDITIONS-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.	Cluster management committee has been formed with mutual agreement with the proponents including Existing and Proposed quarry at present are framed.
2.	The members must coordinate among themselves for the effective implementation of EMP as	As per the committee agreement proponents will coordinates for the Greenbelt development, Water sprinkling and tree plantation activities combinedly.

	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.	The formation of committee with list of members has been submitted to the AD mines office, Coimbatore and the same will be update in every year
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.	As per the committee agreement the blasting frequency will be discussed and carryout by the Mines Manager appointed by the proponents and the same will be updated in the committee minutes. 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	Details discussed in chapter 7 of Draft EIA report
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Details discussed in chapter 6 of Draft EIA report
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Noted & agreed
8	The committee shall furnish the Emergency Management 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 reference 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 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 steams.	Details of Soil health is given in Chapter No 3 and biodiversity is given in Chapter No 3. The project will not cause any significant changes in the climate Climatic changes and GHG are described in Chapter No 4. Details of water contamination and impact on aquatic ecosystem is given in Chapter No 4. Hydrothermal/ Geothermal effects due to destruction in the environment, Bio geochemical process and sediment geo chemistry given in the Chapter No 7.

<i>Agriculture & Agro-Biodiversity</i>		
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 vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	The area is Existing proposed Lease & Few trees present with in lease.
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.	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.	Noted & agreed
18	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 and west side. Proponent proposed to erect green mesh along with fencing on the South side besides, Budgetary allocation given in the Chapter No. 10.
<i>Forest</i>		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Bolampatti I R.F – 12.88km –West
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Ecology and Biodiversity environment deals in Chapter-3
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Ecology and Biodiversity environment deals in Chapter-3
22	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
<i>Water Environment</i>		
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.	Hydro-geological study considering the contour map of the water table detailing Chapter-3
24	Erosion Control measures.	Noted & agreed
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.	Details in Chapter 2
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body 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

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.	Impact assessment details in chapter-4
Energy		
31	The measures taken to 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 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.	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 above soil & 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 & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed under Chapter 10
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.	Project Cost = Rs. 86,85,000/- CER Cost = Rs 5,00,000/ Disaster Management plan & mine closure plan is discussed in chapter no.4 & 7
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Detailed under 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/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.	Details in Study 7.3 Disaster Management Plan 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	Detailed under Chapter 3 Environmental attribute and Socioeconomic environment in structure details.

	such as streams, odai, vaari, canal, channel. river, lake pond, tank etc.,	
40	As per the MoEF& CC office memorandum tr.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
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.	Details of carbon emission and mitigation activities are given int the Chapter No.4

TERMS OF REFERENCE (ToR) COMPLIANCE

M/s.Tamil Nadu Blue Metals

Lr.No. F.No.10786/ToR Identification No: TO24B0108TN5672058N Dated: 31/05/2024-P3

SITE SPECIFIC CONDITIONS				
Sl. No.	ToR Condition	Reply		
1.1	1. The project proponent shall submit a Certified Compliance Report obtained from IRO of MoEF & CC, Chennai for the EC granted earlier by the SEIAA-TN.	Noted and agreed		
	2. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries nearby provided as per the approved mining plan.	Chapter-3 Socio economic environment details in structure map 300m Radius with table.		
	3. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.	Noted and agreed		
	4. The PP shall propose the mitigation measures for the protection of structures exists within 500 m distance radially from the mine lease against the blast-induced ground & air vibrations, air & water pollution, haul road maintenance, ground water management.	Elaborate Detailed in Chapter-4 mitigation measures for the protection of structures exists with blast-induced ground & air vibrations, air & water pollution etc.,		
SEAC STANDARD CONDITIONS				
2.1	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	Lr.No.SEIAA-TN/F.No.5418/1(a)/EC No:3288/2016 Dated:11.07.2016		
	i. original pit dimension of the existing quarry	Existing Lease application Pit-1 76 (L) x 110 (W) 1m Bgl (D) Pit-II 80 (L) x 41 (W) 20m Bgl (D)		
	ii. Quantity achieved vs EC approved quantity	550700 m ³ Rough stone and 16750m ³ Gravel		
	iii. Balance quantity as per Mineable Reserve calculated	<table border="1"> <tr> <td>Available Mineable Reserves of Rough Stone (Volume)</td> <td>1,51,295m³</td> </tr> </table>	Available Mineable Reserves of Rough Stone (Volume)	1,51,295m ³
	Available Mineable Reserves of Rough Stone (Volume)	1,51,295m ³		
	iv. Mined out Depth as on date vs EC permitted depth	32m		
	v. Details of illegal/Illicit Mining carried out, if any	Non Illigal		
vi. Non-Compliance / violation in the quarry during the past working	Non violence			

vii. Quantity of material mine out outside the mine lease area (or) in the adjacent quarry/field	-
viii. condition of safety / benches	Addressed in the Mining Plan by providing adequate safety and making bench formations.
ix. Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	Ultimate pit = Section XY-AB 148m (L) * 158 m (W) * 27 m Bgl (D)
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.	The letter detailing habitations around the proposed mining is obtained from Kallapalayam Village Tahsildar Office vide Letter no Noc.No 1274/2022/A7 Dated: 07.04.2022 and enclosed as Annexure – 3
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.	Detailed in chapter- 3 socio economic environment
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 1km of the proposed quarry.	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. 4
5.The proponent shall carry out Bio diversity study through reputed institution and the same shall be included in EIA Report.	The Bio diversity study has been conducted by the Functional Area Expert approved by the NABET. The same has been detailed in the Chapter No.3
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.	Request to consider the secondary source data detailing the nearest reserve forest from Tamil Nadu Geographical Information System (TNGIS). The Nearest Reserve Forest Boluvampatti R.F – 12.8km-W
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, NIRI/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.	Existing Lease application
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.	Proposed depth is 27m Bgl.
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/ Class mines manager appointed by the proponent.	The PP affirms that post execution of Quarry Lease Deed the application for Notice of Opening of the Mine along with Notice of Appointment of Competent Person shall be submitted to Director General Mines Safety, Chennai as per MMR, 1961. And ensure the quarry is operated under the Competent Person Employed.
10.The PP shall present a conceptual design for carrying out only controlled blasting operation	The details of design for carrying out controlled blasting operation involving line drilling and muffle blasting to

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.	minimize blast-induced ground vibrations and controlled fly rock travel beyond 30 m from the blast site is detailed in Chapter 4.
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.	The PP has submitted self-declaration affidavit that there are no other quarries applied or existing in his name elsewhere in the state.
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,	R.C.No 717/Mines/2015 dated 14.03.2017 (Lease period : 14.03.2017-13.03.2022)
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.	-
c) Highest production achieved in any one year	-
d) Detail of approved depth of mining.	32m (As per EC 2016)
e) Actual depth of the mining achieved earlier.	-
f) Name of the person already mined in that leases area.	Tvl. Tamilnadu Blue Metals Rough Stone & Gravel Quarry (Mr.Rajkumar, Managing Partner)
g) If EC and CTO already obtained, the copy of the same shall be submitted.	This is an Existing quarry
h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	Existing depth is 20m, mining plan depth is 27m bgl
15.All corner coordinates of the mine lease area, superimposed on a high-resolution Imagery/Toposheet, 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 area).	Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2,
16.The PP shall carry out Drone video survey covering the cluster, green belt, fencing etc.,	The Drone Video of the project site is taken covering the Greenbelt and Fencing around the Project and enclosed as soft copy as CD.
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.	As per the recommendations during SEAC ToR Presentation of the proposal and commitment of PP a count of 1000 Nos of trees were planted as a part of greenbelt development programme all along the periphery of the lease applied area and approach roads and village roads. As well the pp has provided wire fencing as recommended all along the boundary of the lease applied area.
18. The Project proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology justifications, with the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	Details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology justifications are provided in Chapter 2. The anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same are provided in Chapter 4.
19. The Project proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act, 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	The Organization chart 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>20.The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers' tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data' it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be Provided.</p>	<p>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.</p>
<p>21.The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quantity, air quality, soil quality & flora/fauna including Traffic/vehicular movement study.</p>	<p>Baseline Data were collected for Summer season March 2024 to May 2024. Details in Chapter No. 3.</p>
<p>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.</p>	<p>Cumulative impact study has been carried out covering proposed and existing quarries in the cluster and results related to air pollution, water pollution, & health impacts have been given in chapter No. 7, Based on the results, environmental management plan has been prepared and given in Chapter No. 10.</p>
<p>23.Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.</p>	<p>The lower part of the mine pit will be utilized as rain water harvesting structure (Temporary) and the water will be used for the water sprinkling on haul roads and Greenbelt development purpose. Rainwater harvesting structure will be constructed near the mine office.</p>
<p>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 pre operational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.</p>	<p>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. 3, Table No 3.3</p>
<p>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.</p>	<p>Not applicable</p>
<p>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.</p>	<p>Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.</p>
<p>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.</p>	<p>The lower part of the mine pit will be utilized as rain water harvesting structure (Temporary) and the water will be used for the water sprinkling on haul roads and Greenbelt development purpose. Rainwater harvesting structure will be constructed near the mine office.</p>
<p>28.Impact on local transport infrastructure due to the Project should be indicated.</p>	<p>Traffic density survey was carried out to analyze the impact of transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from</p>

	the project area. Details have been provided in Chapter No.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.	As per the recommendations during SEAC ToR Presentation of the proposal and commitment of PP a count of 1000Nos of trees were planted as a part of greenbelt development programme all along the periphery of the lease applied area and approach roads and village roads.
30.A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Noted & agreed. 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, it will submit final EIA/EMP report.
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 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.	As per the recommendations during SEAC ToR Presentation of the proposal and commitment of PP a count of 1000 Nos of trees were planted as a part of greenbelt development programme all along the periphery of the lease applied area and approach roads and village roads.
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.	As per the recommendations during SEAC ToR Presentation of the proposal and commitment of PP a count of 2000 Nos of trees were planted as a part of greenbelt development programme all along the periphery of the lease applied area and approach roads and village roads.
34.A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan is detailed 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 are discussed in 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.	No Public Health Implications anticipated due to this project. Details of CER and CSR are discussed under Chapter 8.
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.	Project benefit is given in the Chapter No.8.
	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.	Not Applicable. The applied area is a new proposal for Environmental Clearance.
	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.	Noted and agreed
	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 Reference besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted and agreed
3. SEIAA SPECIFIC CONDITIONS		
3.1	The Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) for the quantity of 1,51,295m ³ of Rough stone & 10,064m ³ of Gravel up to the ultimate depth of 27m below ground level and the annual peak production should not exceed 30,810m ³ of Rough stone & 6868m ³ of Gravel, 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.	Agreed as per mining plan details
5. STANDARD CONDITIONS		
Cluster Management committee		
1.	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.	Cluster Management Committee has been constituted initially with 3 quarries.
2	2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc..	The information will be shared to the cluster management committee during the monthly meeting.
3	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.	The list of members of the committee formed will be submitted to AD/Mines before the execution of mining lease.
4	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.	All the information has been discussed in Chapter No.2
5	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	The risk management plan and disaster management plan will be followed as per this EIA report.
6	6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance	Environmental policy is described in the EIA report Chapter No. 6 and the same will be followed.

	with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	
7	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.	A proper action plan regarding the restoration will be followed by the committee
8	8.The committee shall furnish the Emergency Management plan within the cluster.	The committee will submit the emergency management plan to the respective authority in the stipulated time period.
9	9.The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	The risk management plan and disaster management plan will be followed as per the EIA report.
10	10.The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	A proper action plan with reference to water, sanitation & safety will be devised and submitted by the committee to the respective authority.
11	11.The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	The fire safety and evacuation plan will be carried out by as per the respective quarry mines managers
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 & bio-diversity, 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. 1) 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 steams.	Details of Soil health is given in Chapter No 3 and biodiversity is given in Chapter No 3. The project will not cause any significant changes in the climate Climatic changes and GHG are described in Chapter No 4. Details of water contamination and impact on aquatic ecosystem is given in Chapter No 4. Hydrothermal/ Geothermal effects due to destruction in the environment, Bio geochemical process and sediment geo chemistry given in the Chapter No 7.
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	As the proposed lease area is dominantly surrounded by mining land, barren land, and fallow land, the impact on the surrounding agricultural fields if present will be low. With proper mitigation measures, the project will be carried out to reduce the impact further to the level of negligence.
14	Impact on soil flora & vegetation around the project site.	The vegetation details have been provided in chapter III. There is no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species falls in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.
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.	The vegetation details have been provided in chapter III. There is no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species falls in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area
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.	Details are discussed in Chapter No.3

17	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.
18	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 dry barren land on all the sides.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	There is no Reserve Forest within 1km radius from the project area (Bolvampatti R.F – 12.8km-W). The mining operation will not cause any significant impact to the Reserve Forest and Wild life Sanctuaries.
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	chapter 3 details of Ecology and Biodiversity, and 4 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.	chapter 3 details of Ecology and Biodiversity
22	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
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.	Hydro-geological study considering the contour map of the water table detailing Chapter-3
24	Erosion Control measures.	Garland drainage structures will be constructed around the lease area to control the erosion, as discussed in Section 4.3 under Chapter 4.
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.	In the EIA report Chapter No. IV enumerate the anticipated impact due to the project and mitigation measures
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Detailed under Chapter 3.
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment by the activities.	Details are given in the Chapter No 4.
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.	Detailed discussed in the chapter 4
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil, physical, chemical components and microbial components.	Details of impact on soil environment is detailed in Chapter No.4.
30	The Environmental impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	The nearest water bodies from the project area are an Odai located 930m– S
Energy		

31	The measures taken to 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 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.	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 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.
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 & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Details in EMP in chapter 10
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.	Detailed Environment Management Plan for the project to mitigate the anticipated impacts described under Chapter 4 is discussed under Chapter 10.
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/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.	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, odai, vaari, canal, channel. river, lake pond, tank etc.	The letter detailing habitations around the proposed mining is obtained from Kallapalayam Village Tahsildar Office vide Letter NC.No 1274/2022/A7 Dated: 07.04.2022 and enclosed as Annexure – 3
40	As per the MoEF & CC office memorandum tr.No.22-651201 7-1A.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
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.	Details of plastic management is in chapter 7

Standard Terms of Reference for (Mining of minerals)

S. No	Terms of Reference	Reply
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1.1	An EIA-EMP Report shall be prepared for peak capacity (.....MTPA) operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.	Peak Production = 30,810m ³ of Rough Stone Proposed Depth = 27m bgl Project area of 1.91.0ha.
1.2	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for.... MTPA of mineral production based on approved project/Mining Plan for.... MTPA. Baseline data collection can be for any season (three months) except monsoon.	Peak capacity of 30,810m ³ operation to cover the impacts and environment management plan in chapter- IV and Chapter 10 covered in project specific activities. Baseline Data were collected for Post monsoon Season March– May 2024 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. III
1.3	Proper KML file with pin drop and coordinate of mine at 500-1000 m interval be provided.	Noted, Google earth image showing lease area with Coordinates of pillars in chapter-II.
1.4	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines, and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also.	Land use and land cover of the 10km Radius of study area is discussed in Chapter No. III. Geology map of the project area covering 10km radius Figure No. 2.5, Page No. 20. Geomorphology of the area is given in Chapter No 2 Figure No 2.6, Page No. 20 There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
1.5	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.	Land use and land cover of the study area is discussed in Chapter No. III with Physical features such as waterbodies, odai, canal etc.,
1.6	A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.	DEM data using Drainage pattern around 10km radius showing streams and lakes etc., discussed in Chapter No. 3.
1.7	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river need elaboration in form of length, quantity and quality of water to be diverted.	Drainage pattern around 10km radius showing streams and lakes etc., is discussed in Chapter No. 3.

1.8	<p>(Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.</p>	<p>Details in chapter-2 showing the land features. And also enclosed Approved mining plan in annexure</p>
1.9	<p>Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.</p>	<p>It is an opencast quarrying operation proposed to operate in Mechanized method. The Rough Stone quarry formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90⁰ 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.</p>
1.10	<p>Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.</p>	<p>Impact Studies and Mitigation Measures of Water Environment including Surface Water and Ground Water are discussed in Chapter 4.</p>
1.11	<p>A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.</p>	<p>Not Applicable. The details of waste dump management are given in the Chapter No. 4</p>

1.15	Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air) / downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.	Details in chapter-3 showing the various sampling stations As per CPCB guidelines.
1.16	For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10km buffer zone i.e., dispersed in 10 km buffer area. In case of expansion, the displayed data of CAAQMS and its comparison with the monitoring data to be provided.	Air Quality Modelling and windrose pattern for prediction of incremental GLC's of pollutant was carried out using AERMOD view 13 Model. Details in Chapter No. 4.
1.17	A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.	Traffic density survey was carried out to analyses the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details in Chapter-II.
1.18	The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and quantification of need-based survey for CSR activities to be followed.	Detailed in chapter-3 socio-economic study with occupational status & economic status of the study area. The study should also include the status of infrastructural facilities and amenities present in the study area CSR are discussed under Chapter 8.
1.19	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.	Detailed Ecology and biodiversity study in chapter-3
1.20	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.	Detailed in chapter-4 population in the impact zone and measures for occupational health and safety and proposed occupational health in chapter-X
1.21	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted.	Noted and agreed

1.22	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.	The ground water table is at 45-50m below ground level. In these projects, ultimate depth is 27m Bgl It is inferred the quarrying activities in the Cumulative EIA project (Quarry) will not intersect the Ground water table.
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.	Detailed in Chapter-IV Anticipated and mitigation measures of in the study area.
1.24	Detailed water balance should be provided. The breakup of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.	Total Water Requirement: 2.0 KLD Discussed under Chapter 2, Table No 2.15, The required water will be met from rainwater accumulated in mine pit (when available) and from the approved water vendors.
1.25	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs	Methodology And Instrument Used For Air Quality Analysis in chapter-3 and Air Pollution control equipment (APCEs) in chapter-10 sub 10.2 Environmental policy.
1.26	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored.	Details in Machinery and equipment details in Chapter-2 Table No 2.10
1.27	PP to evaluate the green house emission gases from the mine operation/ washery plant and corresponding carbon absorption plan.	Noted and agreed
1.28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.	A Risk Assessment and Disaster Preparedness and management Plan Chapter- 7
1.29	Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.	Detailed in Machinery and technology used Chapter-3 Table 3.17 – Methodology and Instrument Used for Air Quality Analysis Detailed study in chapter-4 Impact of choice of mining method and impact on air quality and blasting and noise and vibrations.
1.30	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.	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. 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.

1.31	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.	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
1.32	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.	Detailed in chapter-2 for mineral transportation route with approach roads etc., and impacting air quality detailed given chapter-4
1.33	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined-out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.	Discussed under Chapter 2. Mine Closure Plan is a part of Approved Mining Plan enclosed as Annexure Volume – 1.
1.34	Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.	Greenbelt Development Plan is discussed under Chapter 4,
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.	The total cost and the details are given in the Chapter No. 10
1.36	Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc. and costs along with the schedule of the implementation of the R&R Plan should be given.	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.
1.37	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.	CSR are discussed under Chapter 8. And specific budgetary provisions (capital and recurring) for specific activities over the life of the project in chapter-10
1.38	Corporate Environment Responsibility:	CER are discussed under Chapter 8.
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.	Detailed in chapter-10 The Environment Policy
1.40	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.	
1.41	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.	The Environment Monitoring Cell discussed under Chapter 6
1.42	d) To have proper checks and balances, the company should have a well laid down 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.	The Environment Monitoring Cell discussed under Chapter 6
1.43	e) Environment Management Cell and its responsibilities to be clearly spell out in EIA/ EMP report	The Environment Monitoring Cell discussed under Chapter 6

1.44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.	The Environment Monitoring Cell discussed under Chapter 6
1.45	Status of any litigations/ court cases filed/pending on the project should be provided.	No litigation is pending in any court against this project
1.46	PP shall submit clarification from DFO that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.	Indira Gandhi (Anamalai) Wildlife Sanctuary – 44km - South
1.47	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable	Noted and agreed
1.48	Details on the Forest Clearance should be given as per the format given: Total Mine lease area (ha): Total Forest Land (Ha) : Date of FC : Extent of Forest Land : Balance area for which FC is yet to be obtained: Status of application for diversion of forest Land: If more than one provides details of each FC	Boluvampatti R.F – 12.8km-W Total Mine Lease area 1.91.0ha
1.49	In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report.	Enclosed Approved mining plan in Annexure volume-I
1.50	Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same. should be provided.	The outcome of public hearing will be updated in the final EIA/AMP report.
1.51	PP shall carry out survey through drone highlighting the ground reality for at least 10 minutes.	Noted and agreed
1.52	Detailed Chronology of the project starting from the first lease deed allotted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form.	Noted and agreed
1.53	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF & CC certification)	As per detailed in front page of Draft EIA/EMP, NABET, NABL certification detailed given in the report.
1.54	The compliances of Tor must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapters section.	As per Tor compliance each chapter wise page and table, figure no given in the EIA/EMP report.

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1.INTRODUCTION

1.0 PREAMBLE

Project History: P1

The project proponent Thiru.V. Gopalakrishnan applied for rough stone and Gravel quarry over an extent of **2.43.5 Ha** in S.F.No. 291/1A of Pachapalayam Village, Sulur Taluk, Coimbatore District.

- Proponent applied for rough stone and Gravel quarry lease on 12.07.2022.
- Precise area communication letter was issued by the District Collector vide Rc.No.797/Mines/2022, Dated: 16.12.2022.
- The Mining plan has been prepared by the Qualified person and got approval vide Letter Rc.No.797/Mines/2022, Dated: 01.06.2023.
- The Mining plan has been approved for the quantity of 2,26 170m³ of rough stone, 7,764m³ of Gravel up to the depth of 46m bgl for the period of five years.

As per the EIA Notification, 2006 and subsequent amendments and OM The proposal falls in the B1 Category There are 4 proposal Quarries and 3 Existing quarries, 4 expired quarries and 2 abandoned quarries forming Cluster Category {Total Extent of the Cluster is 19.55.9Ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016).

- Proponent applied for Terms of Reference vide Proposal No. SIA/TN/MIN/450291/2023 dated 26.10.2023.and the ToR Was Granted vide **Lr. No. SEIAA-TN/F.No.10502/SEAC/1 (a)ToR-1666/2023 Dated:08.02.2024.**

Project History: P2

The project proponent Tvl.Tamilnadu Blue metals applied for rough stone and gravel quarry over an **extent of 1.91.0 Ha** in S.F.No. 263/1A(P), 264/1(P) of Kallapalayam Village, Sulur Taluk, Coimbatore District.

- Proponent applied for rough stone and Gravel quarry lease on 01.03.2022 & 25.10.2023
- Precise Area Communication Letter was issued by the District Collector, Coimbatore R.C.198/Mines/2022 Dated:25/10/2023.
- The Mining Plan was prepared by Recognized Qualified Person and approved by Assistant Director, Geology and Mining, Coimbatore District, vide R.C.No. 198/Mines/2022 Dated:28.11.2023.
- The Mining plan has been approved for the quantity of 1,51,295m³ of Rough stone depth of 27m bgl for the period of five years.

As per the EIA Notification, 2006 and subsequent amendments and OM The proposal falls in the B1 Category There are 4 proposal Quarries and 3 Existing quarries, 4 expired quarries and 2 abandoned quarries forming Cluster Category {Total Extent of the Cluster is 19.55.9Ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016).

Proponent applied for Terms of Reference vide Proposal No. SIA/TN/MIN/466957/2024 Dated: 22.03.2024 and the ToR Was Granted vide **File No: 10786/ TOR Identification No: TO24B0108TN5672058N dated: 31.05.2024**

Based on the ToR Baseline Monitoring study has been carried out for summer season i.e., **March 2024-May 2024** and this EIA and EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) to minimize those adverse impacts.

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.

1.1 PURPOSE OF THE REPORT

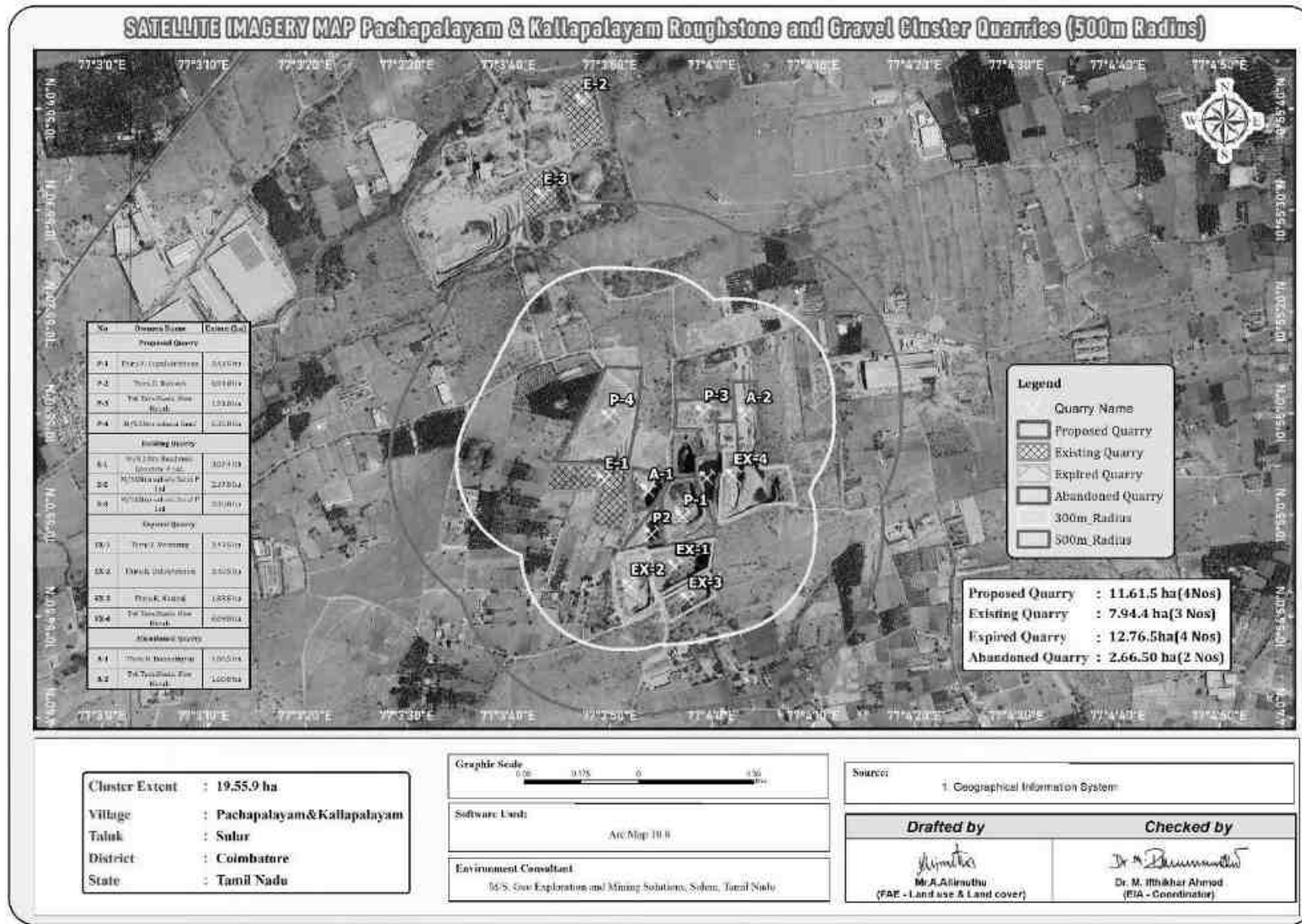
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 1889 of 20th April 2022, Mining Projects are classified under two categories i.e. A (> 250 Ha) and B (\leq 250 Ha), and Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix–XI. (There are 4 proposal Quarries and 3 Existing quarries, 4 expired quarries and 2 abandoned quarries forming Cluster Category {Total Extent of the Cluster is 19.55.9Ha})

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 B1 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 CLUSTER QUARRIES



1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENTS

1.2.1 Identification of Project Proponent

TABLE 1.1: DETAILS OF PROJECT PROPONENT -P1

Name of the Project Proponent	Thiru. V. Gopalakrishnan
Address	S/o. R.Velusamy, No.2/20, Kongu Illam, Old Post Office Street, Kangayampalayam, Suler Taluk, Coimbatore District-641 401
Mobile	+91 98422 39937
Email	kgbluemetals@gmail.com
Status	Individual

Source: Approved Mining Plan of respective proposal.

TABLE 1.3: DETAILS OF PROJECT PROPONENT –P2

Name of the Company	Tvl. Tamilnadu Blue Metals Rough Stone & Gravel Quarry Project
Address	1678, Trichy Road, Ramanathapuram, Coimbatore District
Mobile	+91 9841085555
Status	Partnership firm (Mr. Rajkumar, Managing Partner)

Source: Approved Mining Plan of respective proposal.

1.2.2 Identification of Project

TABLE 1.4: SALIENT FEATURES OF THE PROPOSED PROJECT-P1

Name of the Project	Thiru. V. Gopalakrishnan Rough stone and Gravel quarry
S.F. No.	291/1A
Extent	2.43.5 ha
Village Taluk and District	Pachapalayam Village, Suler Taluk, Coimbatore District.
Land Type	Proponent own patta land
Land Ownership	It is a Patta land. Registered in the name of the Thiru. R. Palaniappan vide Patta No.296 . The applicant has obtained consent from the pattadars for the period of five years from the date of execution of lease.
Existing quarry operation	It is a fresh lease application but, the quarry lease was previously granted in favour of Thiru.R. Palaniappan, over an extent of 2.43.5 Hectares of Patta land in S.F.No.291/1A of Pachapalayam Village, Suler Taluk, Coimbatore District vide Rc.No.418/Mines/2015, dated: 07.10.2017 for the period of five years from 07.10.2017 to 06.10.2022. The applicant (Thiru.R. Palaniappan) has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu vide Lr. No. SEIAA – TN / F.No.5797 / 1(a) / EC.No.3873 / 2016, Dated: 19.06.2017. Now the applicant (Thiru. V.Gopalakrishnan) has applied a quarry lease for the period of five years on 12.07.2022 over an extent of 2.43.5 Hectares of patta lands in S.F.No. 291/1A of Pachapalayam Village, Suler Taluk, Coimbatore District.
EC certificate	Lr. No. SEIAA – TN / F.No.5797 / 1(a) / EC.No.3873 / 2016, Dated: 19.06.2017.
Explosive certificate	Selva Nandhini Explosives and chemicals (Licence no-E/SC/TN/22/654 (E85920)
Toposheet No	58 -F/01
Latitude between	10° 54' 56.99"N to 10° 55' 03.75"N
Longitude between	77° 03' 54.96"E to 77° 04' 00.37"E
Elevation of the area	424m AMSL
Lease period	5 Years

Mining Plan period	5 years	
Proposed Depth of Mining	46m (1m Gravel + 45m Rough stone) bgl	
	Rough Stone in m ³	Gravel m ³
Geological Resources	8,72,511	8,822
Mineable Reserves	2,26,170	7,764
Proposed Production quantity for the current mining plan	2,26,170	7,764
Peak Production	51,660	6,620
Ultimate Pit Dimension	186m(L) x 142m(W) x 46m(D) (BGL)	
Existing Pit Dimension	Pit I: 140m(L) x 98m(W) x 21m(D) Pit II: 79m(L) x 34m(W) x 1m(D)	
Water Level in the region	70-65 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is flat terrain. The area has gentle sloping towards Southwestern side and altitude of the area is 424m above from Mean Sea level. The area is covered by 1m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the existing quarry pit.	
Machinery proposed	Jack Hammer	7 Nos
	Compressor	2 No
	Excavator with Bucket and Rock Breaker	2 Nos
	Tippers	3 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	31 Nos	
Operational Cost	Rs. 82,85,000 /-	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs. 86,85,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Seasonal Odai	930m South
	Odai	2km NE
	Pallapalayam Lake	7.7km NE
	Noyyal River	8km NW
	Vellalore Lake	8.5km NW
Singanallur Tank	8.7km NW	
Greenbelt Development Plan	Proposed to plant 1220Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	1.5 KLD	
Nearest Habitation	430m – SE	
Nearest Reserve Forest	Bolampatti I R.F – 12.88km –West	
Nearest Wild Life Sanctuary	Indira Gandhi (Anamalai) Wildlife Sanctuary – 44km - South	

Source: Approved Mining & Land Documents.

TABLE 1.6: SALIENT FEATURES OF THE PROPOSED PROJECT-P2

Name of the Quarry	Tvl. Tamilnadu Blue Metals Rough Stone & Gravel Quarry Project
Toposheet No	58 -I/16
Latitude between	10°55'05.8546" N to 10°55'11.5313" N
Longitude between	77°03'56.3316"E to 77°04'02.1862" E
Highest Elevation	455 m AMSL

Proposed Depth of Mining (As Per ToR)	27m bgl	
Geological Resources	Rough Stone in m ³	Gravel m ³
	4,37,000	17,912
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	1,51,295	10,064
Proposed Production quantity for the current mining plan (As per ToR)	1,51,295	10,064
Ultimate Pit Dimension	Section XY-AB 148m (L) * 158 m (W) * 27 m Bgl (D)	
Water Level in the surrounds area	45 – 50 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is exhibits plain topography. The area has gentle sloping towards South side and altitude of the area is 455m 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.	
Machinery proposed	Jack Hammer	5 Nos
	Compressor	1 No
	Excavator with Bucket and Rock Breaker	1 No
	Tippers	2 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	26 Nos	
Operational Cost	Rs.1,27,94,000/-	
EMP cost	Rs.3,80,000/-	
Total Project cost	Rs. 1,31,74,000/-	
CER Cost	Rs.5,00,000/-	
Nearby Water Bodies	Seasonal Odai	1.2km South
	Odai	1.8km NE
	Pallapalayam Lake	7.5km NE
	Noyyal River	7.8km NW
	Vellalore Lake	8.3km NW
	Singanallur Tank	8.5km NW
Greenbelt Development Plan	Proposed to plant 1000 trees in 4,120 Sq.m area in the 7.5 m Safety Zone	
Proposed Water Requirement	2.0 KLD	
Nearest Habitation	680m South East	
R.F boundary	Boluvampatti R.F – 12.8km-W	
Wildlife Sanctuary	Indira Gandhi (Anamalai) -45km-S	

Source: Approved Mining & Land Documents

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.

P1

The peak production of Rough stone is 51,660m³. (172m³ per day/ 14 tippers per day considering 12m³ per load). The depth of the mining is 46bgl.

P2

The peak production of Rough stone is 30,810m³. (103m³ per day/ 9 tippers per day considering 12m³ per load). The depth of the mining is 27m bgl.

1.3.2 Location of the Project

- The project site is located in Pachapalayam Village, Suler Taluk, Coimbatore District.
- The lease applied area is located about 14km Southeast side of Coimbatore, 14km Southwest of Suler and 3km Northeast side of Pachapalayam Village.

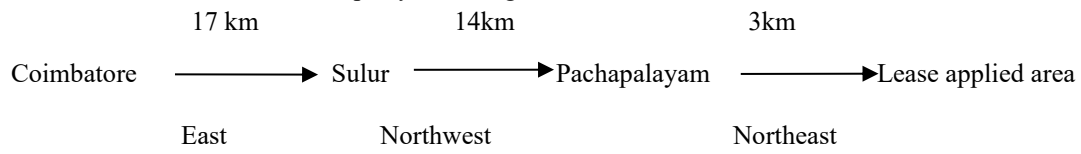
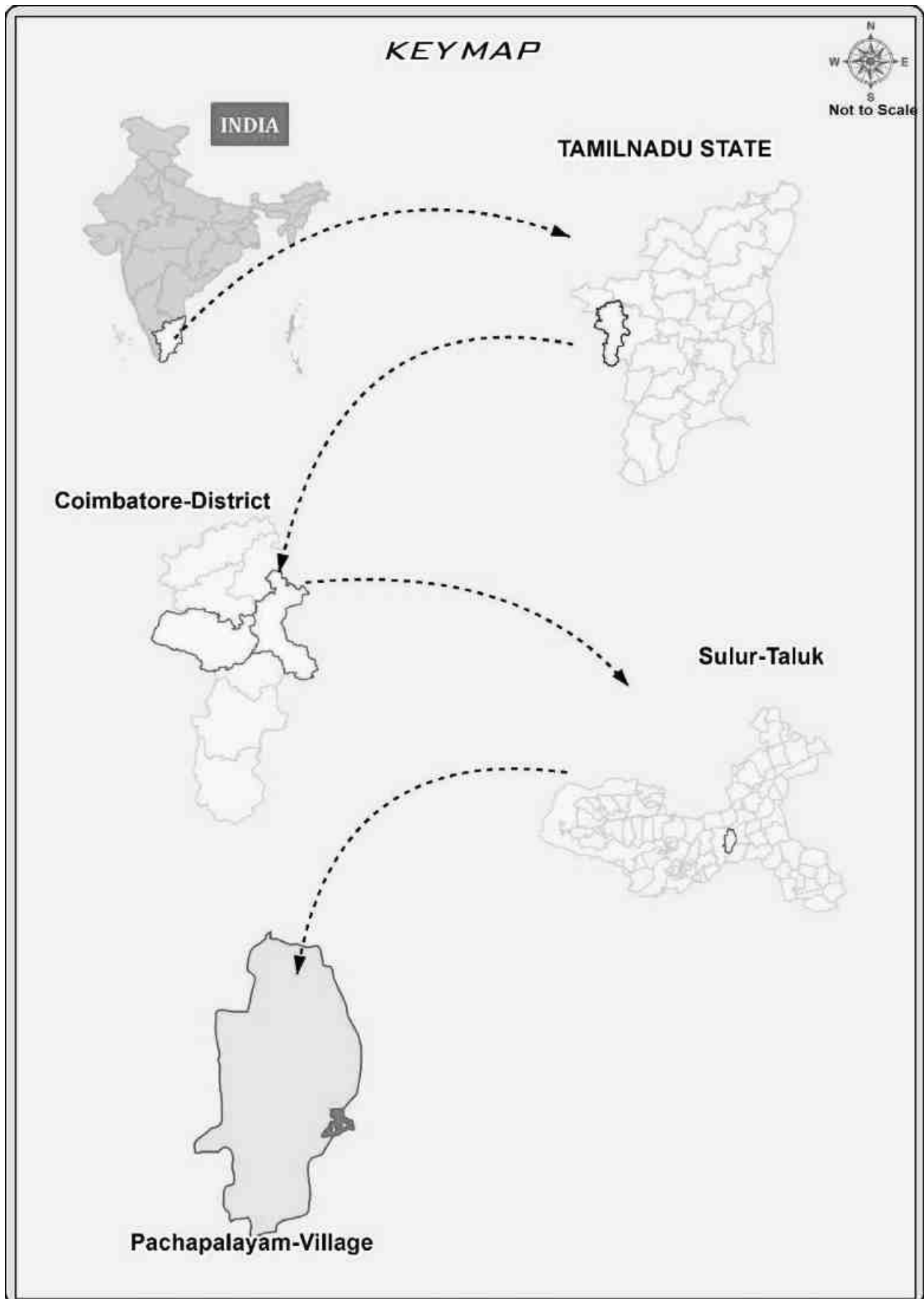


FIGURE 1.2 LOCATION MAP OF THE PROJECT SITE



Source: Survey of India Toposheet 58-F/01

FIGURE 1.3: TOPOSHEET MAP OF THE STUDY AREA 10 KM RADIUS

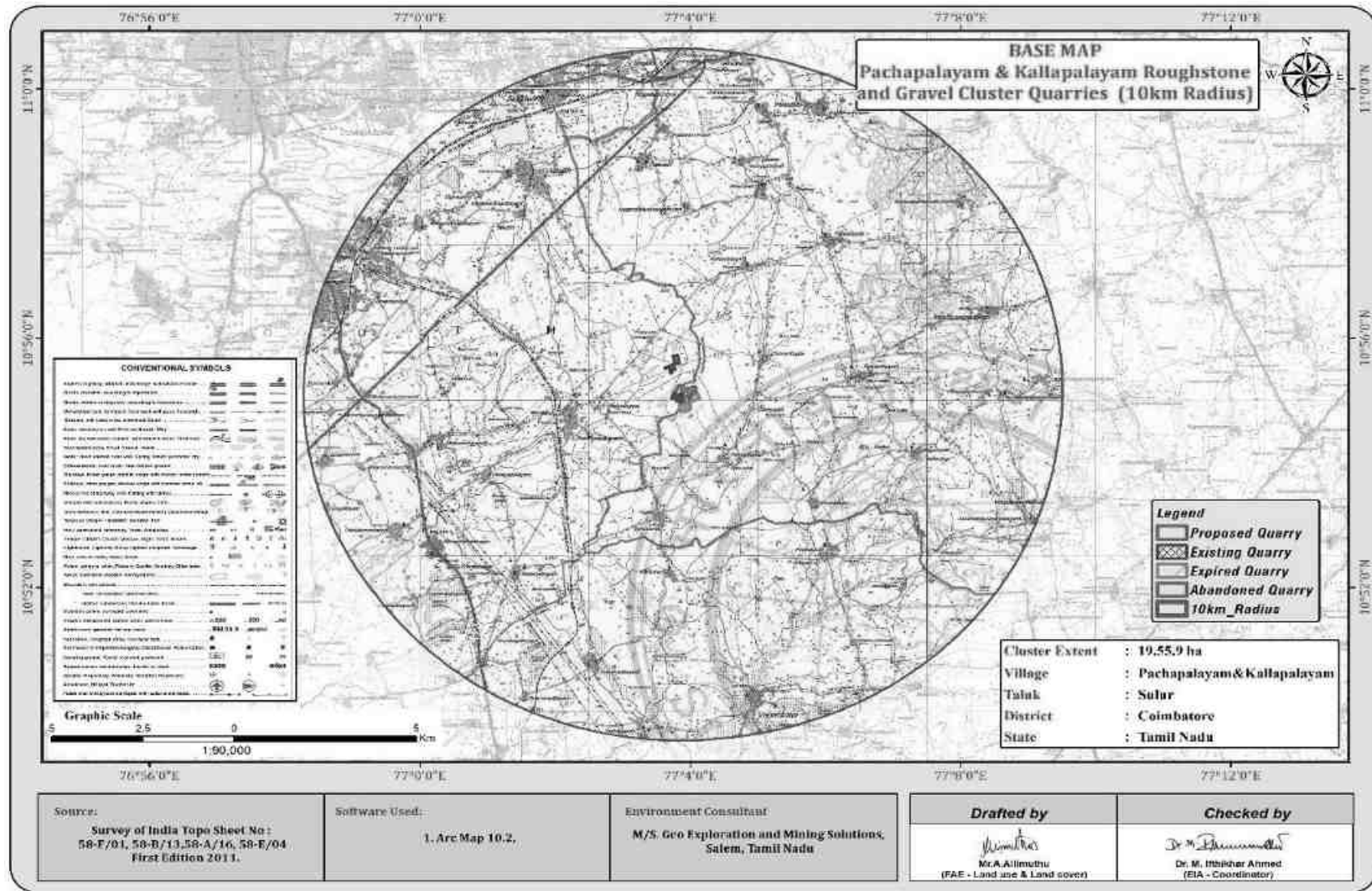
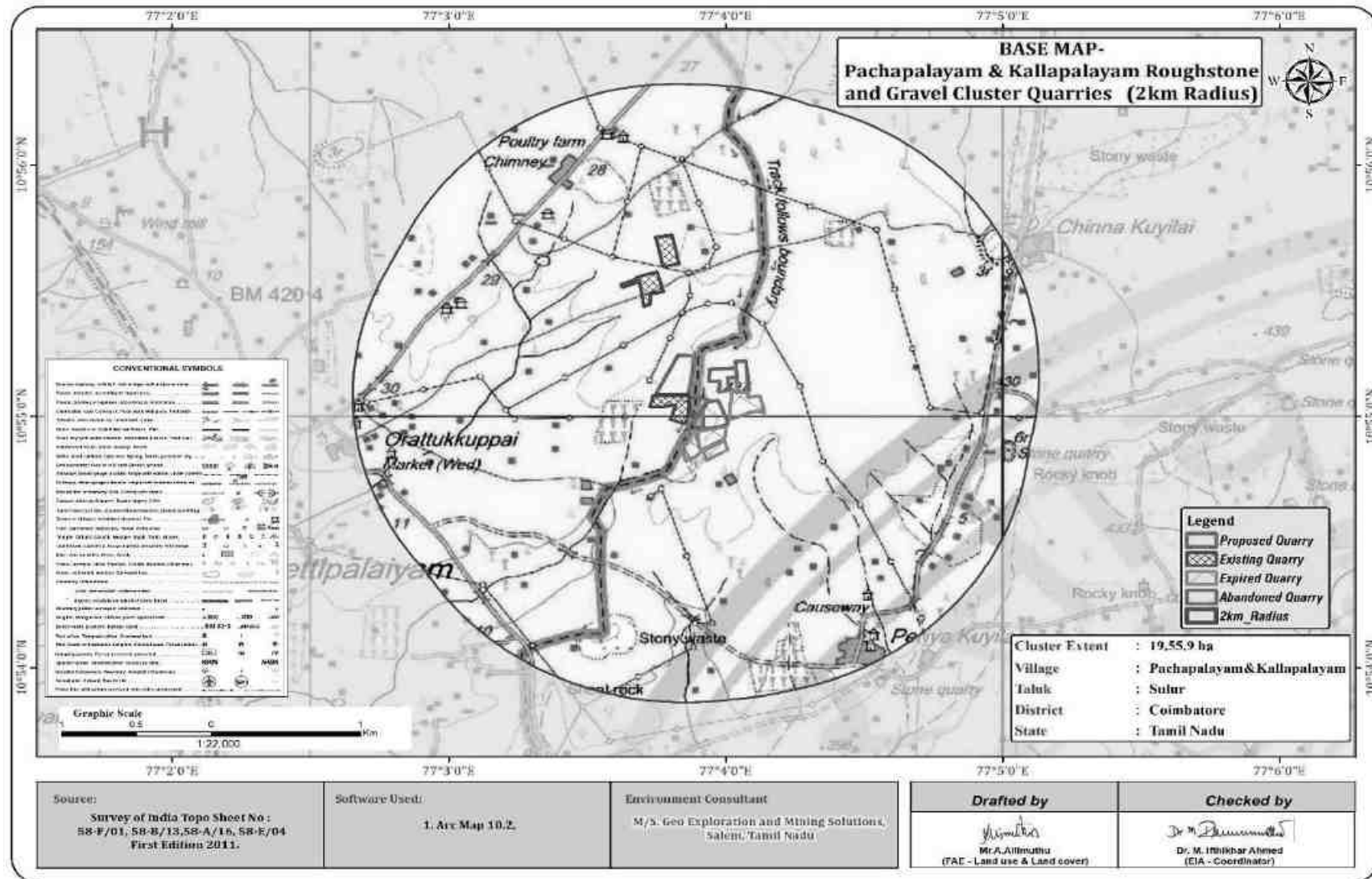


FIGURE 1.4: TOPOSHEET MAP OF THE STUDY AREA 2KM RADIUS



1.4 ENVIRONMENTAL CLEARANCE

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

- Screening,
- Scoping
- Public consultation &
- Appraisal

SCREENING: P1

- Proponent applied for Rough stone and Gravel quarry lease on 12.07.2022.
- Precise area communication letter was issued by the District Collector vide Rc.No.797/Mines/2022, Dated: 16.12.2022.
- The Mining plan has been prepared by the Qualified person and got approval vide Letter Rc.No.797/Mines/2022, Dated: 01.06.2023.
- The proposed project falls under “B1” Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018
- Proponent applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/450291/2023 dated 26.10.2023.

SCOPING: P1

- The proposal was placed in 436th SEAC meeting held on 29.12.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 693th SEIAA meeting held on 08.02.2024, issued ToR vide **Lr.No. SEIAA-TN/F.No.10502/SEAC/1 (a)ToR-1666/2023 Dated:08.02.2024.**

SCREENING –P2

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated: 01,03,2022 & 25.10.2023.
- Precise Area Communication Letter was issued by the District Collector, Coimbatore R.C.198/Mines/2022 Dated:25/10/2023.
- The Mining Plan was prepared by Recognized Qualified Person and approved by Assistant Director, Geology and Mining, Coimbatore District, vide R.C.No. 198/Mines/2022 Dated:28.11.2023.
- The proposed project falls under “B1” Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018.
- Proponent applied for ToR for Environmental Clearance vides online Proposal No. SIA/TN/MIN/466957/2024 Dated: 22.03.2024.

SCOPING –P2

- The proposal was placed in 464th SEAC meeting held on 03/05/2024 and the committee recommended for issue of ToR.
- The proposal was considered in 723th SEIAA meeting held on 24/05/2024 & 27.05.2024 and 30/05/2024 and issued ToR vide File No: 10786/ TOR Identification No: TO24B0108TN5672058N dated: 31.05.2024

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.

1.5 TERMS OF REFERENCE (ToR)

The ToR was issued by the SEIAA vide

Lr. No. SEIAA-TN/F.No.10502/SEAC/1(a)ToR-1666/2023 Dated:08.02.2024.-P1

File No: 10786/ TOR Identification No: TO24B0108TN5672058N dated: 31.05.2024-P2

The Details of the ToR Compliance is given in the Page No. 5-20

1.6 POST ENVIRONMENT CLEARANCE MONITORING

The proponent shall 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 each calendar year as per MoEF & CC Notification S.O. 5845 (E) Dated: 26.11.2018.

1.7 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.

1.8 THE 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. 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 to May 2024) 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 1.7: ENVIRONMENT ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂	Continuous 24-hourly samples twice a week for three months at 7 locations (2 Core & 5 Buffer)
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
3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 6 locations – 1 Surface water and 5

			Ground water samples; 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)	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 analysis done for the risk associated with mining.

Source: Field Monitoring Data

1.8.1 Regulatory Compliance & Applicable Laws/Regulations for all Proposed Quarries

- 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 has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959.
- ToR vide Lr. No. SEIAA-TN/F.No.10502/SEAC/1(a)ToR-1666/2023 Dated:08.02.2024-P1
- File No: 10786/ TOR Identification No: TO24B0108TN5672058N dated: 31.05.2024-P2

2. PROJECT DESCRIPTION

2.0 GENERAL

The Proposed Rough Stone Quarry require Environmental Clearance. There are 4 proposal Quarries and 3 Existing quarries, 4 expired quarries and 2 abandoned quarries forming Cluster Category {Total Extent of the Cluster is 19.55.9Ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016.

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 project is site specific and there is no additional area required for this project. There is no effluent generation/discharge from this project. Method of mining is 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 project site is located in Pachapalayam and Kallapalayam Village, Sulur Taluk, Coimbatore District.
- The lease applied area is located about 14km Southeast side of Coimbatore, 14km Southwest of Sulur and 3km Northeast side of Chettipalayam Village.

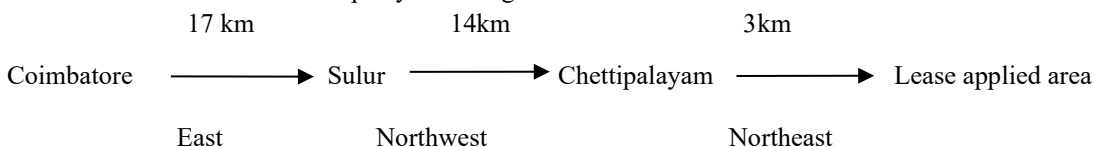


TABLE 2.1: SITE CONNECTIVITY

Nearest Roadway	NH (544) - Salem – Palakad - 6.0 km – North West SH (83) - Othakalmandapam – Pollachi Road- 7.0km –South West SH (163) – Palladam-Kochi Road–2.0km-West
Nearest Village	Pachapalayam -2.0km- SE
Nearest Town	Coimbatore - 14.0 km – NW
Nearest Railway Station	Coimbatore Junction - 14.0 km – North West
Nearest Airport	Coimbatore– 13km –NW
Seaport	Kochi- 142m – SW

Source: Survey of India Toposheet

TABLE 2.2: CO-ORDINATES – PROJECT BOUNDARY-P1

Corner Nos.	Latitude	Longitude
1	10° 54' 56.99"N	77° 03' 55.47"E
2	10° 54' 57.66"N	77° 03' 55.03"E
3	10° 55' 01.54"N	77° 03' 54.96"E
4	10° 55' 03.59"N	77° 03' 55.99"E
5	10° 55' 03.75"N	77° 03' 58.29"E
6	10° 54' 58.88"N	77° 04' 00.37"E
7	10° 54' 57.91"N	77° 04' 00.29"E
8	10° 54' 57.11"N	77° 03' 56.82"E
Datum: UTM-WGS84, Zone 43 North		

Source: Approved Mining Plan

TABLE 2.4: CO-ORDINATES – PROJECT BOUNDARY-P2

Boundary Pillar No.	Latitude	Longitude
1	10° 55' 11.2942"N	77° 03' 56.4140"E
2	10° 55' 11.3907"N	77° 03' 58.6705"E
3	10° 55' 11.5312"N	77° 04' 02.1114"E
4	10° 55' 09.2546"N	77° 04' 02.1862"E
5	10° 55' 09.2032"N	77° 04' 00.4686"E
6	10° 55' 06.2813"N	77° 04' 00.6673"E
7	10° 55' 05.8546"N	77° 03' 58.5713"E
8	10° 55' 08.4572"N	77° 03' 58.6179"E
9	10° 55' 08.4535"N	77° 03' 56.3316"E
10	10° 55' 10.5658"N	77° 03' 56.4394"E

Source: Approved Mining Plan

FIGURE 2.1: TOPOGRAPHICAL VIEW OF PROJECT AREA -P1

FIGURE 2.3: TOPOGRAPHICAL VIEW OF PROJECT AREA –P2



FIGURE 2.4: FENCING AT PROJECT SITE -P1



FIGURE 2.5: FENCING AT PROJECT SITE –P2



FIGURE 2.6: GOOGLE IMAGE OF THE PROJECT AREA -P1



Source: Google Earth Imagery

FIGURE 2.8: GOOGLE IMAGE OF THE PROJECT AREA –P2



FIGURE 2.9: QUARRY LEASE PLAN / SURFACE PLAN -P1



Source: Approved Mining Plan

FIGURE 2.11: QUARRY LEASE PLAN / SURFACE PLAN –P2

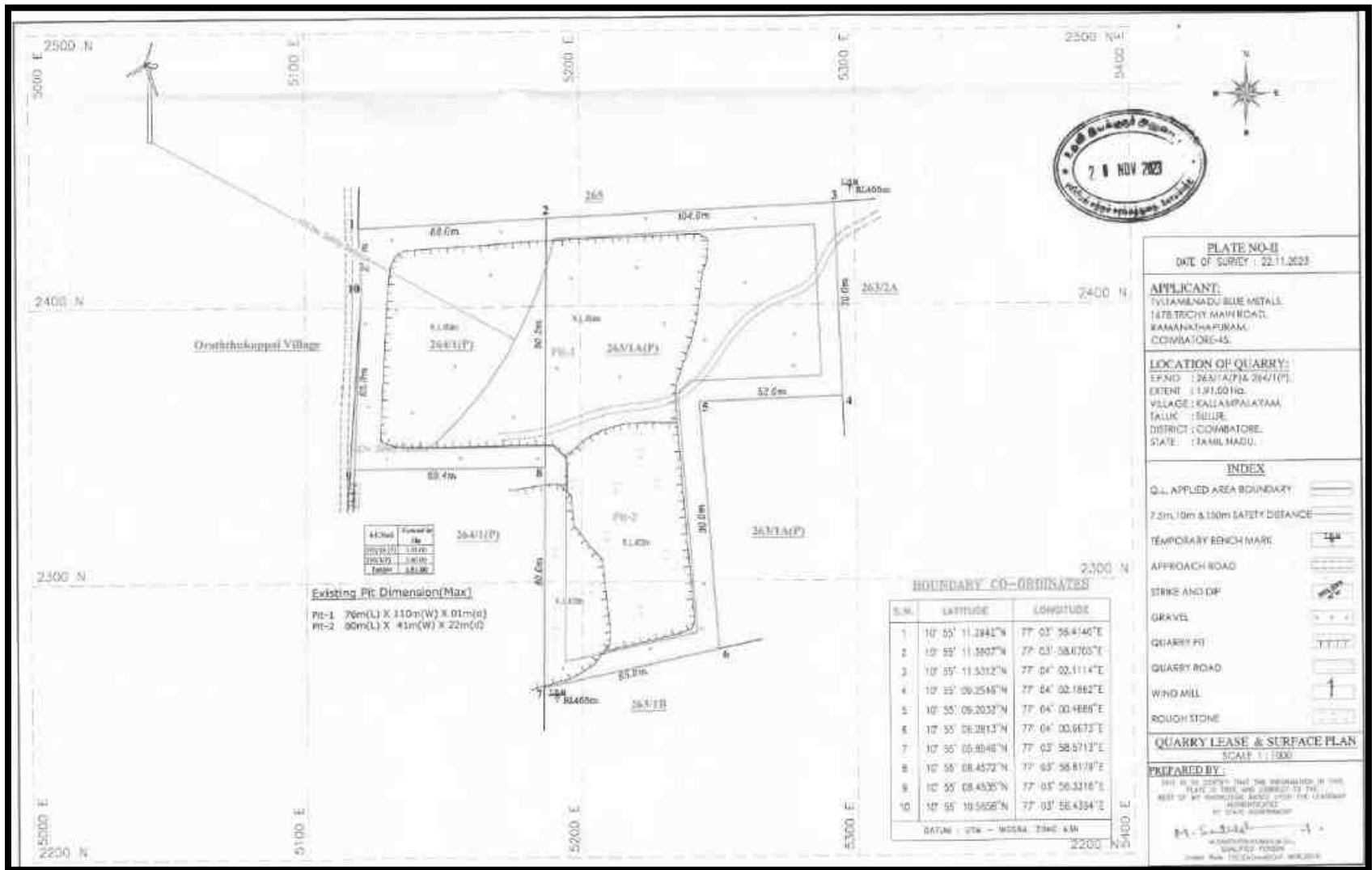


FIGURE 2.12: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE

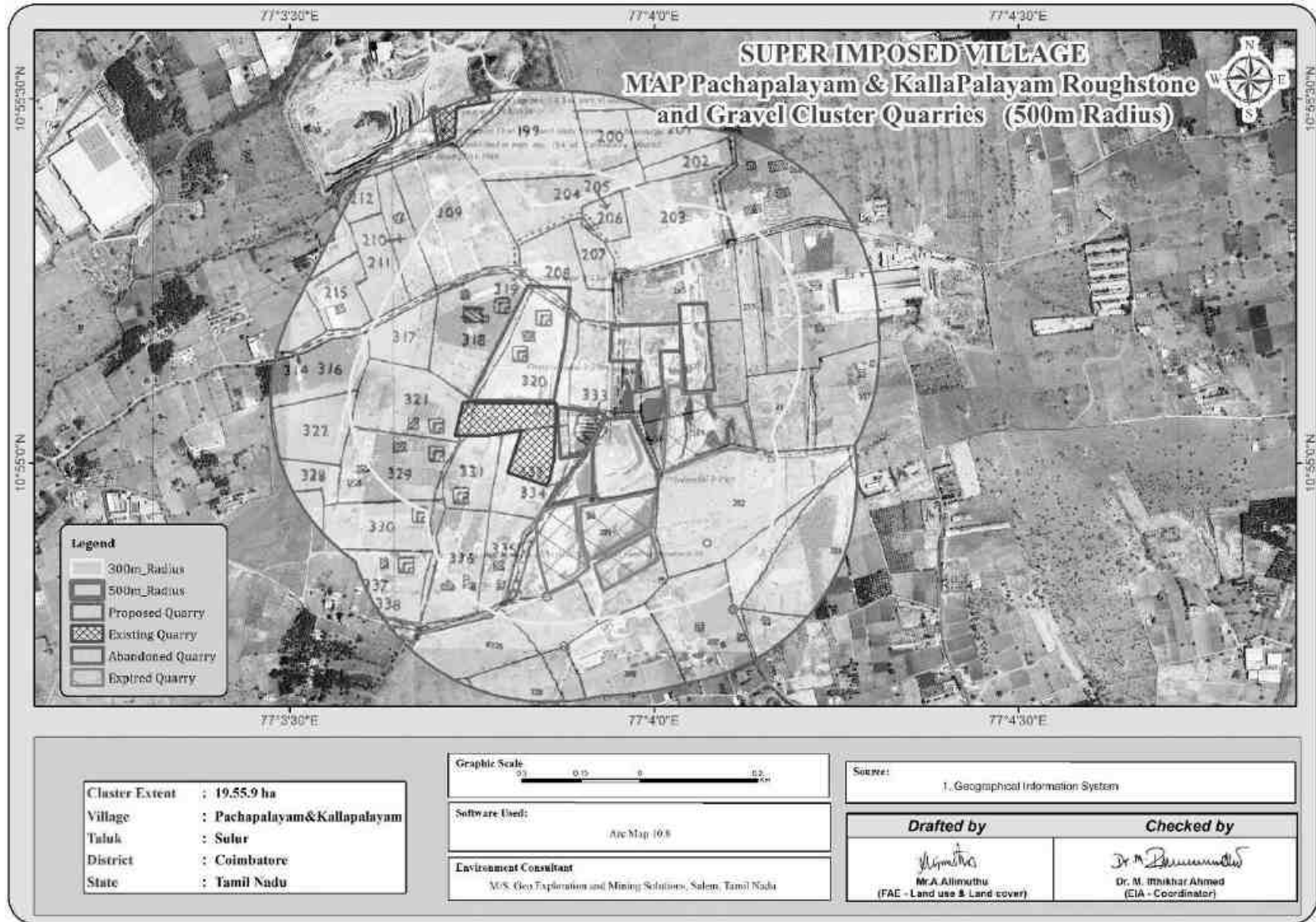


FIGURE 2.13: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS

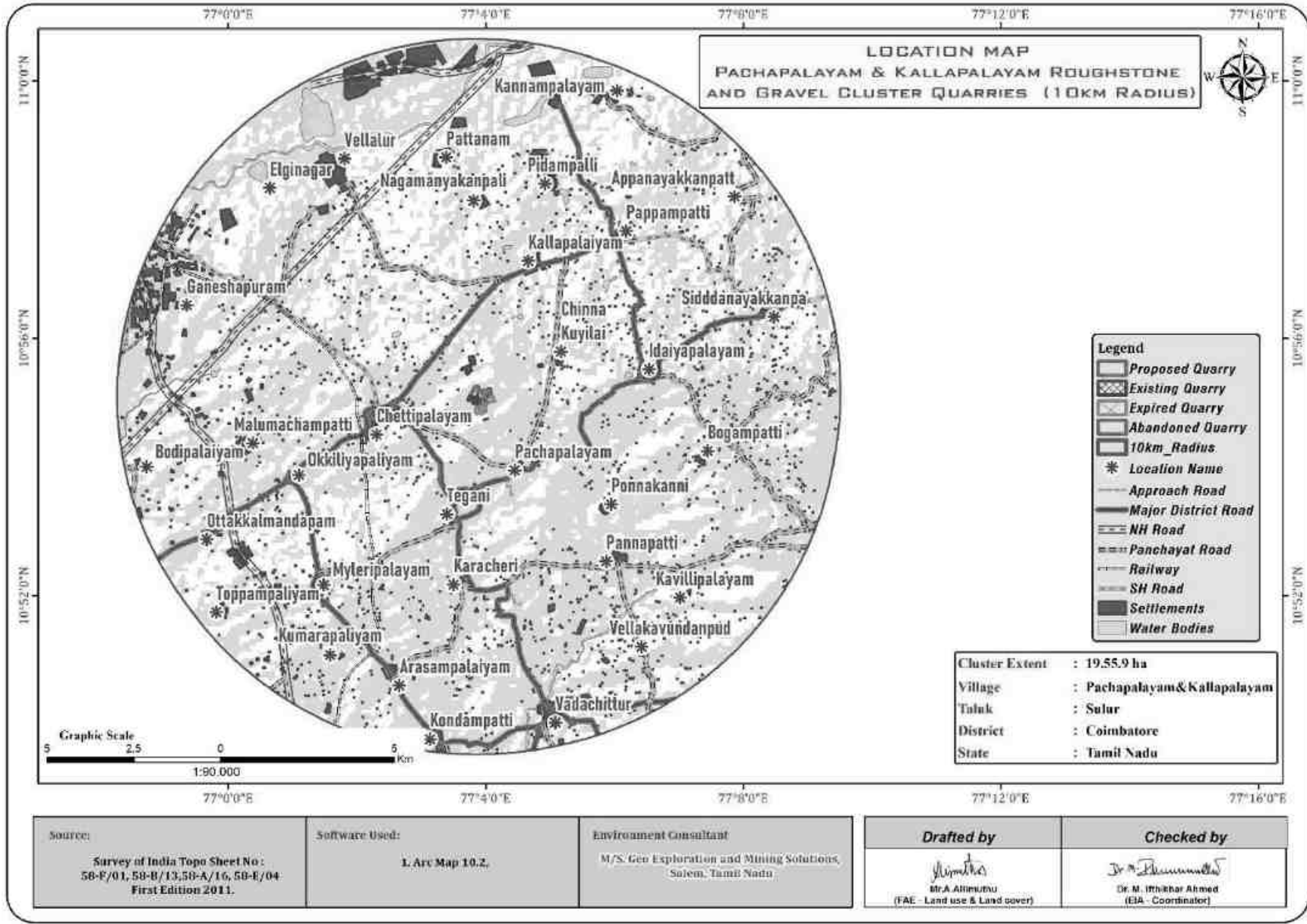
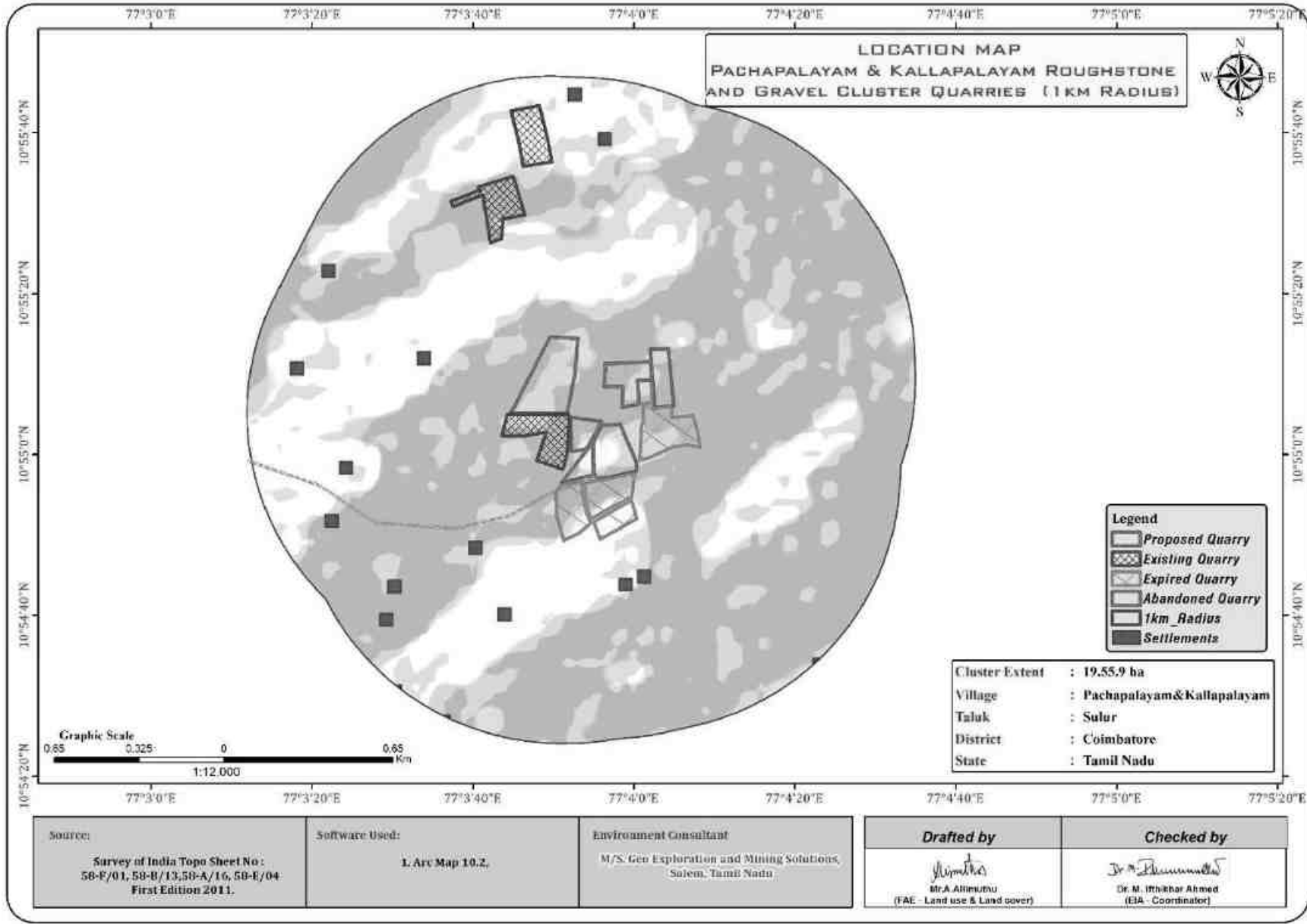


FIGURE 2.14: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS



2.2.1 Project Area

- The project is site specific & no beneficiation or processing in the project site.
- There is no forest land involved in the proposed projects and is devoid of major vegetation and trees.

TABLE 2.5: LAND USE PATTERN -P1

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area Under Quarrying	1.64.50	2.07.50
Infrastructure	0.01.00	0.01.00
Roads	0.01.00	0.02.00
Green Belt	Nil	0.32.40
Dump	0.16.55	Nil
Unutilized Area	0.60.45	0.00.60
Grand Total	2.43.50	2.43.50

Source: Approved Mining Plan

TABLE 2.7: LAND USE PATTERN –P2

Description	Present area (Ha)	Area at the end of lease period (Ha)
Area Under Quarry	1.20.0	1.46.0
Site Services	Nil	0.01.0
Roads	0.01.0	0.01.0
Green Belt	Nil	0.41.2
Unutilized Area	0.69.8	0.01.8
Grand Total	1.91.0	1.91.0

2.2.2 Size or Magnitude of Operation

TABLE 2.8: RESOURCES AND RESERVES-P1

PARTICULARS	DETAILS	
	Rough Stone	Gravel in m ³ (2year)
Geological Resources	8,72,511	8,822
Mineable Reserves	2,26,170	7,764
Production for five-year plan period	2,26,170	7,764
Peak Production	51,660	6,620
Mining Plan Period / Lease Applied Period	5 Years	
Number of Working Days	300 Days	
Production per day	151	13
No of Lorry loads (12m ³ per load)	13	1
Total Depth of Mining	46m (1m gravel +45m Roughstone) below ground level	

Source: Approved mining plan.

TABLE 2.10: RESOURCES AND RESERVES-P2

PARTICULARS	DETAILS	
	Rough Stone	Gravel in m ³ (2 year)

Geological Resources	4,37,000	17,912
Mineable Reserves	1,51,295	10,064
Production for five-year plan period	1,51,295	10,064
Peak Production	30,810	6,868
Mining Plan Period / Lease Applied Period	5 Years	
Number of Working Days	300 Days	
Production per day	101	17
No of Lorry loads (12m ³ per load)	8	1
Total Depth of Mining	27m below ground level	

Source: Approved mining plan

2.3 GEOLOGY

2.3.1 Regional Geology

Coimbatore district of Tamil Nadu forms a part of southern Granulitic terrain and is predominantly occupied by crystalline rocks of Archaean to late Proterozoic age. Regionally, the rocks can be grouped under five categories namely –

- I. Charnockite Group represented by Charnockite, Pyroxene Granulite and Magnetite Quartzite,
- II. Peninsular Gneissic Complex (II) comprising hornblende-biotite gneiss,
- III. Basic intrusive include Pyroxinite/Dunite
- IV. Younger intrusive comprising, Nepheline-Syenite, Pink Granite, Pegmatite and Quartz veins and
- V. Quaternary sediments of Kankar and soil.

Stratigraphy of the area

Age	Group	Lithology
Holocene		Block cotton soil/clay±gypsum
Cenozoic		Kankar/calc-tufa
Neoproterozoic	Acid intrusives	Quartz veins Pegmatite Pink Granite
	Sivamalai syenite Complex	Nepheline-syenite
	Chalk Hills (Basic Intrusives)	Pyroxenite/Dunite
Archaean - Palaeoproterozoic	Peninsular Gneissic Complex (II) PGC (II)	Pink Granite Gneiss Hornblende Biotite gneiss
Archaean	Charnockite Group	Charnockite (Unclassified) Pyroxene Granulite Banded Magnetite Quartzite

Coimbatore District is predominantly occupied by hornblende Biotite gneisses of PGC (II) with enclaves of Magnetite Quartzite, Pyroxene Granulite and Charnockite. The area exposes several bands of Pyroxene Granulite which is medium grained, medium to dark grey in colour and stand out prominently in the gneissic country generally parallel to regional foliation. Charnockite is coarse grained, massive, many places it is foliated, grey colored and greasy and exposed as boulder outcrops and small knolls. It is well exposed in Central, Western and Southern parts of the Coimbatore District. The general strike of foliation varies from ENE-WSW, E-W with dipping towards NW and N respectively.

Hornblende-Biotite gneiss is well foliated, medium to coarse grained, pale grey and exposed as sheets and small knolls. Pink Granite gneiss occurs as thin bands and lensoidal bodies. It is a medium grained rock composed of alternating bands of mafic (mainly of biotite and hornblende) and felsic (Feldspar and Quartz) minerals. It is well recognized in Avinasi area.

Basic intrusives such as pyroxenite/dunite occurs as Outcrop and lensoidal bodies in the country rock and mostly concordant to the regional foliation. Many basic intrusive are reported in south and south-east of Tiruppur town. The trend of these bodies is east-west.

Nepheline syenite is a leucocratic, coarse-grained rock and composed mainly of Feldspar with Nepheline and shows pitted appearance due to removal of Nepheline. This alkaline rock is available in and around Sivamalai area only. Acid intrusives comprising pink granite, pegmatite and quartz veins are traversed country rocks in micro (cm wide-meter long) to meso-scale (few meters wide and several meter long) extend. Granite is exposed around 9 km SW of Avanashi. Small scale pegmatite and quartz veins are noticed almost in all the rock types. Acid intrusives are overlain by sediments of Quaternary age, represented by Kankar and black cotton soil with Gypsum. Most of the area is covered by brown and red brown soil. Some part of the area covered with black cotton soil contains Gypsum as lumps. Black cotton soil covers south-western part of the district.

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

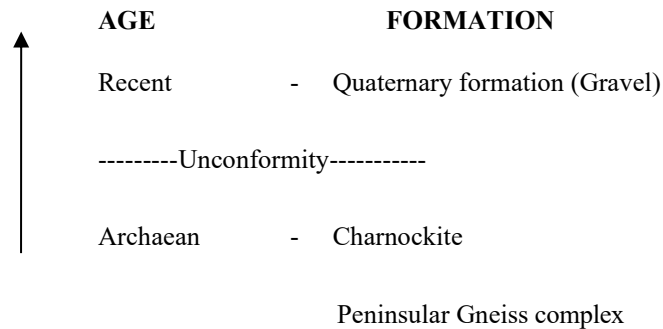
<https://cdn.s3waas.gov.in/s3d1f255a373a3cef72e03aa9d980c7eca/uploads/2019/05/2019052585.pdf>

2.3.2 Local Geology: -

The lease applied area is a Plain terrain. The area has gentle sloping towards Southwestern side and altitude of the area is 424m (max) above from Mean Sea level. The area is covered by 1m thickness of Gravel, followed by Massive Charnockite which is clearly inferred from the existing quarry pit.

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:



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 2.5m to 42m in general there are 3 to 5 fracture zones within 100 m and 1 to 4 fracture zones between 100 and 200m.

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 Coimbatore 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 are 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 2.11: RANGE OF AQUIFER PARAMETERS

Type of Aquifer	Water Table conditions in hard rock areas
Aquifer paramters yield	50 to 300 Lpm
Transmissivity (T)	1.49 to 164.18 m ² /day
Permeability (K)	0.25 to 26.75 m/day
Depth of water level	7m to 25m

Source: <http://nwm.gov.in/sites/default/files/Notes%20on%20Coimbatore%20District.pdf> and <https://www.twadboard.tn.gov.in/content/coimbatore>

TABLE 2.12: 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	109	14.6	9.3	13.0	16.5	12.6

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

FIGURE 2.15: REGIONAL GEOLOGY MAP

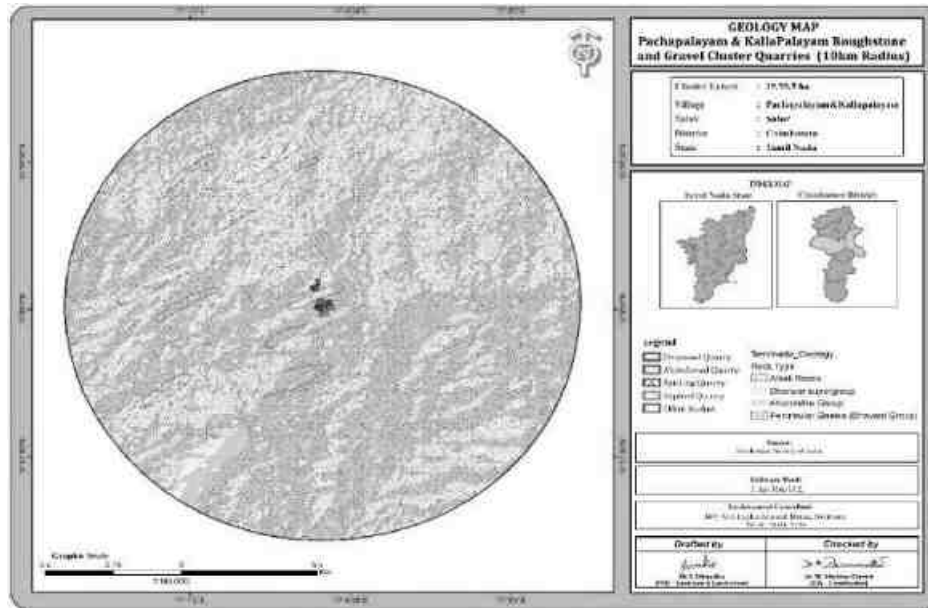
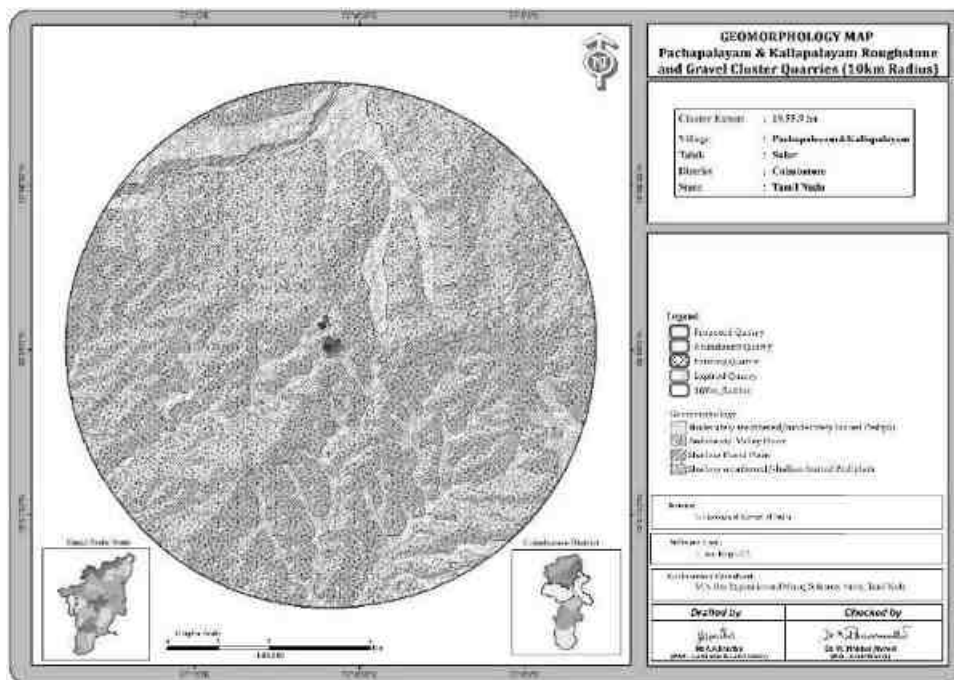


FIGURE 2.16: GEOMORPHOLOGY MAP



2.4 RESOURCES AND RESERVES

The Resources and Reserves of Rough Stone and Gravel were calculated based on Cross-Section Method by plotting sections to cover the maximum lease area. Based on the availability of Geological Resources the Mineable Reserves are calculated by considering excavation system of bench formation and leaving essential safety distance of 7.5 m (Safety Barrier all around the applied area) and safety distance as per precise area communication letter and deducting the locked up reserves during bench formation (Also called as Bench Loss) and the Mineable Reserves is calculated considering there is no waste / overburden / side burden (100% Recovery Anticipated).

TABLE 2.13: RESOURCES AND RESERVES-P1

Description	Rough Stone m ³	Gravel m ³
Geological Resource in m ³	8,72,511	8,822
Mineable Resource in m ³	2,26,170	7,764
Year wise production for five-year plan period	2,26,170	7,764

Source: Approved Mining Plan

TABLE 2.14: YEAR-WISE PRODUCTION PLAN-P1

Year	Rough Stone (m ³)	Gravel (m ³)
I	45,310	6620
II	51,660	1144
III	44,240	-
IV	41,060	-
V	43,900	-
Total	2,26,170	7,764

Source: Approved Mining Plan

TABLE 2.17: RESOURCES AND RESERVES-P2

Description	Rough Stone m ³	Gravel m ³
Geological Resource in m ³	4,37,000	17,912
Mineable Resource in m ³	1,51,295	10,064
Year wise production for five-year plan period	1,51,295	10,064

Source: Approved Mining Plan

TABLE 2.18: YEAR-WISE PRODUCTION PLAN-P2

Year	Rough Stone (m ³)	Gravel (m ³)
I	30,605	6,868
II	30,810	3,196
III	30,215	-
IV	30,125	-

V	29,540	-
Total	1,51,295	10,064

Source: Approved Mining Plan

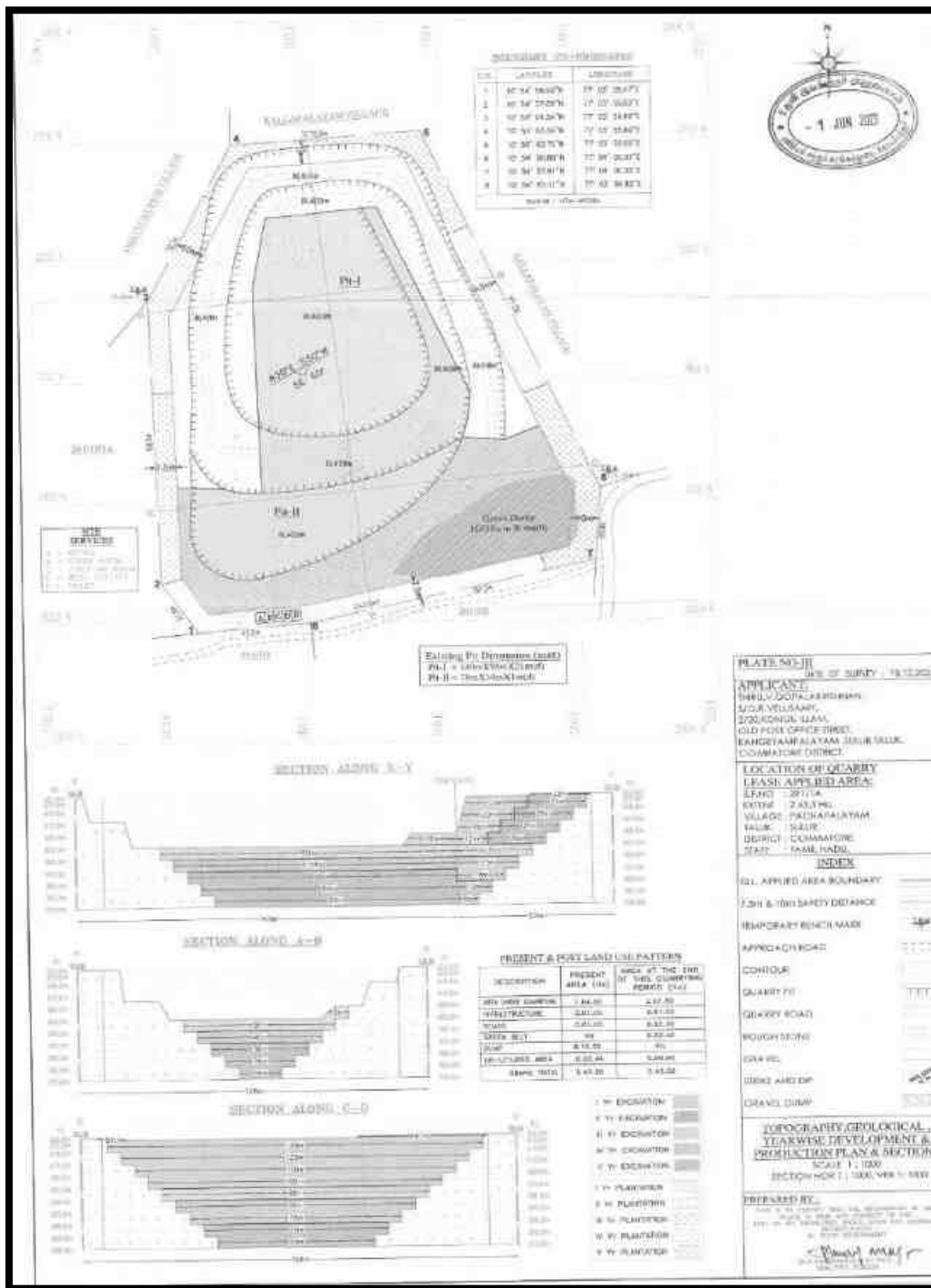
Disposal of Waste-P1

The overburden in the form of Gravel & Existing Gravel Dump is about 7,764m³. 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.

Disposal of Waste-P2

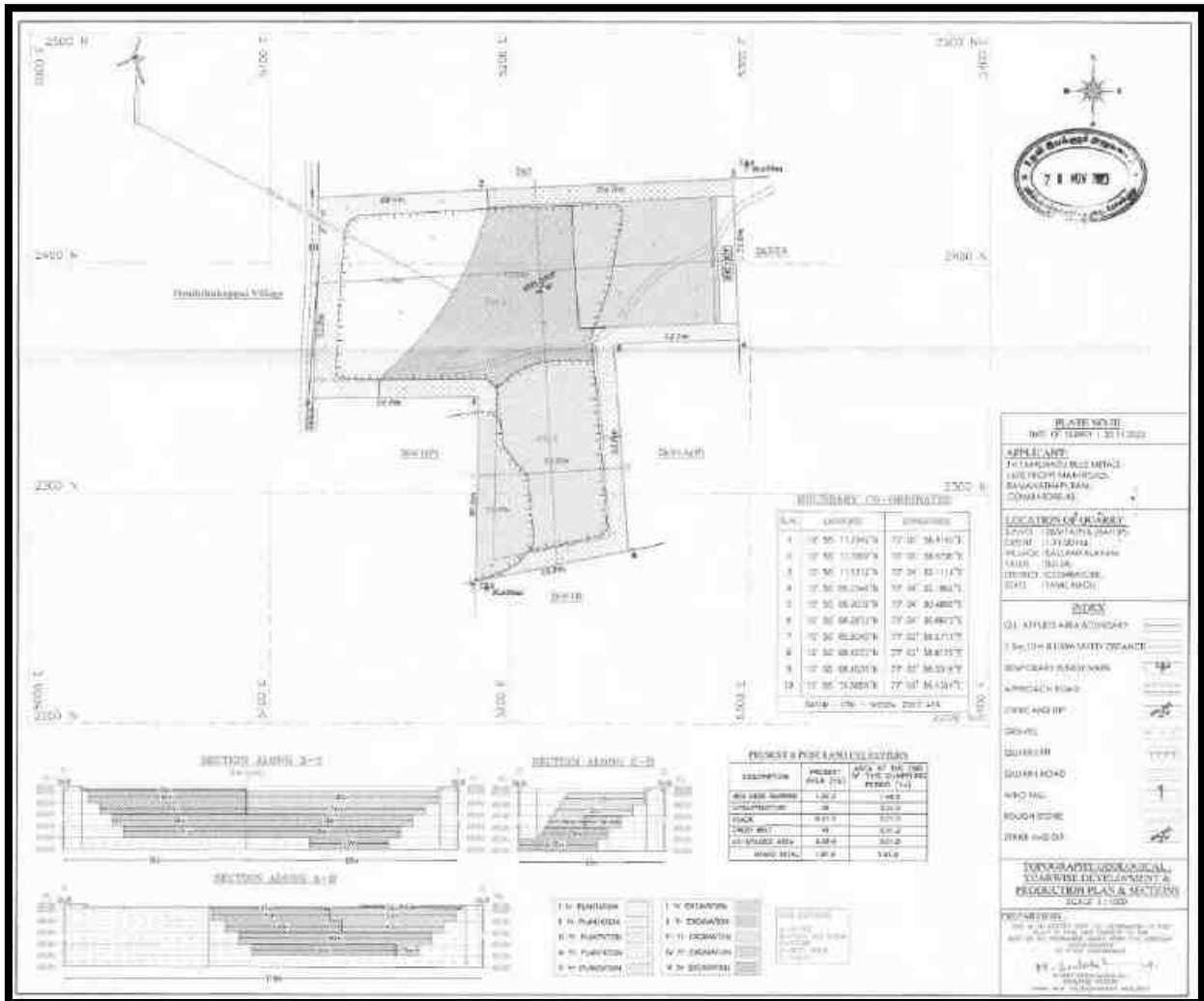
The overburden in the form of Gravel is about 10,064m³ up to depth 2m for during this lease period of two years. the Gravel will be directly loaded into Tippers for the filling and levelling of low-lying areas, this will be done only after obtaining permission and paying necessary seigniorage fee to the Government.

FIGURE 2.17: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS -P1



Source: Approved Mining Plan

FIGURE 2.19: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS –P2



Conceptual Mining Plan/ Final Mine Closure Plan

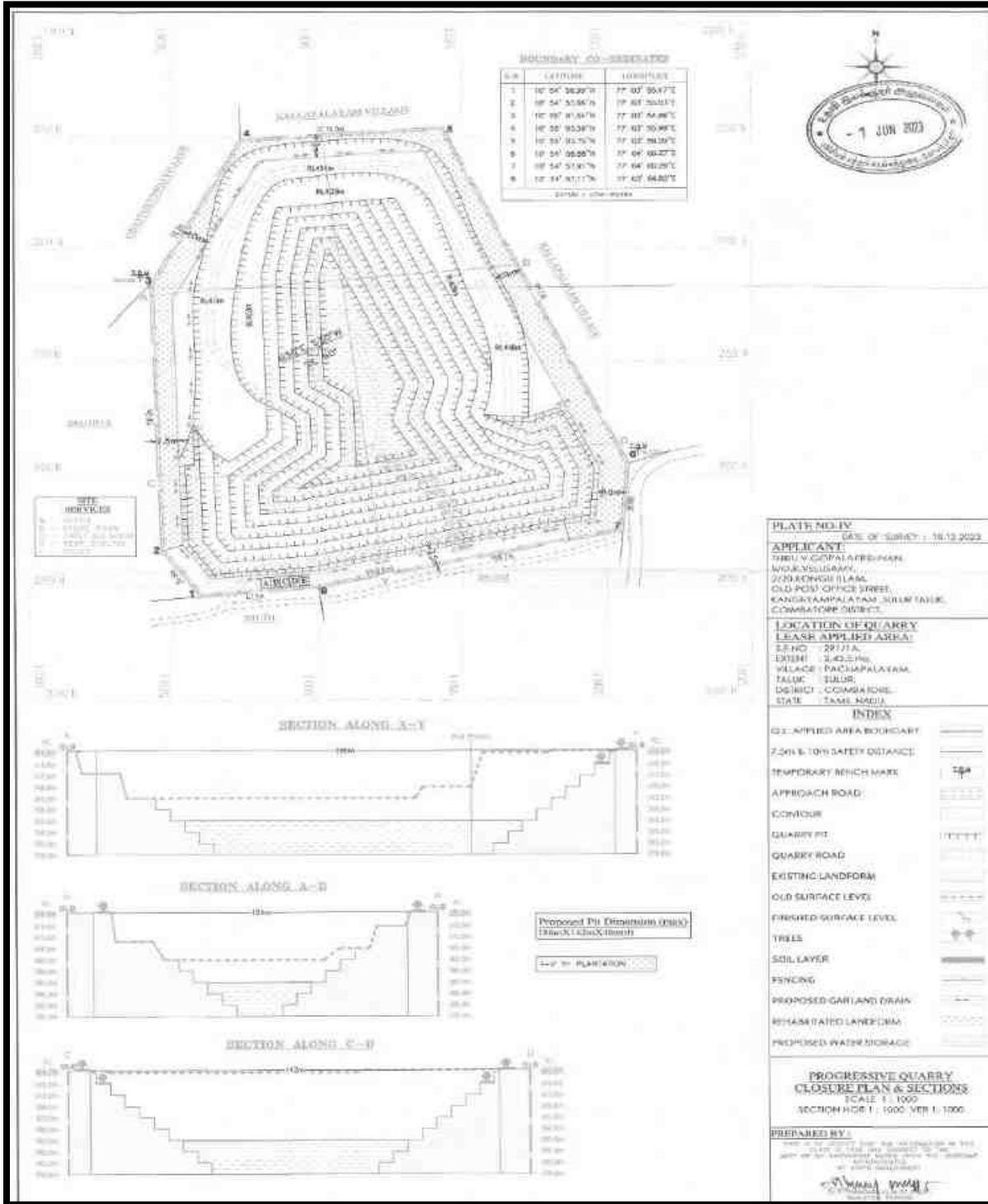
The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.

TABLE 2.19: ULTIMATE PIT DIMENSION P1, &P2

P1			
Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max)
I	186	142	46m bgl
P2			
Section XY-AB	148	158	27m Bgl

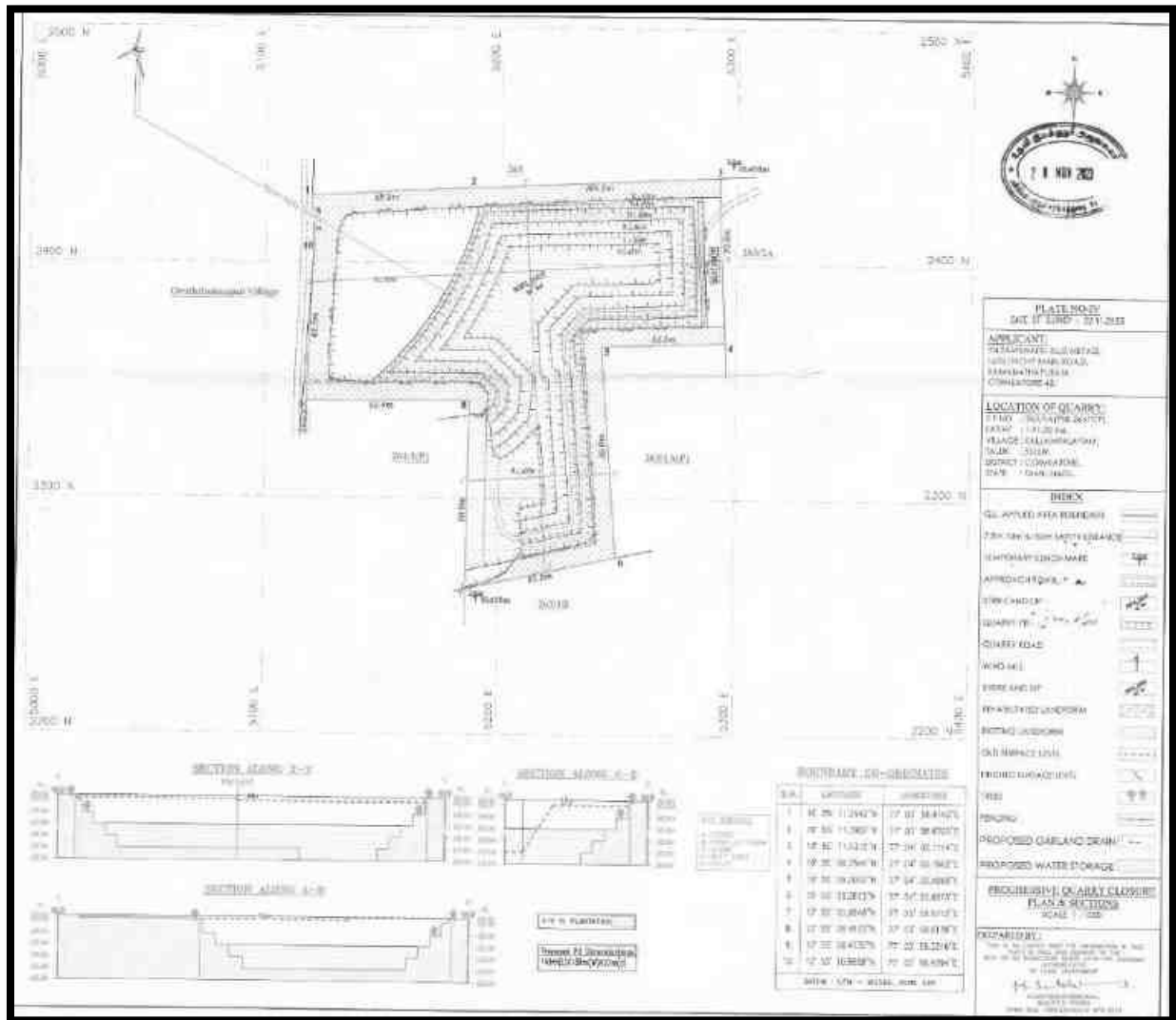
Source: Approved Mining Plan

FIGURE 2.20: CLOSURE PLAN AND SECTIONS- P1



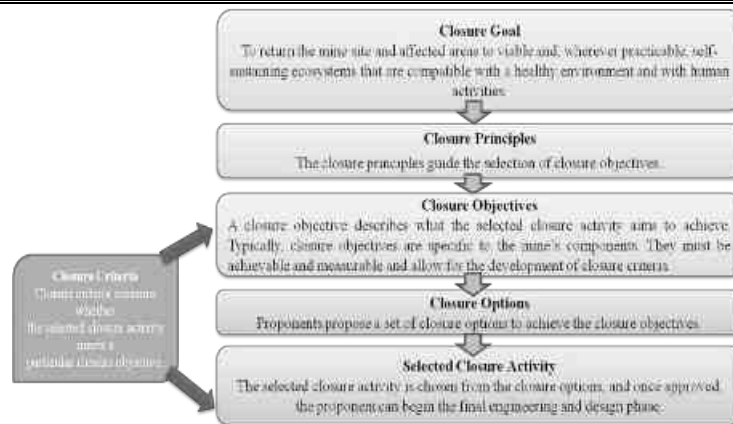
Source: Approved Mining Plan

FIGURE 2.22: CONCEPTUAL PLAN AND SECTIONS- P2



- At the end of life of mine, the excavated mine pit / void will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.
- After mine closure the greenbelt developed along the safety barrier and top benches and temporary water reservoir will enhance the ecosystem
- Mine Closure is a process of returning a disturbed site to its natural state or which prepares it for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety.
- The principal closure objectives are for rehabilitated mines to be physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting/ non-contaminating, and capable of sustaining an agreed post-mining land use.

Closure Objectives –



- Access to be limited, for the safety of humans and wildlife.
- The open pit mine workings and pit boundary are physically and geo-technically stable.
- Water quality in flooded pits is safe for humans, aquatic life, and wildlife.
- Discharge of contaminated drainage has been minimized and controlled.
- Original or desired new surface drainage patterns have been established.
- For flooded pits, in-pit aquatic habitat has been established where practical and feasible.
- Emergency access and escape routes from flooded pits for humans and wildlife are in place.
- Dust levels are safe for people, vegetation, aquatic life, and wildlife.

Closure Planning & Options Considerations in Mine Design –

- The closure of mine is well planned at the initial stage of planning & design consideration by the internal and external stake holders
- Construction of 2m height bund all along the mine pit boundary and ensure its stability all time & construction of garland drain along the natural slope to avoid sliding and collection of soil to the pit & surface runoff during rainfall
- After complete exploitation of mineral, the lowest bench foot wall side will be maintained as plain surface without any sump pits to avoid any accidents
- All the sharp edges will be dressed to smoother face before the closure of mine and ensure no loose debris on hanging wall side
- The project proponent as a part of social responsibilities assures to supply the stored mine pit water to the nearby villages after effective treatment process as per the standards of TNPCB & TWAD
- Native species will be planted in 3 row patterns on the boundary barriers and 1st bench, a full-time sentry will be appointed at the gate to prevent inherent entry of public & cattle.
- The access road to the quarry will be cut-off immediately after the closure
- The layout design shall be prepared and get approved from Department of Geology and Mining.
- The proponent is instructed to construct as per the layout approved
- Physical and chemical stability of structures left in place at the site, the natural rehabilitation of a biologically diverse, stable environment, the ultimate land use is optimized and is compatible with the surrounding area and the requirements of the local community, and taking the needs of the local community into account and minimizing the socio-economic impact of closure
- There will be a positive change in the environmental and ecology due to the mine closure

2.5 METHOD OF MINING

Opencast Mechanized Mining Method is proposed by formation of 5.0-meter height bench with a bench width not less than the bench height. Bench slope will be maintained as 60°.

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 Excavator attached with rock breaker/ bucket with tipper combination will be involved for the excavation/breaking of rough stone after blasting. 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.

It is recommended to obtain necessary statutory permission from the Department of Geology and Mining for Using Heavy Earth Moving Machineries, Blasting and appointment of Mines Manager etc.,

2.5.1 Drilling & Blasting Parameters

Drilling will be carried out using Jack hammer and compressor, the depth of the hole will be maximum 1.5m. Drilling & Blasting will be carried out as per parameters given below: -

Spacing	–	1.2m
Burden	–	1.0 m
Depth of hole	–	1.5 m
Charge per hole	–	0.50 – 0.75kg
Powder factor	–	6.0 tonnes/kg
Diameter of hole	–	32 mm

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.

Storage of Explosives –

No proposal for storage of explosives within the project area, the project proponent will made agreement with authorized explosives agencies for carrying out blasting activities and competent person as per DGMS guidelines will be employed for safety and supervision of overall quarrying activities.

The explosives will be sourced from the blasting agency on daily basis and the blasting will be carried out under the supervision of competent qualified Blaster and it will be ensured that there shall be no balance of explosive stock; any balance stock will be taken back by the supplier.

2.5.2 Extent of Mechanization

TABLE 2.20 PROPOSED MACHINERY DEPLOYMENT-P1

S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	7	1.2m to 2.0m	Compressed air
2	Compressor	2	400psi	Diesel Drive
3	Excavator with Bucket and Rock Breaker	2	300 HP	Diesel Drive
4	Tippers	3	20 Tonnes	Diesel Drive

Source: Approved Mining Plan

TABLE 2.22 PROPOSED MACHINERY DEPLOYMENT-P2

S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	5	1.2m to 2.0m	Compressed air

2	Compressor	1	400psi	Diesel Drive
3	Excavator with Bucket and Rock Breaker	1	300 HP	Diesel Drive
4	Tippers	2	20 Tonnes	Diesel Drive

Source: Approved Mining Plan

2.6 GENERAL FEATURES

2.6.1 Existing Infrastructures

Infrastructures like Mine office, Temporary Rest shelters for workers, Latrine and Urinal Facilities will be constructed as per the Mine Rule after the grant of quarry lease in all the proposed quarries.

2.6.2 Drainage Pattern

There are no streams, canals or water bodies crossing within the project area. The drainage pattern of the area is dendritic – sub dendritic.

2.6.3 Traffic Density

The traffic survey conducted based on the transportation route of material, the Rough Stone is proposed to be transported mainly through

Traffic density measurements were performed at two locations

1. Chettipalayam-Chinnakuyili– Panchayat Road
2. Chettipalayam-Palladam - SH Road

Traffic density measurement was 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.2.23: TRAFFIC SURVEY LOCATIONS

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Chettipalayam-Chinnakuyili	550m-NE	Panchayat Road
TS2	Chettipalayam-Palladam	3km-NW	SH Road

Source: On-site monitoring by GEMS FAE & TM

TABLE 2.24: EXISTING TRAFFIC VOLUME

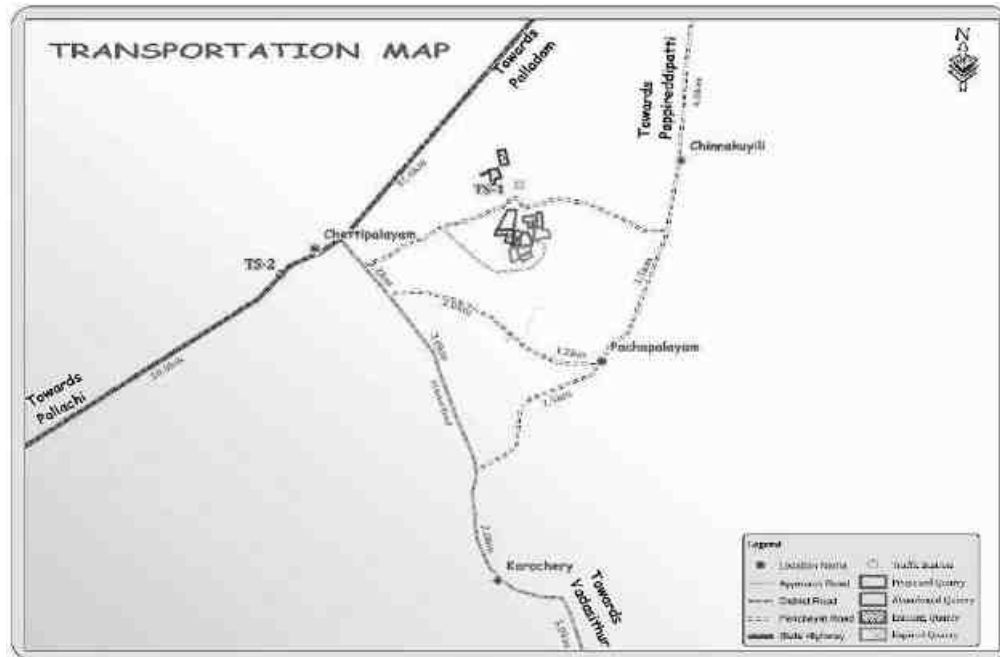
Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	150	450	100	100	200	100	750
TS2	300	900	150	150	150	75	1125

Source: On-site monitoring by GEMS FAE & TM

* PCU conversion factor: HMV (Trucks and Bus) = 3, LMV (Car, Jeep and Auto) = 1 and 2/3 Wheelers = 0.5

TABLE 2.25: ROUGH STONE & GRAVEL HOURLY TRANSPORTATION REQUIREMENT

Transportation of Rough Stone & Gravel per day		
Capacity of trucks	No. of Trips per day	Volume in PCU
20 tonnes	24	72

FIGURE.2.23: MINERAL TRANSPORTATION ROUTE MAP**Proposed Transportation Route:**

1. The Rough stone will be transported to the Crusher which is located 250m North side of the project site.
2. Existing approach road is located on the East side this road connecting in the Periyakuyili road (Total Stretch of the approach road = 1.76km)
3. Chettipalayam– Karachery road connecting in the Major District Road (522) at a distance of 3km the total Stretch of the Transportation route is about 2.0km-SW from the project site
4. No Major Habitation, Schools in the proposed transportation route.

TABLE 2.26: SUMMARY OF TRAFFIC VOLUME

Route	Existing Traffic volume in PCU	Incremental traffic due to the project	Total traffic volume	Hourly Capacity in PCU as per IRC – 1960 guidelines
Chettipalayam-Chinnakuyili-Panchayat Road	750	72	822	1200
Chettipalayam-Palladam- SH Road	1125	72	1197	1500

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

- Due to these projects the existing traffic volume will not exceed
- As per the IRC 1960 this existing village 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 proposed transportation.

2.6.4 Mineral Beneficiation and Processing

There is no proposal for the mineral processing or ore beneficiation in any of the proposed project.

2.7 PROJECT REQUIREMENT**2.7.1 Water Source & Requirement**

Detail of water requirements in KLD as given below:

TABLE 2.27: WATER REQUIREMENT FOR THE PROJECT-P1

Purpose	Quantity	Source
Dust Suppression	0.7KLD	From Existing bore wells from nearby area
Green Belt	0.5KLD	From Existing bore wells from nearby area
Sanitation & Drinking	0.3KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	1.5 KLD	

Source: Prefeasibility report

TABLE 2.29: WATER REQUIREMENT FOR THE PROJECT-P2

Purpose	Quantity	Source
Dust Suppression	0.8KLD	From Existing bore wells from nearby area
Green Belt	0.7KLD	From Existing bore wells from nearby area
Sanitation & Drinking purpose	0.5KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	2.0 KLD	

Source: Prefeasibility report

2.7.2 Power and Other Infrastructure Requirement

Power is not required for the mining operation; the mining operation will be carried out using Diesel Generator and Earth moving machineries using diesel. 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 by project proponent.

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 plant.

2.7.3 Fuel Requirement-P1

Gravel:

Per hour Excavator will consume	=	10liters / hour
Per hour Excavator will excavate	=	60m ³ of Gravel
Gravel quantity	=	1,144/60 = 19hours
Diesel consume	=	19hours x 10liters
Total diesel consumption	=	190Liters of HSD will be utilized for Gravel

Rough stone:

Per hour Excavator will consume	=	16 liters / hour
Per hour Excavator will excavate	=	20m ³ of Rough stone
Rough stone quantity	=	2,26,170/20 = 11,308hours
Diesel consume	=	11,308hours x 16 liters

Total diesel consumption = 1,80,928Liters of HSD will be utilized for Rough stone
 Total diesel consumption = 1,81,118liters of HSD will be utilized for entire project life.

Fuel Requirement-P2

Gravel:

Per hour Excavator will consume = 10 liters / hour
 Per hour Excavator will excavate = 60m³ of Gravel
 Gravel quantity = 10,064/60 = 168hours
 Diesel consume = 168hours x 10 liters
 Total diesel consumption = 1,680Liters of HSD will be utilized for Gravel

Rough stone:

Per hour Excavator will consume = 16 liters / hour
 Per hour Excavator will excavate = 20m³ of Rough stone
 Rough stone quantity = 1,51,295//20 = 7,565hours
 Diesel consume = 7,565hours x 16 liters
 Total diesel consumption = **1,21,040**Liters of HSD will be utilized for Rough stone
 Total diesel consumption = **1,22,720**Liters of HSD will be utilized for entire project life.

2.7.4 Project Cost

TABLE 2.30: PROPOSED PROJECT COST

Code	Project Cost
P1	Rs. 86,85,000/-
P2	Rs. 1,31,74,000/-

Source: Approved mining plan

2.8 EMPLOYMENT REQUIREMENT:

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 mine's regulations, 1961.

TABLE 2.31: PROPOSED MANPOWER DEPLOYMENT

Designation	P1
Mines Manager/Mines Foreman	1
Mate/Blaster	1
Jack hammer operator	14
Excavator Operator	2
Tippers driver	3
Helper	3
Cleaner & Co-operator	6
Security	1
Total	31

Source: Approved Mining Plan

Designation	P2
Geologist	1
Mines Manager/Mines Foreman	1
Mate/Blaster	1
Jack hammer Drillers	8
Excavator Operator	1
Tipper's driver	2
Water sprinkler driver	1
Helper	4
Cleaner & Co-operator	5
Security	2
Total	26

Source: Approved Mining Plan

2.9 PROJECT IMPLEMENTATION SCHEDULE

The mining operation will commence after the grant of Environmental Clearance, Consent to operate (CTO), Execution of Lease Deed and Obtaining permission from the DGMS (Notice of Opening).

TABLE 2.32: EXPECTED TIME SCHEDULE

Sl.No.	Particulars	Time Schedule (In Month)					Remarks if any
		1 st	2 nd	3 rd	4 th	5 th	
1	Environmental Clearance						
2	Consent to Operate						
3	Execution of Lease deed						
4	Permission from DGMS						
Time line may vary; subjected to rules and regulations /& other unforeseen circumstances							

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

3. DESCRIPTION OF ENVIRONMENT

3.0 GENERAL

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 to May 2024 with CPCB guidelines for the following attributes –

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

Environmental data has been collected with reference to cluster quarries by EHS 360 Labs Private Limited, – An accredited by ISO/IEC 17025:2017 (NABL) Laboratory.

Study Area

An area of 10 km radius (aerial distance) from the periphery of the cluster is considered for EIA study. The study area has been divided into two zones viz **core zone** and **buffer zone**.

- Core zone is considered as cluster area
- 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 to May 2024.

Study Methodology

- The project area was surveyed in detail with the help of Total Station Survey instruments and pillars were marked. 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)
 - Soil samples were collected and analysed for relevant physio-chemical characteristics in order to assess the impact due to mining activities and to recommend saplings for Greenbelt development.
 - Ground water samples were collected from the existing bore wells, Surface water was collected from water bodies in the buffer zone and analysed as per CPCB Guidelines.
 - An onsite meteorological station was setup in cluster area, to collect data about wind speed, wind direction, temperature, relative humidity, rainfall and general weather conditions were recorded throughout the study period.
 - Air quality Data 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.
 - 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.
 - 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.
-

- 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: 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 (1 core & 5 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 (1 surface water & 5 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Auto matic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourly twice a week (March 2024 – May 2024)	7 (2 core & 5 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	8 (2 core & 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.

Source: On-site monitoring/sampling by EHS360 Labs Private Limited, in association with GEMS

* All monitoring and testing have 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

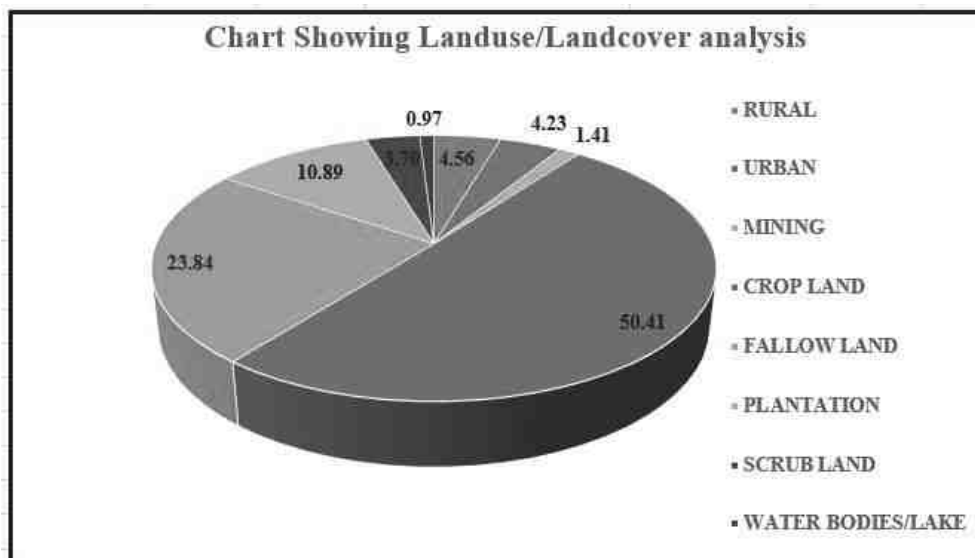
A visual interpretation technique has been adopted for land use classification based on the keys suggested in the chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through LISS III imagery of Bhuvan (ISRO). The 10 km radius map of study area was taken for analysis of Land use cover.

TABLE 3.2: LAND USE / LAND COVER TABLE 10 Km RADIUS

S.No	CLASSIFICATION	AREA_HA	AREA_%
BUILTUP			
1	RURAL	1508.43	4.56
2	URBAN	1400.87	4.23
3	MINING	465.26	1.41
AGRICULTURAL LAND			
4	CROP LAND	16682.80	50.41
5	FALLOW LAND	7887.55	23.84
6	PLANTATION	3603.16	10.89
BARREN/WASTE LANDS			
7	SCRUB LAND	1222.99	3.70
WETLANDS/ WATER BODIES			
8	WATER BODIES/LAKE	320.42	0.97
TOTAL		33091.49	100.00

Source: Survey of India Toposheet and Landsat Satellite Imagery

FIGURE 3.1: PIE DIAGRAM OF LAND USE AND LAND COVER



From the above table, pie diagram and land use map it is inferred that the majority of the land in the study area is Crop land and fallow land is 74.25% followed by Built-up Lands – 8.79%, Scrub land – 3.70%, and Water bodies 0.97%.

The total mining area within the study area is 465.26 ha i.e., 1.41%. The cluster area of 19.55.9ha contributes about 0.04% of the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment.

3.1.2 Topography

The project area is almost plain terrain having gentle slope towards South side, the North and North western side of the area is existing Rough stone quarry. The Western side of the area is side casted up to the maximum 0.5m to utilize temporary storage of Crushed materials.

3.1.3 Drainage Pattern of the Area

The drainage pattern of the area is dendritic – sub dendritic. Drainage pattern is the pattern formed by the streams, rivers, and lakes in a particular drainage basin. They are governed by the topography of the land, whether a particular region is dominated by hard or soft rocks, and the gradient of the land. There are no streams, canals or water bodies crossing within the project area.

3.1.4 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.

3.1.5 Environmental Features in the Study Area

There is no Wildlife Sanctuaries, National Park and Archaeological monuments within project 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 proposed mine lease area i.e., 10km radius, are given in the below Table 3.3.

FIGURE 3.2: PHYSIOGRAPHIC MAP 10KM RADIUS

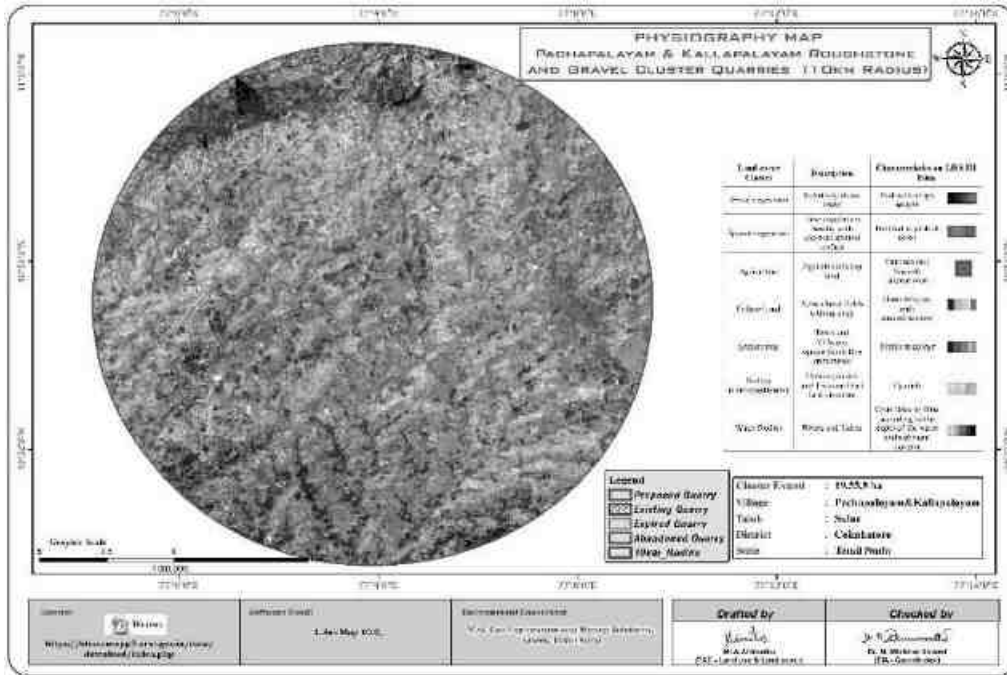


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS

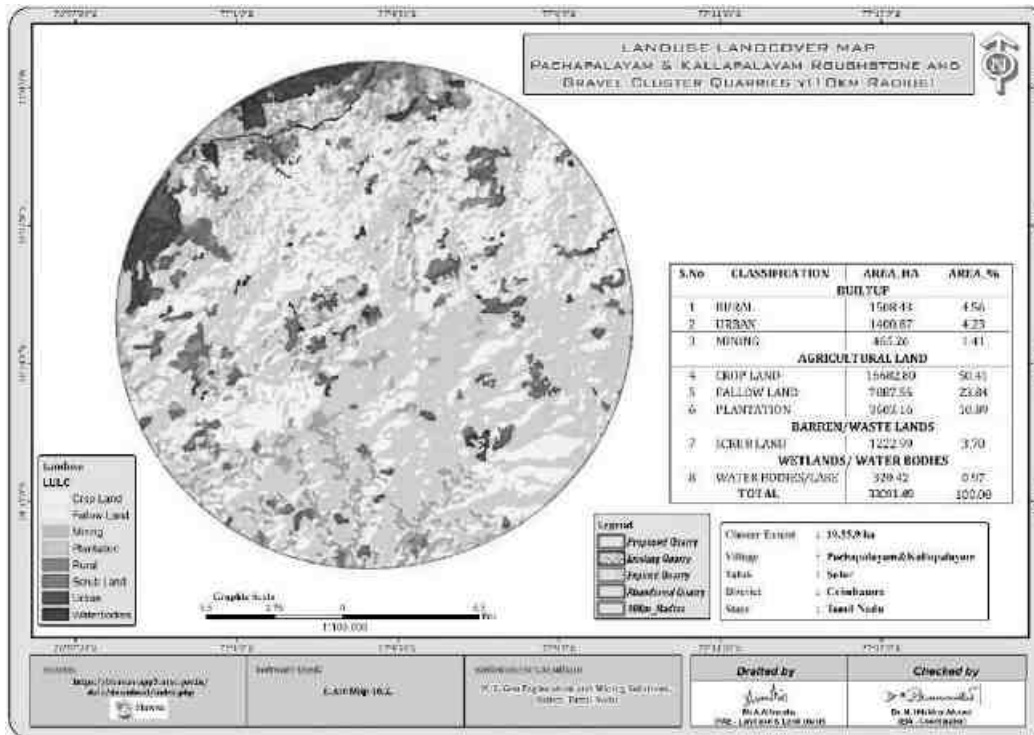


TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER

Sl.No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Indira Gandhi (Anamalai) Wildlife Sanctuary	44km - South
2	Reserve Forest	Bolampatti I R. F	12.88km-W
3	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	Sathyamangalam Tiger Reserve Sanctuary	48km-NW
4	Critically Polluted Areas	Coimbatore - SIDCO Industrial Estate	Around 10 km- North West
5	Mangroves	None	Nil within 10km Radius
6	Mountains/Hills	None	Nil within 10km Radius
7	Notified Archaeological Sites	Kodumanal Archaeological Excavation Site	54.0km – North East
8	Industries/ Thermal Power Plants	None	Nil within 10km Radius
9	Defence Installation	None	Nil within 10km Radius

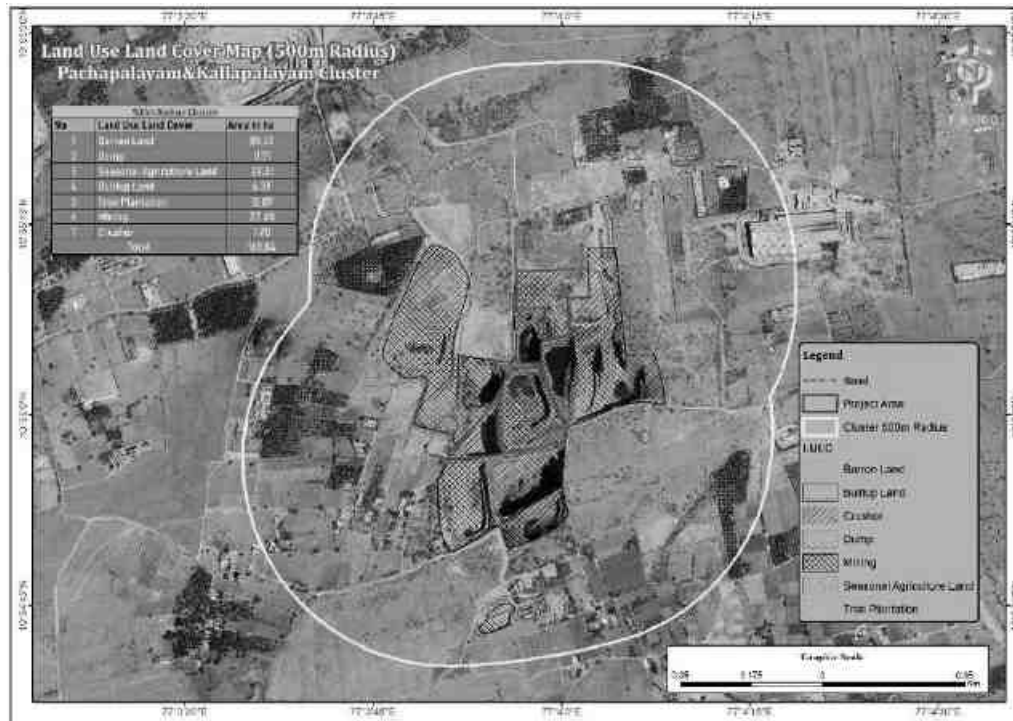
Source: Survey of India Toposheet

TABLE 3.4: NEARBY WATER BODIES FROM THE PROPOSED PROJECT SITES-P1-P2 &P3

P-1		
Sl.No	NAME	DISTANCE & DIRECTION
1	Seasonal Odai	930m South
2	Odai	2km NE
3	Pallapalayam Lake	7.7km NE
4	Noyyal River	8km NW
5	Vellalore Lake	8.5km NW
6	Singanallur Tank	8.7km NW

Source: Village Cadastral Map and Field Survey

P-2		
Sl.No	NAME	DISTANCE & DIRECTION
1	Seasonal Odai	1.2km South
2	Odai	1.8km NE
3	Pallapalayam Lake	7.5km NE
4	Noyyal River	7.8km NW
5	Vellalore Lake	8.3km NW
6	Singanallur Tank	8.5km NW

FIGURE 3.4: LAND USE LAND COVER MAP 500m RADIUS

Land use Landcover of the area within 500m radius were studied in detailed that the majority of the land within 500m is barren land (89.37ha) followed by Mining and Seasonal agricultural land and Tree plantation are contributing majority of the land use.

3.1.6 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 3.5 and Figure 3.5.

The objective of the soil sampling is -

To determine the baseline soil characteristics of the study area; study the impact of proposed activity on soil characteristics and study the impact on soil more importantly agriculture production point of view.

TABLE 3.5: SOIL SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Core Zone	Project Area	10°54'57.62"N 77° 3'57.53"E
2	S-2	Near Existing Quarry	430m NE	10°55'17.16"N 77° 4'1.80"E
3	S-3	Pachapalayam	1.8km SE	10°54'7.11"N 77° 4'30.41"E
4	S-4	Sakthi Nagar (Govt School)	5km NW	10°56'6.14"N 77° 1'22.48"E
5	S-5	Myleripalayam (Govt School)	6.8km SW	10°52'5.30"N 77° 1'23.29"E
6	S-6	Papampatti	5.8km NE	10°57'23.21"N 77° 6'4.00"E

Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS.

Methodology –

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the project site representing various land use conditions. The samples were collected by auger boring into the soil up to 90-cm depth. Six (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 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 3.6.

TABLE 3.6: 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 EHS360 Labs Private Limited in association with GEMS

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 classifications of soil are presented below in Figure 3.4 and the physico-chemical characteristics of the soil & Test Results in Table 3.7.

FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

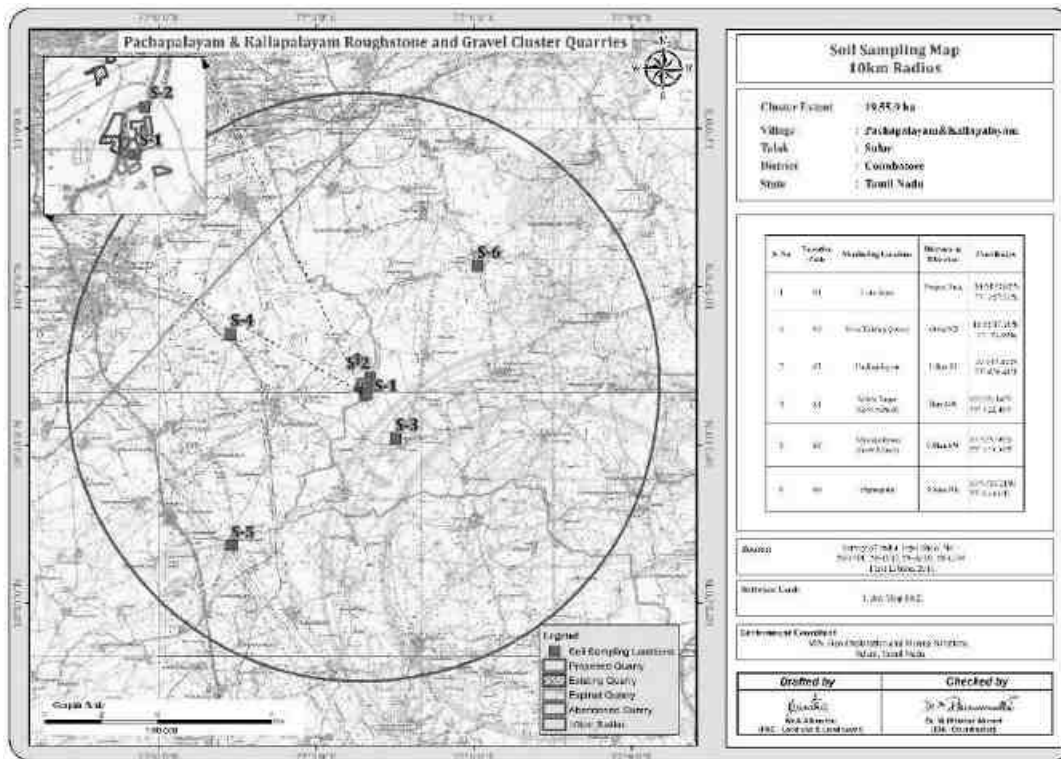


FIGURE 3.6: SOIL MAP

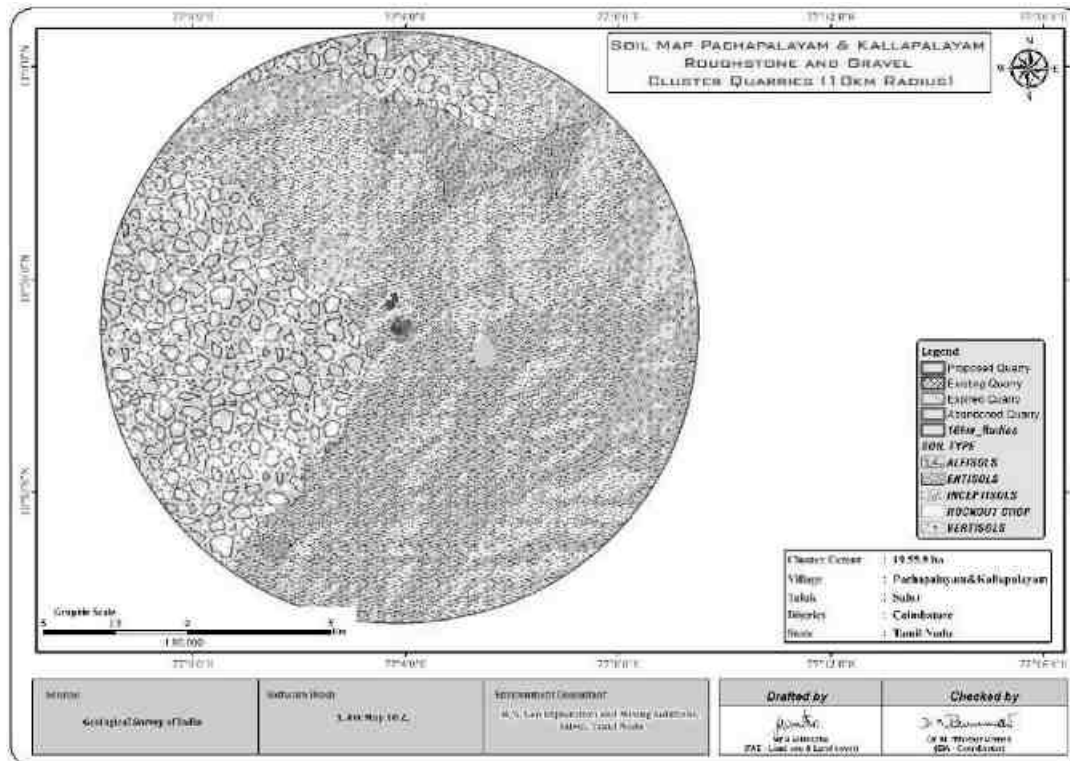


TABLE 3.7: SOIL QUALITY OF THE STUDY AREA

S.No	Test Parameters	Protocols	S-1 Core zone	S-2 Near Existing Quarry	S-3 Pachapalayam	S-4 Sakthi Nagar	S-5 Myleripalayam	S-6 Papampatti
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.35	8.06	8.43	8.25	8.54	8.05
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	µmhos/cm	415 µmhos/cm	367 µmhos/cm	459 µmhos/cm	400 µmhos/cm	555 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.5 %	47.3 %	45.7 %	46.2 %	47.5 %	44.7 %
04	Bulk Density	By Cylindrical Method	1.05 g/cm ³	1.17 g/cm ³	1.12 g/cm ³	1.12 g/cm ³	1.03 g/cm ³	1.02 g/cm ³
05	Porosity	By Gravimetric Method	44.6 %	48.9 %	47.6 %	48.8 %	46.8 %	47.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	38.5 mg/kg	43.6 mg/kg	38.5 mg/kg	57.3 mg/kg	60.2 mg/kg	47.6 mg/kg
07	Magnesium as Mg		27.3 mg/kg	41 mg/kg	28.4 mg/kg	35.1 mg/kg	33 mg/kg	21.4 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	41.3 mg/kg	20.89 mg/kg	25.5 mg/kg	24.5 mg/kg	34.7 mg/kg	60.6 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0010 %	0.0022 %	0.0023 %	0.0028 %	0.0017 %	0.0017 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	3.15 mg/kg	2.59 mg/kg	3.01 mg/kg	5.62 mg/kg	3.98 mg/kg	6.19 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	389.5 mg/kg	524 mg/kg	490.3 mg/kg	461.3 mg/kg	426 mg/kg	480.7 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.59 %	1.86 %	2.22 %	2.33 %	2.00 %	1.76 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.92 %	1.08 %	1.29 %	1.35 %	1.16 %	1.02 %
14	Texture:							
	Clay	Gravimetric Method	30.9 %	30.9 %	34.5 %	32.5 %	32.9 %	30.9 %
	Sand		28.7 %	30.7 %	28.3 %	30.8 %	33.2 %	31.5 %
	Silt		40.4 %	38.4 %	37.2 %	36.7 %	33.9 %	37.6 %
15	Manganese as Mn	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	13.2 mg/kg	14.6 mg/kg	7.59 mg/kg	8.25 mg/kg	18.7 mg/kg	23.3 mg/kg
16	Zinc as Zn		3.5 mg/kg	5.51 mg/kg	3.06 mg/kg	12.9 mg/kg	3.06 mg/kg	5.1 mg/kg
17	Boron as B		2.22 mg/kg	2.07 mg/kg	4.01 mg/kg	1.26 mg/kg	5.8 mg/kg	1.19 mg/kg
18	Potassium as K		27.8 mg/kg	51.3 mg/kg	36.6 mg/kg	30.4 mg/kg	26.1 mg/kg	30.7 mg/kg
19	Cadmium as Cd		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	Total Chromium as Cr		2.51	2.23	2.65	4.12	4.26	1.96
21	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)
22	Lead as Pb		1.02 mg/kg	1.06 mg/kg	1.55 mg/kg	2.98 mg/kg	2.05 mg/kg	1.06 mg/kg
23	Iron as Fe		7.26 mg/kg	4.55 mg/kg	1.06 mg/kg	5.6 mg/kg	8.9 mg/kg	3.54 mg/kg
24	Cation Exchange Capacity	USEPA 9080 - 1986	43 meq/100g of soil	37.6 meq/100g of soil	47.3 meq/100g of soil	45.0 meq/100g of soil	50.1 meq/100g of soil	38 meq/100g of soil

Source: Sampling Results by EHS360 Labs Private Limited .

FIGURE 3.7: SOIL SAMPLE COLLECTION

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 (30.9 % 34.5%) to Sandy Loam Soil and Bulk Density of Soils in the study area varied between 1.02– 1.17 g/cc. The Water Holding Capacity is found to be medium i.e., ranging from 44.7 – 47.5 %.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline with pH range 8.05 to 8.54
- The available Nitrogen content range between 389.5 to 524 mg/kg
- The available Phosphorus content range between 3.01 to 6.19 mg/kg
- The available Potassium range between 26.1 mg/kg to 51.3 meq/l

Observation:

The pH of the Soil indicates that the soil is Neutral and arid region and ideal for plant growth.

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 is the major surface water body in the study area and the rainfall over the area is moderate, the rainwater storage in open wells and trenches are in practice over the area and the stored water acts as source of drinking water for few months after rainy season.

3.2.2 Ground Water Resources:

Groundwater occurs in all the crystalline formations of oldest Achaeans and Recent Alluvium. The occurrence and behaviour of groundwater are controlled by rainfall, topography, geomorphology, geology, structures etc., The weathering is controlled by the intensity of weathering and fracturing. Dug wells as wells as bore wells are more common ground water abstraction structures in the area. The diameter of the dug well is in the range of 7 to 10 m and depth of dug wells range from 7.2 to 13m bgl. The dug wells yield up to 1 lap in summer months and few wells remains dry. The yield is adequate for irrigation for one or two crops in monsoon period.

3.2.3 Methodology

Reconnaissance survey was undertaken and monitoring locations were finalized based on;

- Drainage pattern;
- Location of Residential areas representing different activities/likely impact areas; and
- Likely areas, which can represent baseline conditions

Two (2) surface water and Four (4) ground water samples were collected from the study area and were analysed for physio-chemical, heavy metals and bacteriological parameters in order to assess the effect of mining and other activities on surface and ground water. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012 and 'Standard methods for the Examination of Water and Wastewater' published by American Public Health Association (APHA). The water sampling locations are given in Table 3.8 and shown as Figure 3.5.

TABLE 3.8: WATER SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	SW1	Singanallur Lake	8.8km NW	10°59'10.60"N 77° 1'36.43"E
2	WW-1	Near Project Area	380m West	10°54'56.73"N 77° 3'42.45"E
3	WW-2	Papampatti	5.5km NE	10°57'12.27"N 77° 5'55.69"E
4	WW-3	Myleripalayam	6.8km SW	10°52'18.87"N 77° 1'11.72"E
5	BW-1	Near Project Area	360m West	10°54'53.02"N 77° 3'44.13"E
6	BW-2	Pachapalayam	1.8km SE	10°54'4.94"N 77° 4'28.63"E

Source: On-site monitoring/sampling by EHS360 Labs Private Limited Private Limited in association with GEMS.

FIGURE 3.8: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS

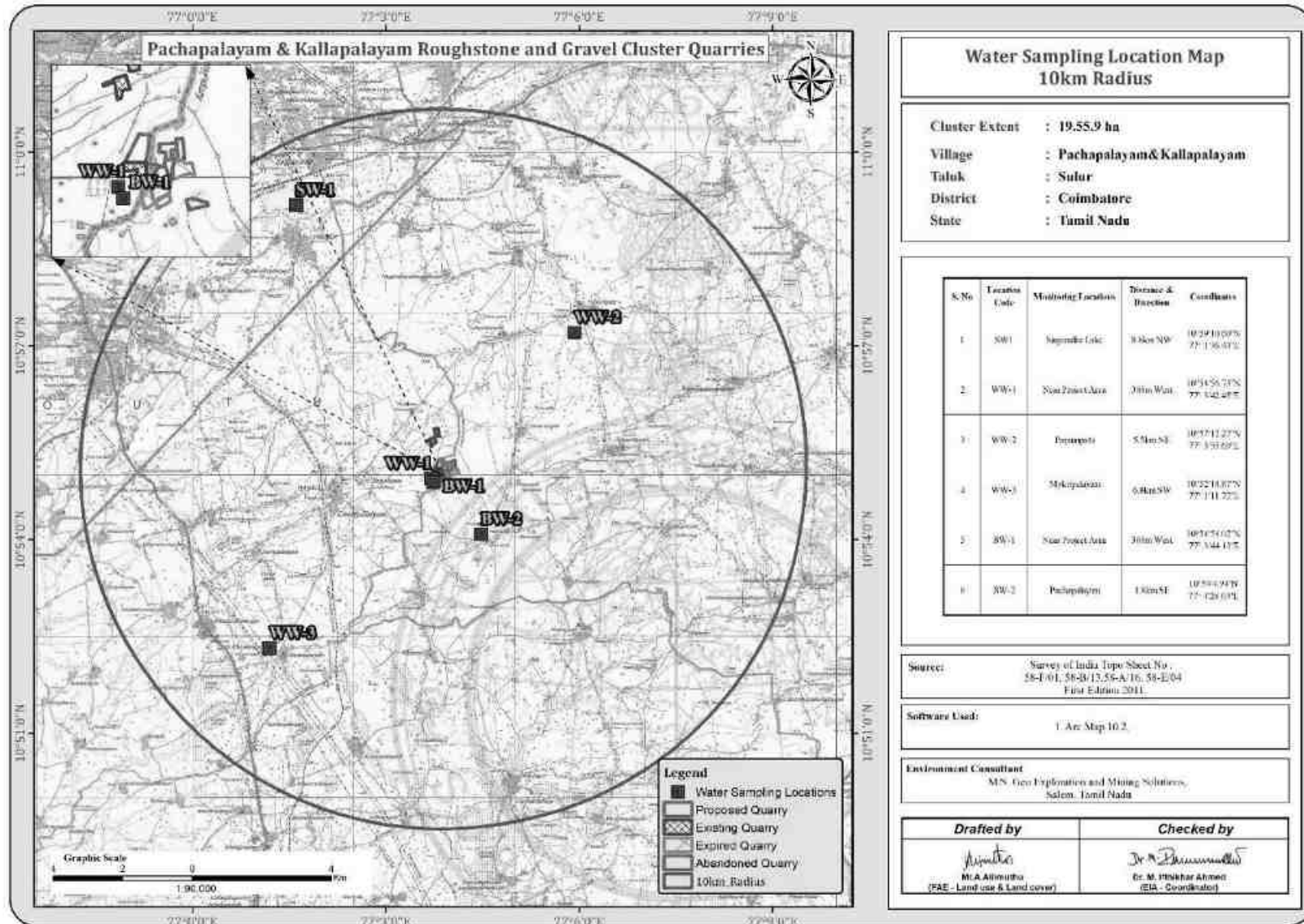


TABLE 3.9: GROUND WATER SAMPLING RESULTS

Sno	Test	Protocol	Ground Water (WW-1) – Near Project Area	Ground Water (WW-2) – Papampatti	Ground Water (WW3) Myleripalayam	Ground Water (BW-1) – Near Project Area	Ground Water (BW-2) – Pachapalayam
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5	5	5	5	5
2	Odour	IS 3025 Part 5:2018	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.79	7.19	7.62	7.47	7.67
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	900 µmhos/cm	978 µmhos/cm	1132 µmhos/cm	827 µmhos/cm	1007 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU	1.0 NTU	1.0 NTU	1.0 NTU	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	531 mg/l	577 mg/l	668 mg/l	488 mg/l	595 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	211.92 mg/l	207.58 mg/l	231.77 mg/l	198.44 mg/l	208.43 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	35.5 mg/l	35.9 mg/l	39.5 mg/l	32.4 mg/l	34.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	30.0 mg/l	28.7 mg/l	32.4 mg/l	28.6 mg/l	30.0 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	189.4 mg/l	210 mg/l	220 mg/l	170 mg/l	190 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	100 mg/l	124 mg/l	150 mg/l	71.5 mg/l	130.5 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	37.6 mg/l	38.1 mg/l	62.4 mg/l	37 mg/l	55.1 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.21 mg/l	0.31 mg/l	0.29 mg/l	0.17 mg/l	0.25 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.3 mg/l	0.20 mg/l	0.21 mg/l	0.19 mg/l	0.31 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	7.2 mg/l	4.13 mg/l	7.6 mg/l	4.51 mg/l	10.3 mg/l
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)	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)	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)	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)	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)	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)	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)	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)	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)	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)	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)	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)	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)	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:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 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)	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)	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)	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)	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)	BDL (DL:1.0 mg/l)
36	Total Coliform	APHA 23 rd Edn. 2017:9221B	188 MPN/100ml	177 MPN/100ml	200 MPN/100ml	183 MPN/100ml	140 MPN/100ml
37	Escherichia coli	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml

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

TABLE 3.10: SURFACE WATER SAMPLING RESULTS

SNO	TEST	PROTOCOL	Surface Water (SW-1) - Singanallur Lake
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	10 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.59
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	920 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	4.3 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	543 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	213.77 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	40.2 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	27.6 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	200 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	112 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	41.5 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.41 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.37 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	12 mg/l
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	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)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	11.7 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	40 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.3 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	1.28 mg/l
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	13.3 mg/l
40	Total Coliform	APHA 23rd Edn. 2017:9221B	400 MPN/100ml
41	Escherichia coli	APHA 23rd Edn. 2017:9221F	155 MPN/100ml

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

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

3.2.4 Interpretation & Conclusion

Surface Water

The pH varied from 7.59 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH).

Total Dissolved Solids:

Total Dissolved Solids varied from 543mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

Other parameters:

Chloride content is 112mg/l. Nitrates is 12 mg/l. while sulphates varied from 41.5mg/l.

Ground Water

The pH of the water samples collected ranged from 7.19 to 7.79 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. Total Dissolved Solids were found in the range of 488– 668mg/l in all samples. Total hardness varied between 198.44– 211.92 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-ATS 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 maximum depth proposed out of proposed projects is 46m (1m Gravel 45m Rough stone) below ground level for P1. Water table between 65-60m bgl depth is 51m for P2, water level surrounding area 45-50m Bgl, proposed depth as per ToR is 27m Bgl for P3.

Ground water levels and Flow Direction based on the Bore well and open well Data's

In general, the ground water movement is based on the gradient i.e., water moves from the highest static ground water elevation to lowest static ground water elevation point. The ground water movement is important aspect to locating the recharge and discharge areas. Therefore, the data has been collected in the study area. Water level measured in the 8 open well and 8 borewells.

The average water level in the open well is varies from = 11.35m to 11.95m bgl

The water level in the bore well is varies from = 56.52to 57.12m bgl

Based on the water level contour map of the open well and bore well the water flow direction in the particular region is towards North & South side.

The water level in the area is above 55m 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.

TABLE 3.11: POST MONSOON SEASON WATER LEVEL OF OPEN WELLS 1 KM RADIUS

S.NO	LABEL	LONGITUDE	LATITUDE	March-24	April-24	May-24
1	OW-1	77° 03' 42.5800" E	10° 54' 56.7000" N	12.4	13	13.6
2	OW-2	77° 04' 05.2095" E	10° 54' 49.4875" N	13.2	13.8	14.4
3	OW-3	77° 04' 06.1849" E	10° 54' 42.9406" N	12.9	13.5	14.1
4	OW-4	77° 03' 45.7844" E	10° 55' 11.5201" N	13.5	14.1	14.7
5	OW-5	77° 03' 19.9716" E	10° 55' 24.0258" N	12.7	13.3	13.9
6	OW-6	77° 04' 49.8001" E	10° 55' 28.1035" N	13.9	14.5	15.1

Source: Onsite monitoring data

FIGURE 3.9: OPEN WELL CONTOUR MAP (MARCH-MAY 2024)

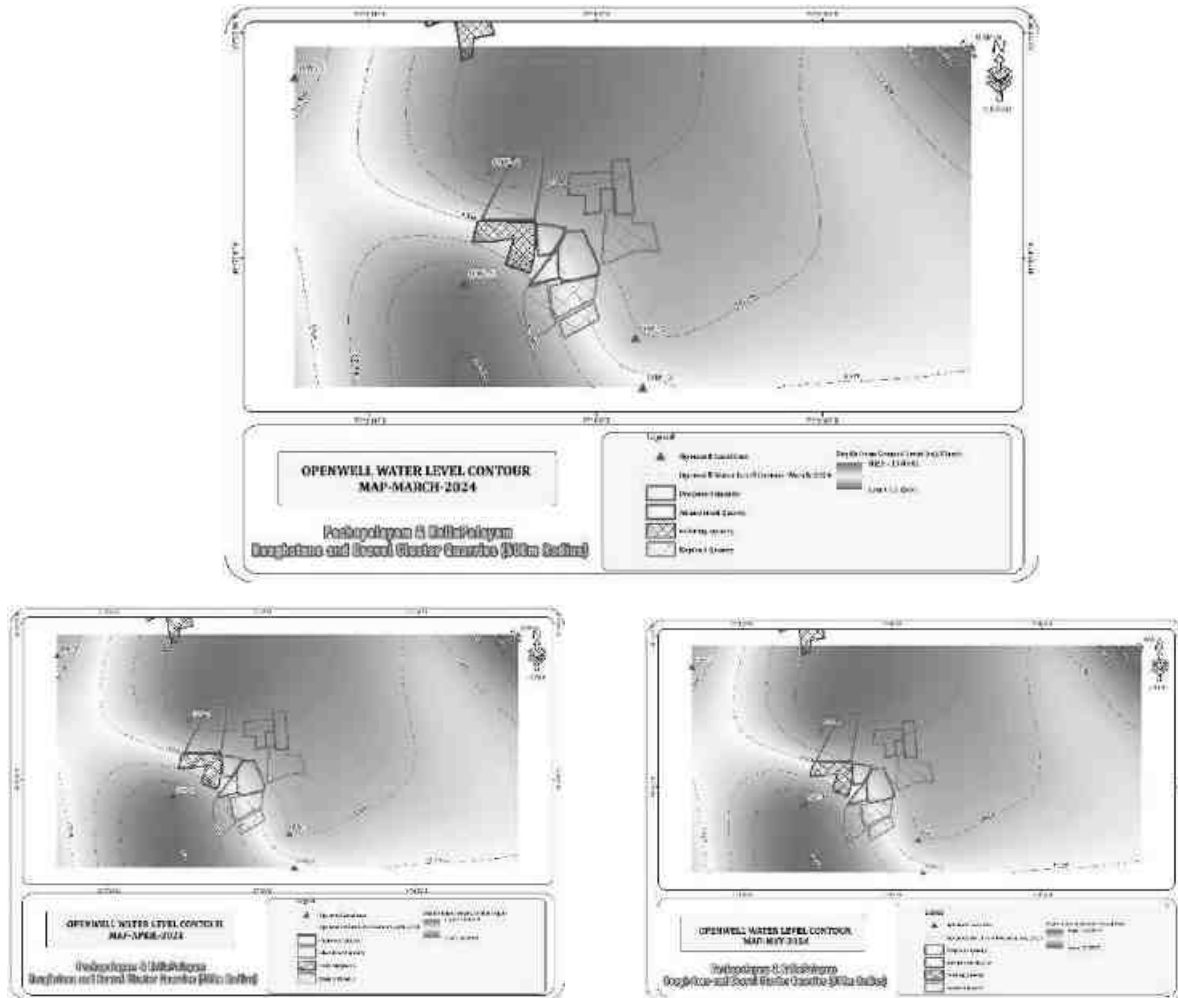


TABLE 3.12: POST MONSOON SEASON WATER LEVEL OF BOREWELLS 1 KM RADIUS

S.NO	LABEL	LONGITUDE	LATITUDE	March-24	April-24	May-24
1	BW1	77° 03' 42.0096" E	10° 54' 51.1734" N	68	68.6	69.2
2	BW2	77° 04' 05.6235" E	10° 55' 20.7545" N	68.5	69.1	69.7
3	BW3	77° 03' 50.8900" E	10° 54' 31.4900" N	67.9	68.5	69.1
4	BW4	77° 03' 44.0927" E	10° 54' 57.2441" N	68.2	68.8	69.4
5	BW5	77° 03' 32.4950" E	10° 55' 15.1536" N	67.8	68.4	69
6	BW6	77° 04' 05.4655" E	10° 54' 43.6614" N	68.4	69	69.6
7	BW7	77° 04' 17.1235" E	10° 55' 07.8239" N	68.1	68.7	69.3

Source: On-site monitoring data

FIGURE 3.10: BOREWELL CONTOUR MAP (March-May 2024)

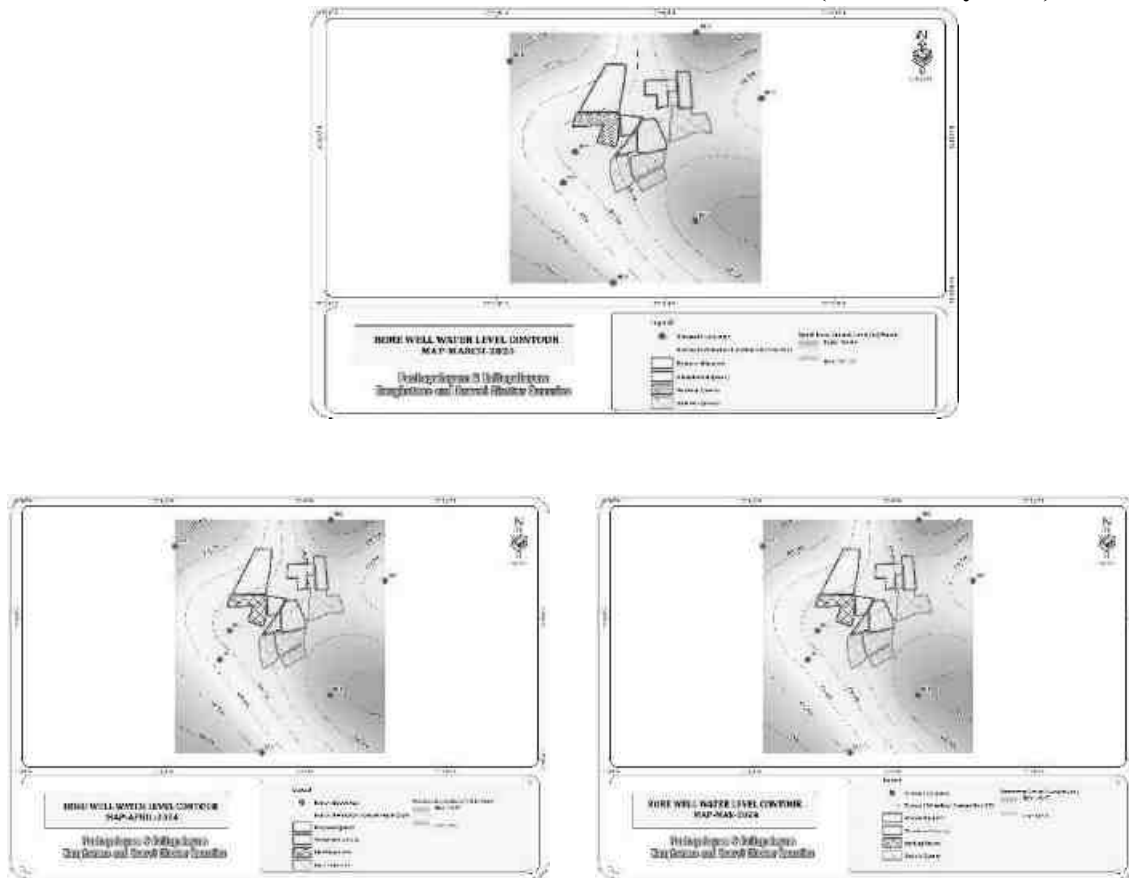
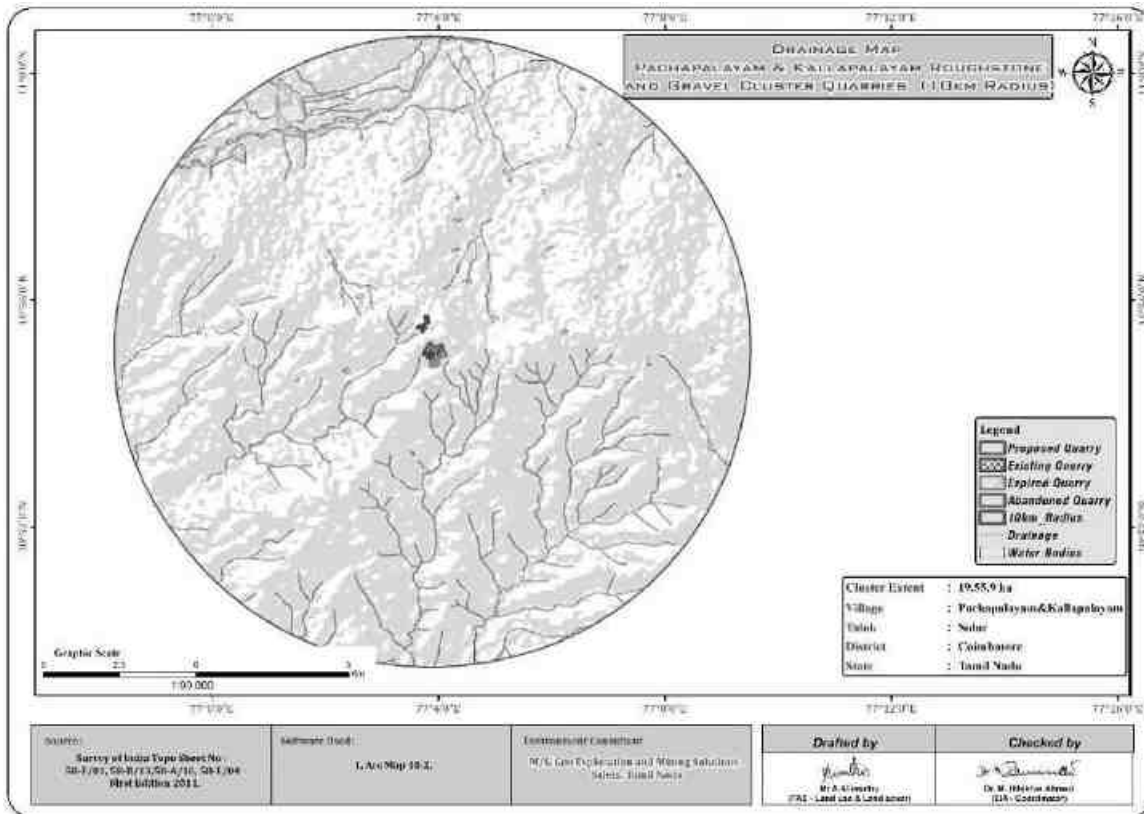


FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE



Remarks: it is inferred that the area is dendritic to sub dendritic pattern

FIGURE 3.12: GROUND WATER PROSPECT MAP

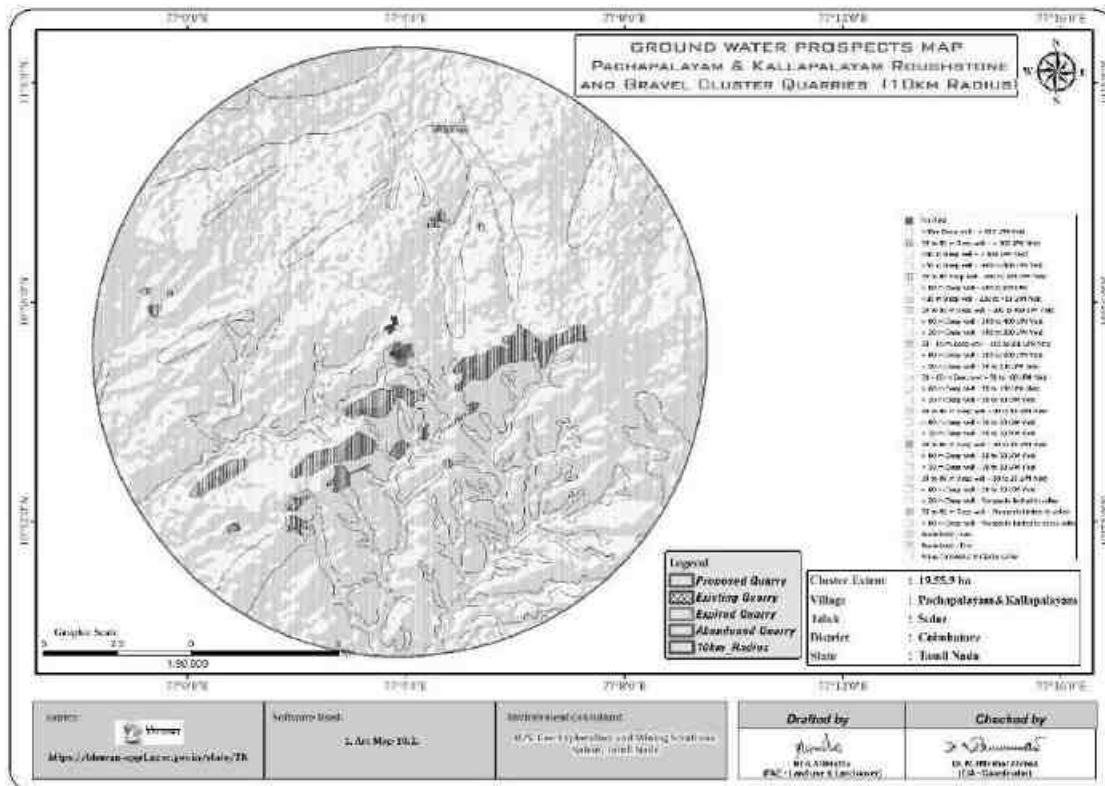


FIGURE 3.13: WATER QUALITY MONITORING PHOTOGRAPHS

Geophysical Resistivity Survey

3.2.5.1 Methodology and Data Acquisition

The Geophysical Electrical Resistivity survey conducted in the area Schlumberger configuration, Vertical Electrical Sounding (VES) method. Schlumberger electrode set up was employed for making sounding measurements. Since it is least influenced by lateral in homogeneities 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 in homogeneities that is consistent with the measured data.

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

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

ΔV = potential difference between receiving electrodes

G = Geometric Factor.

Rocks show wide variation in resistivity ranging from 10^{-8} more than 10^{+14} ohmmeter. On a broad classification, one can group the rocks falling in the range of 10^{-8} to 1 ohmmeter as good conductors. 1 to 10^6 ohmmeter as intermediate conductors and 10^6 to 10^{12} 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

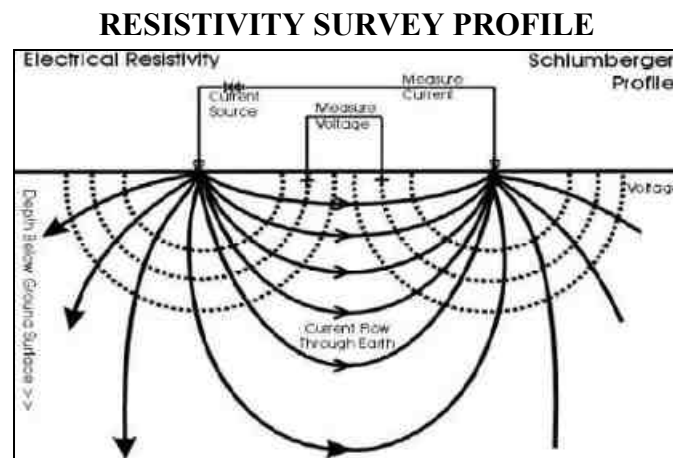
F = Formation Factor

\emptyset = Fractional pore volume

A = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

The 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 ratio 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 ... (1+2...+16/16)] up to the chosen stacks are displayed and the final average is stored automatically, in memory utilizing the principles of stacking to achieve the benefit of high signals to noise ratio. Based on these above significations the signal stacking resistivity meter was used for (VES) Vertical Electric Resistivity Sounding.



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 78-73m. The maximum depth proposed out of proposed projects 42m 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.

It is inferred that the existing quarries in the surrounding area reaches maximum of 78m and the water table is not intersected, only the seepage water during rainy season encountered from the upper layer and it will be used for the Greenbelt development, Dust suppression and quarrying operation.

3.3 AIR ENVIRONMENT

The existing ambient air quality of the area is important for evaluating the impact of mining activities on the ambient air quality.

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the cluster forms the baseline information. The prime objective of the baseline air quality study was to establish the existing ambient air quality of the study area. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of proposed projects in cluster.

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 by covering cluster quarries. The station was installed at a height of 3m 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

TABLE 3.13: RAINFALL DATA

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

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

TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE

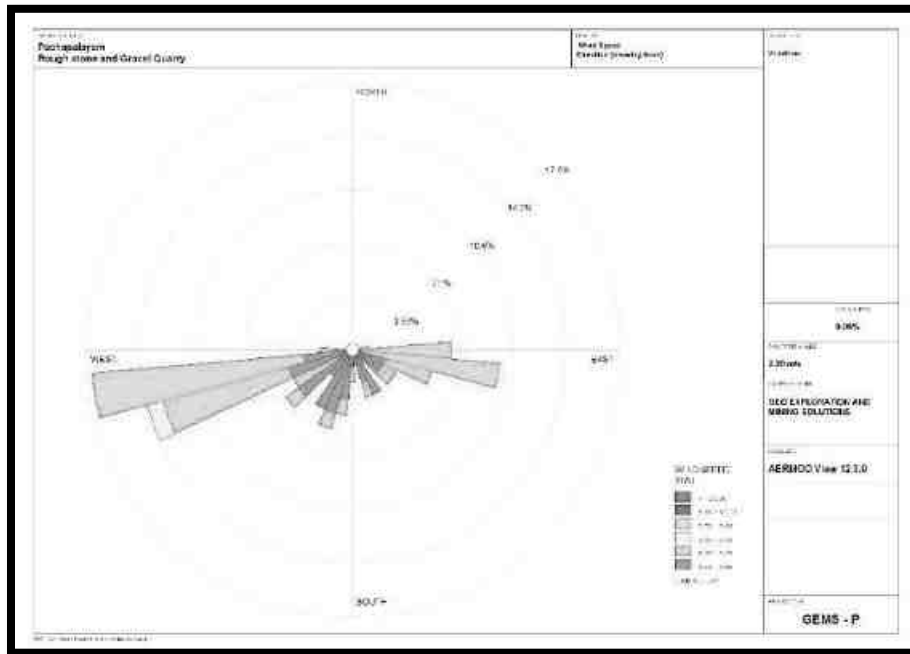
S.No	Parameters		Mar-2024	Apr-2024	May-2024
1	Temperature (°C)	Max	30.03	31.9	31.22
		Min	25.13	28.65	24.51
		Avg	27.58	30.27	27.86
2	Relative Humidity (%)	Avg	49.47	57.19	72.09
3	Wind Speed (m/s)	Max	3.39	3.3	4.09
		Min	1.07	1.21	1.5
		Avg	2.23	2.25	2.79
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ESE,E	SSW,WSW	WSW,W

Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS.

Correlation between Secondary and Primary Data

The average rain fall over the period of five years is 1213.2mm. The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Coimbatore Agro. A comparison of site data generated during the three months with that of IMD, Coimbatore Agro

Wind rose diagram of the study site is depicted in Figure. 3.14. Predominant downwind direction of the area during study season is West, South west, East, East south East.

FIGURE 3.14: WINDROSE DIAGRAM

In the abstract of collected data wind rose were drawn on presented in figure No.3.13 during the monitoring period in the study area

1. Predominant winds were from ESE, SSW, WSW
2. Wind velocity readings were recorded between 0.50 to 3.60m/s
3. Calm conditions prevail of about 0 % of the monitoring period
4. Temperature readings ranging from 24.51 to 31.9 °C
5. Relative humidity ranging from 49.47- 72.09%
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 3.15: METHODOLOGY AND INSTRUMENT USED FOR AAQ ANALYSIS

Parameter	Method	Instrument
PM2.5	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM10	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO2	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NOx	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 EHS360 Labs Private Limited & CPCB Notification.

TABLE 3.16: 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 80.0	20.0 80.0
2	Nitrogen Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	Particulate matter (size less than $10\mu\text{m}$) PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than $2.5\mu\text{m}$) PM _{2.5} ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0 60.0	40.0 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 Oct – Dec 2023. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂) Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

The equipment was placed preferably at a height of at least $3 \pm 0.5\text{m}$ above the ground level at each monitoring station, for negating the effects of wind-blown ground dust. The equipment was placed at open space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results.

3.3.5 Ambient Air Quality Monitoring Stations

Seven (7) monitoring stations were set up in the study area as depicted in Figure 3.15 for assessment of the existing ambient air quality. Details of the sampling locations are as per given below.

TABLE 3.17: AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ-1	Core Zone	Project Area SW	10°54'57.19"N 77° 3'55.78"E
2	AAQ-2	Core Zone	Project Area NE	10°55'3.55"N 77° 3'58.18"E
3	AAQ-3	Near Existing Quarry	400m NE	10°55'15.15"N 77° 4'2.51"E
4	AAQ-4	Pachapalayam	1.8km SE	10°54'7.24"N 77° 4'30.69"E
5	AAQ-5	Sakthi Nagar (Govt School)	5km NW	10°56'7.54"N 77° 1'26.62"E
6	AAQ-6	Myleripalayam (Govt School)	6.8km SW	10°52'8.09"N 77° 1'25.61"E
7	AAQ-7	Papampatti	5.8km NE	10°57'25.73"N 77° 6'3.06"E

Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS.

FIGURE 3.15: AIR QUALITY MONITORING PHOTOGRAPHS



FIGURE 3.16: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

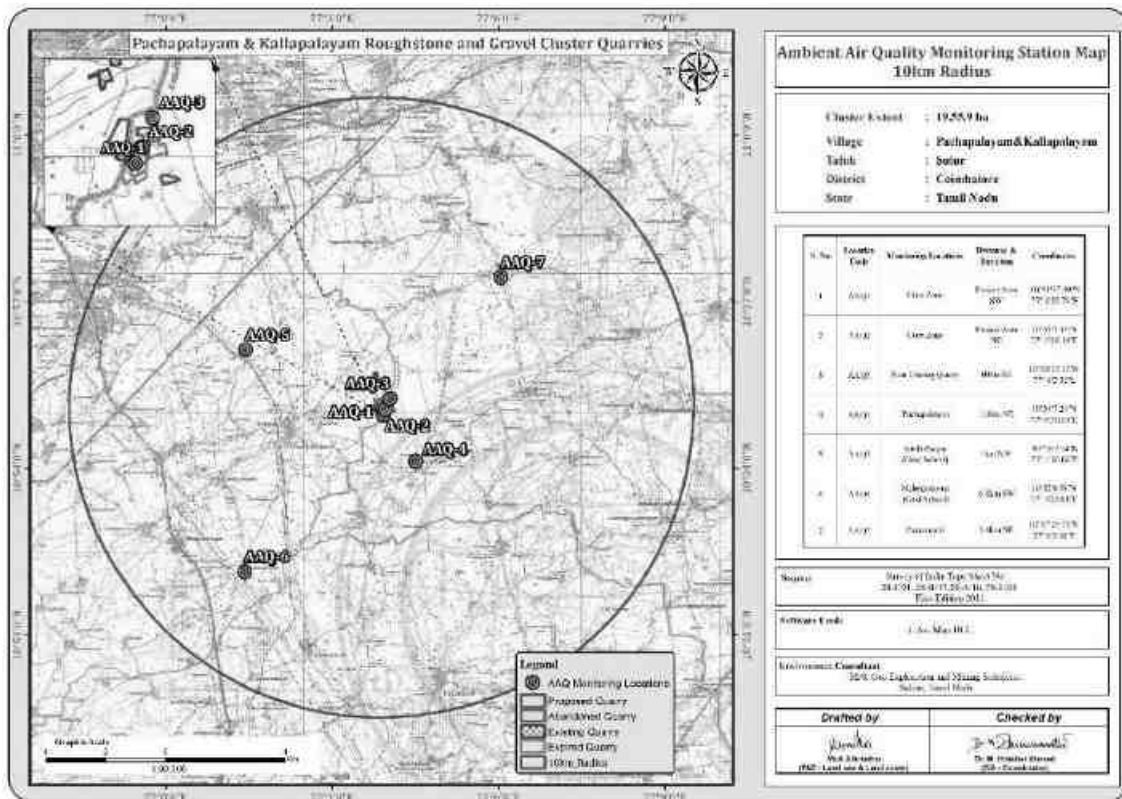


TABLE 3.18: SUMMARY OF AAQ 1 to AAQ7

PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	46.1	43.4	43.9	45.8	44.1	44.1	45.3
Minimum	45.0	41.0	41.3	44.1	42.2	44.2	43.2
Maximum	47.7	45.3	46.2	47.6	46.6	48.6	46.9
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	21.1	20.0	21.1	21.3	44.1	46.6	19.5
Minimum	20.1	18.1	20.0	20.0	18.2	18.5	17.9
Maximum	22.6	21.3	22.3	22.9	21.5	21.9	21.3
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0
SO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	6.2	5.4	5.6	5.7	6.0	5.9	5.8
Minimum	4.4	4.1	4.2	4.2	4.4	4.5	4.1
Maximum	7.9	7.6	6.6	6.9	8.6	7.7	7.4
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0
NO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	24.0	24.3	24.7	25.3	24.5	24.7	24.9
Minimum	22.1	22.6	22.4	22.0	23.3	23.0	22.6
Maximum	26.5	26.6	26.7	27.0	25.9	26.9	26.9
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0

TABLE 3.19: ABSTRACT OF AMBIENT AIR QUALITY DATA

1	Parameter	PM10	PM2.5	SO ₂	NO ₂
2	No. of Observations	260	260	260	260
3	98 th Percentile Value	48.2	22.6	7.6	26.9
4	Arithmetic Mean	45.6	20.8	6.1	25.0
5	Geometric Mean	45.5	20.8	6.0	25.0
6	Standard Deviation	1.6	1.1	0.9	1.2
7	Minimum	43.1	19.0	4.5	23.2
8	Maximum	48.2	22.6	7.6	26.9
9	NAAQ Norms*	100.0	60.0	80.0	80.0
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

FIGURE 3.17: BAR DIAGRAM OF SUMMARY OF AAQ 1 – AAQ7

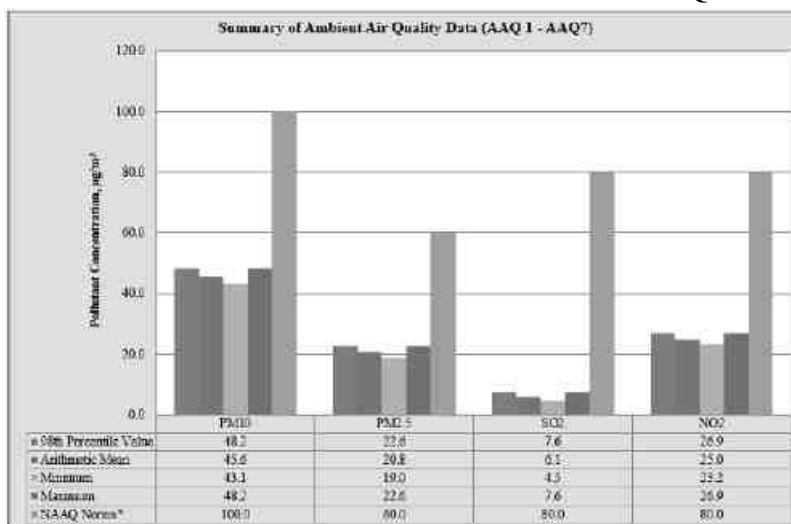


FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM_{2.5}

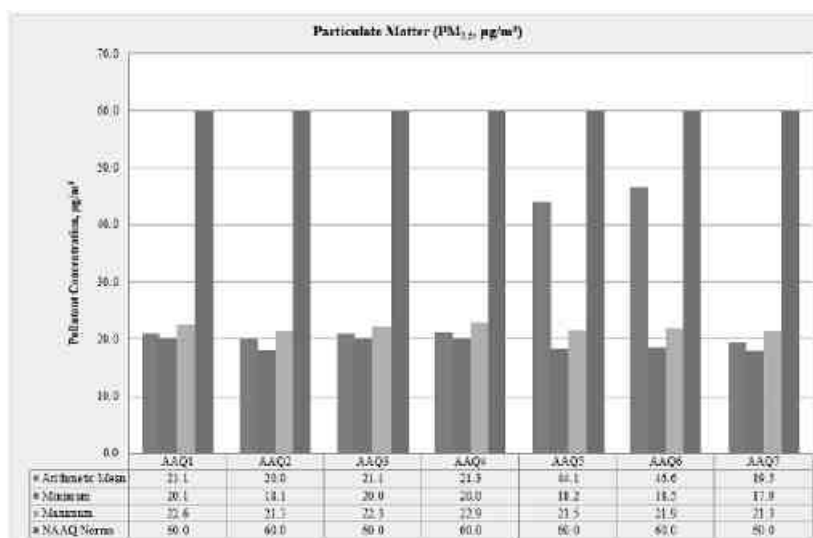


FIGURE 3.19: BAR DIAGRAM OF PARTICULATE MATTER PM₁₀

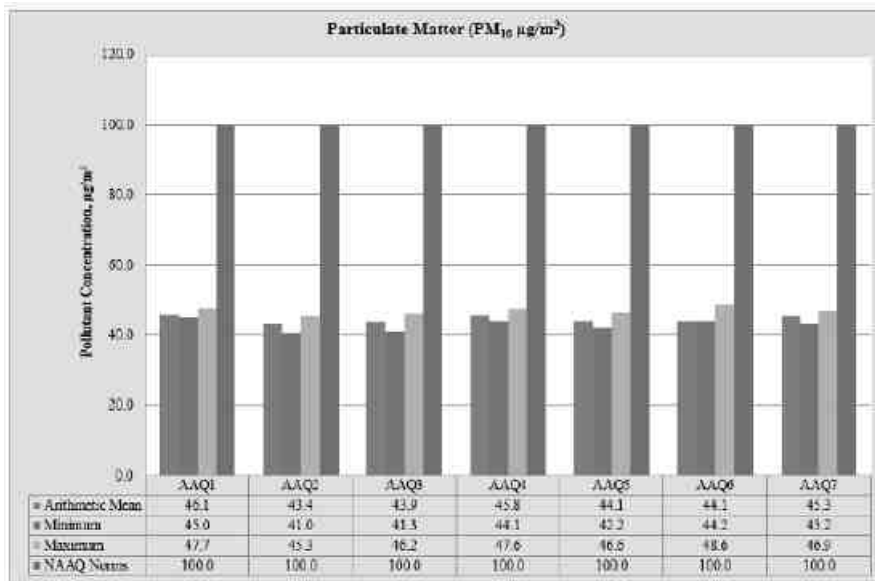


FIGURE 3.20: BAR DIAGRAM OF GASEOUS POLLUTANT SO₂

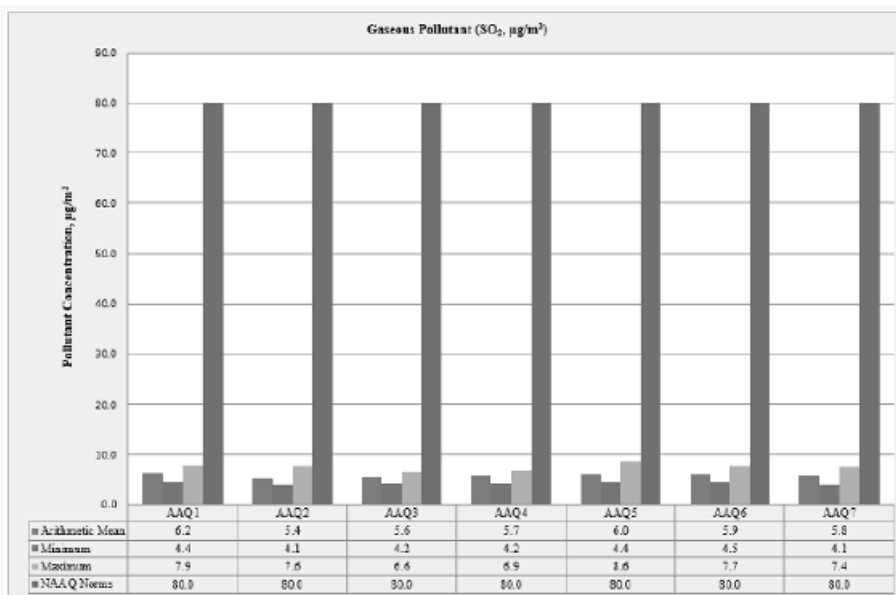
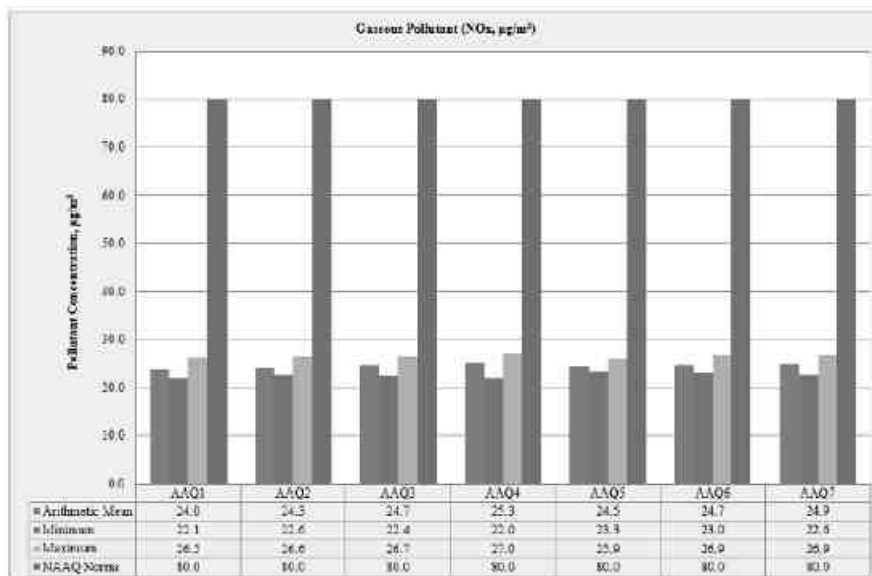


FIGURE 3.21: BAR DIAGRAM OF GASEOUS POLLUTANT NO_x



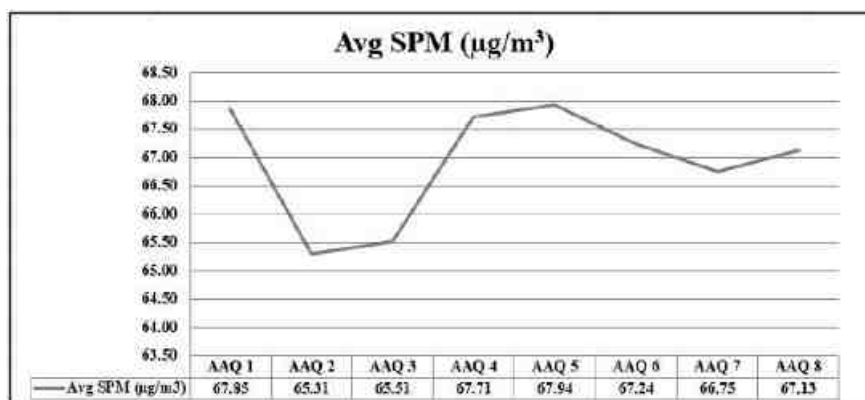
3.3.7 FUGITIVE DUST EMISSION –

Fugitive dust was recorded at 7AAQ monitoring stations for 30 days average during the study period.

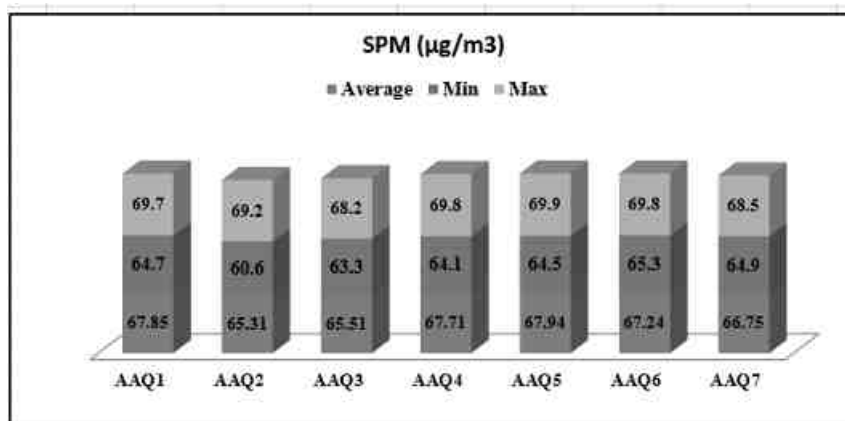
TABLE 3.20: FUGITIVE DUST SAMPLE VALUES IN µg/m³

SPM (µg/m ³)	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Average	67.85	65.31	65.51	67.71	67.94	67.24	66.75
Min	64.7	60.6	63.3	64.1	64.5	65.3	64.9
Max	69.7	69.2	68.2	69.8	69.9	69.8	68.5

FIGURE 3.22: LINE DIAGRAM OF AVERAGE SPM VALUES



Source: Calculations from Lab Analysis Reports

FIGURE 3.23: BAR DIAGRAM OF SPM VALUES

3.3.6 Interpretations & Conclusion

As per monitoring data, PM₁₀ ranges from 41.0 µg/m³ to 48.6 µg/m³, PM_{2.5} data ranges from 17.9 µg/m³ to 22.9 µg/m³, SO₂ ranges from 4.1 µg/m³ to 8.6 µg/m³ and NO₂ data ranges from 22.0 µg/m³ to 27.0 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 41.0 µg/m³ in Core zone e & 48.6 µg/m³ in Myleripalayam village respectively. The minimum & maximum concentrations of PM_{2.5} were found to be 17.9 µg/m³ in Papampatti village & 22.9 µg/m³ in Pachapalayam village respectively. The maximum concentration in the core zone is due to the cluster of quarries situated within 500m radius.

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 measurement was carried out at each ambient air quality station. The main aim of the noise level monitoring is

- To assess the ambient Noise level in the study area
- Type of noise pollution generated in the core zone
- To predict the temporal changes in the ambient noise level in the area

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 3.21: DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	N1	Core Zone	Project Area SW	10°54'57.62"N 77° 3'55.66"E
2	N2	Core Zone	Project Area NE	10°55'3.67"N 77° 3'57.86"E
3	N3	Near Existing Quarry	400m NE	10°55'14.94"N 77° 4'2.64"
4	N4	Pachapalayam	1.8km SE	10°54'7.07"N 77° 4'31.19"E
5	N5	Sakthi Nagar (Govt School)	5km NW	10°56'7.19"N 77° 1'26.39"E
6	N6	Myleripalayam (Govt School)	6.8km SW	10°52'8.00"N 77° 1'25.24"E
7	N7	Papampatti	5.8km NE	10°57'25.50"N 77° 6'3.11"E
8	N8	Edayarpalayam	4.5km East	10°55'20.00"N 77° 6'25.15"E

Source: On-site monitoring/sampling by EHS360 Labs Private Limited Private Limited in association with GEMS.

FIGURE 3.24: NOISE MONITORING PHOTOGRAPHS

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. The equivalent noise level is defined mathematically as,

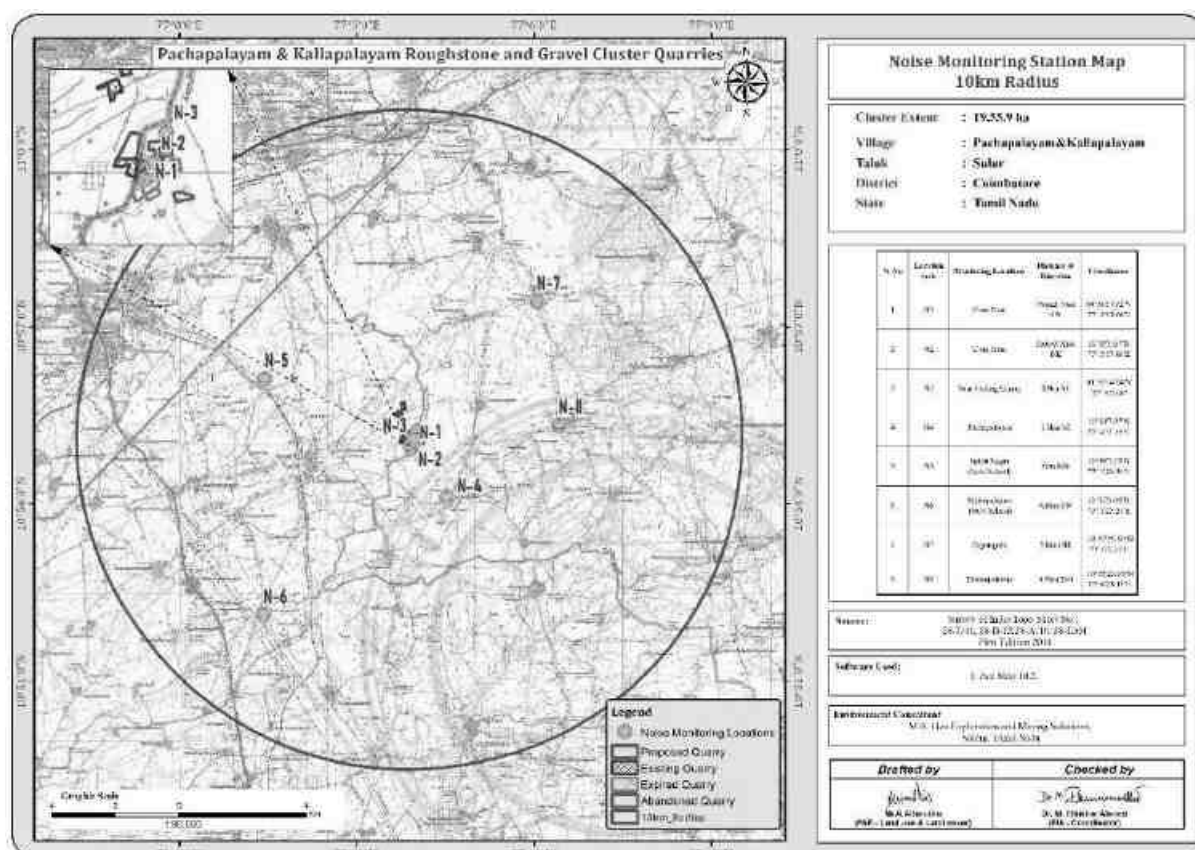
$$Leq = 10 \log L / T \sum (10L_n/10)$$

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

T = Time interval of observation

Measured noise levels, displayed as a function of time, is useful for describing the acoustical climate of the community. Noise levels recorded at each station with a time interval of about 60minutes are computed for equivalent noise levels. Equivalent noise level is a single number descriptor for describing time varying noise levels.

FIGURE 3.25: NOISE MONITORING STATIONS AROUND 10 KM RADIUS



3.4.3 Analysis of Ambient Noise Level in the Study Area

The Digital Sound pressure level has been measured by a sound level meter (Model: HTC SL-1352) 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 3.32.

Day time: 6:00 hours to 22.00 hours.

Night time: 22:00 hours to 6.00 hours.

TABLE 3.22: AMBIENT NOISE QUALITY RESULT

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	42.4	36.6	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Core Zone	41.8	36.8	
3	Near Existing Quarry	41.4	38.1	
4	Pachapalayam	41.2	36.3	
5	Sakthi Nagar (Govt School)	39.7	36.5	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
6	Myleripalayam (Govt School)	41.8	37.9	
7	Papampatti	40.8	36.0	
8	Edayarpalayam	39.7	36.8	

Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS.

FIGURE 3.26: DAY TIME NOISE LEVELS IN CORE AND BUFFER ZONE

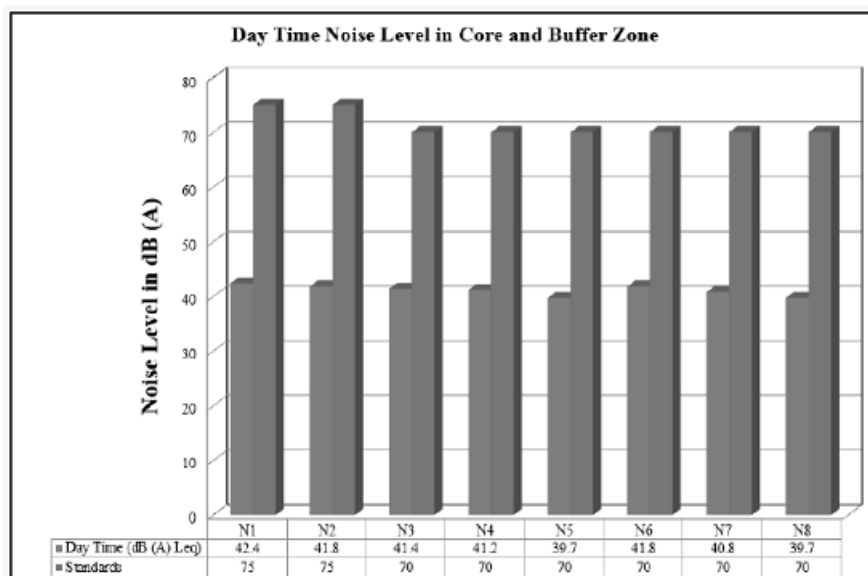
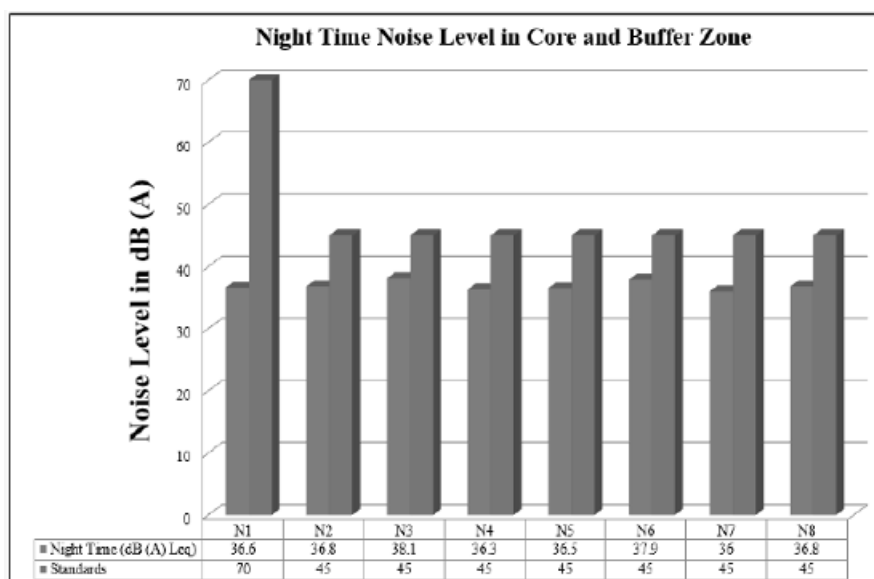


FIGURE 3.27: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 8 (Eight) locations around the proposed project area. Noise levels recorded in core zone during day time were from 41.8-42.4 dB (A) Leq and during night time were from 36.6-36.8 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 39.7 to 41.4 dB (A) Leq and during night time were from 36.0 to 38.1 dB (A) Leq. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5 BIOLOGICAL ENVIRONMENT

3.5.1. Study area Ecology

In this project, the total area of the Cluster with in 10km radius from the periphery of this quarry is reported as 19.55.9 Ha with 7 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 Rough stone and gravel quarry on the ecology and biodiversity of the core lease area with the proper mitigation and sustainable management plan. The proposed area exhibits almost flat terrain. The following methods were applied during the baseline study of flora, fauna and diversity assessment.

The present study was carried out in two separate headings for floral and faunal community. The aspects to be covered in the study for the project are given in Table No 3.23.

Table No: 3.23: Aspect to be covered in the study area

Aspect of Environment	Impacts
A. Terrestrial Ecology	Impacts on terrestrial flora and fauna
	Impacts on Rare-Endangered-Threatened (RET) wildlife
B. Aquatic Ecology	Impacts on aquatic fauna/flora
	Impacts on spawning and breeding grounds for aquatic species

3.5.2. Objectives of Biological Studies

- Undertake an intensive field survey to assess the status of floral & 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.

3.5.2.1. Field surveys

The field visit was carried out to understand and assess the impacts of mining activities on flora & fauna and natural habitats and prediction after the enhancement of the production capacity of the mine. We evaluated the distribution and abundance of flora and fauna in the study area through primary and secondary data sources.

3.5.2.2. Floral Study

- The floral survey of the project area is based on field survey of the area.

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- The local flora was identified by their morphological observation, such as the size, age and shape of the leaf, flowers, fruits, and their bark features of the stem, and also documented their habitat viz. Trees, Shrubs, Herbs, Grasses, Climbers etc.
 - After surveying the core and the buffer areas, a detailed floral inventory has been compiled. A list of all plants from the study area was prepared and their habitats were recorded.
 - Selection of sampling locations was made with reference to topography, land use, vegetation pattern, wind pattern, etc. The observations were taken on natural vegetation, roadside plantations, and non-forest areas (agricultural fields, in plain areas, village wasteland, etc.) for quantitative representation of different species.

3.5.3. Methodology of Sampling

Primary survey was conducted with established and accepted ecological methods in different habitats of study area. The field data collection mainly included biodiversity status assessment of different life forms habit of flora elements such as Trees, Shrubs, Climbers Herbs and Grass. Faunal diversity was assessed by inventorying the taxonomical groups like Mammals, Herpetofauna, birds and butterflies.

Nocturnal faunal species were searched by locating their calls during night time and by searching along the forest shrubs areas, dense dry bushes, below the stones, water bodies. During the study, to know more about the seasonal presence of flora and faunal species, information was obtained from local people and forest department.

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.

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 ordimates. 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).

The secondary baseline data of flora and fauna has been complied through the following data sources:

1. Forest working plan
 2. Schedule I to V: Indian Wildlife (Protection) Act, 1972
 3. Vivek Menon, Indian Mammals: A Field Guide. Hachette Book publishing India Pvt.Ltd., India.
 4. Daniel J.C. The Book of Indian Reptiles and Amphibians, Bombay Natural History Society., India.
 5. Ali, S and Ripley. handbook of the Birds of India and Pakistan together with those of Nepal, Sikkim and Bhutan, Oxford University Press, Bombay.
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6. ENVIS Centre on Wildlife and Protected Area.
 7. Birds Life Data Zone
 8. Ebird.org
 9. Global Biodiversity Information Facility

3.5.3.1. 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.

3.5.3.2. 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.

3.5.3.3. 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.

3.5.3.4. Observations from Sampling

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

3.5.3.5. Field Equipment's/ References

Following tools/equipment were used for conducting phytosociological study.

- Ballpoint pen, Field bags, Field notebooks, field shoes, gloves, GPS, Measuring tapes and scales, Plant cutters, packet lens, ropes etc.
- 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 (Fauna Sampling)

3.5.4.1. Transect walk – Birds

Eight no 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.

3.5.4.2. 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.

3.5.4.3. 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 on search. VES technique is one of the simplest methods, and an appropriate technique for both inventory and monitoring Herpetofauna (Heyer et al. 1994).

3.5.4.4. 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.

3.5. Flora

The quadrat sampling technique was used for sampling vegetation. Sampling quadrats of the 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.

3.5.1. Flora Composition in the Core Zone

Core zone flora sampling was conducted between 8.00 am to 10.00 am in two locations. The proposed applied area exhibits flat terrain, we used with quadrat sampling methods. Taxonomically a total of 15 species belonging to 11 families have been recorded from the core zone mining lease area. The area has gently sloping South-western side. Based on the habitat classification of the enumerated plants the majority of species were Herbs 4, followed by Shrubs 4, Trees 3, and Grass 2. Details of flora with the scientific names were mentioned in Table No. 3.24. The result of the core zone of flora studies shows that Fabaceae and Lamiaceae are the main dominating species in the study area mentioned in Table No.3.24. No species were found as threatened category.

Table No: 3.24. Flora in the Core zone of Cluster area, Pachapalayam Village, Rough stone and gravel quarry (Primary data)

Sl.No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Neem or Indian lilac	Vembu maram	Azadirachta indica	Meliaceae
2.	White Bark Acacia	Vela maram	Vachellia leucophloea	Fabaceae
3.	Velvet mesquite	Mullu maram	Prosopis juliflora	Fabaceae
Shrubs				
1.	Triangular spruce	Chaturakalli	Euphorbia antiquorum	Euphorbiaceae
2.	Carray Cheddle	Kaarai	Canthiumparviflorum	Rubiaceae
3.	Indian fig opuntia	Sapathikalli	Opuntia ficus-indica	Cactaceae
4.	Milk Weed	Erukku	Calotropis gigantea	Apocynaceae
Herbs				
1.	Common leucas	Thumbai	Leucas aspera	Lamiaceae
2.	Coat buttons	Thatha poo	Tridax procumbens	Asteraceae
3.	Holy basil	Thulasi	Ocimum tenuiflorum	Lamiaceae
4.	Bindii	Nerunji mullu	Tribulus terrestris	Zygophyllaceae
Climber				
1.	Stemmed vine	Perandai	Cissus quadrangularis	Vitaceae
2.	Stinking passionflower	Poonai puduku chedi	Passiflora foetida	Passifloraceae
Grasses				
1.	Narrowleaf cattail	Sambu	Typha angustifolia	Typhaceae
2.	Eragrostis	Pullu	Eragrostis ferruginea	Poaceae

Sources: Species observation in the field study



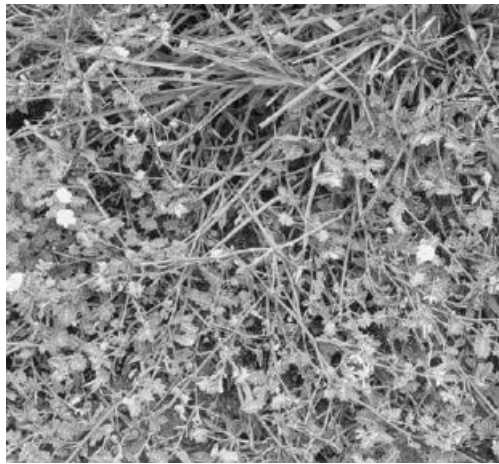
a. *Tridax procumbens*



b. *Ocimum tenuiflorum*



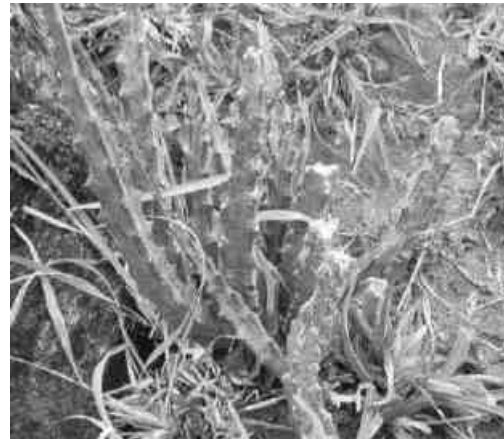
c. *Prosopis juliflora*



d. *Tribulus terrestris*



e. *Opuntia ficus-indica*



f. *Euphorbia antiquorum*

Fig No: 3.28. Flora species observation in the Core zone area

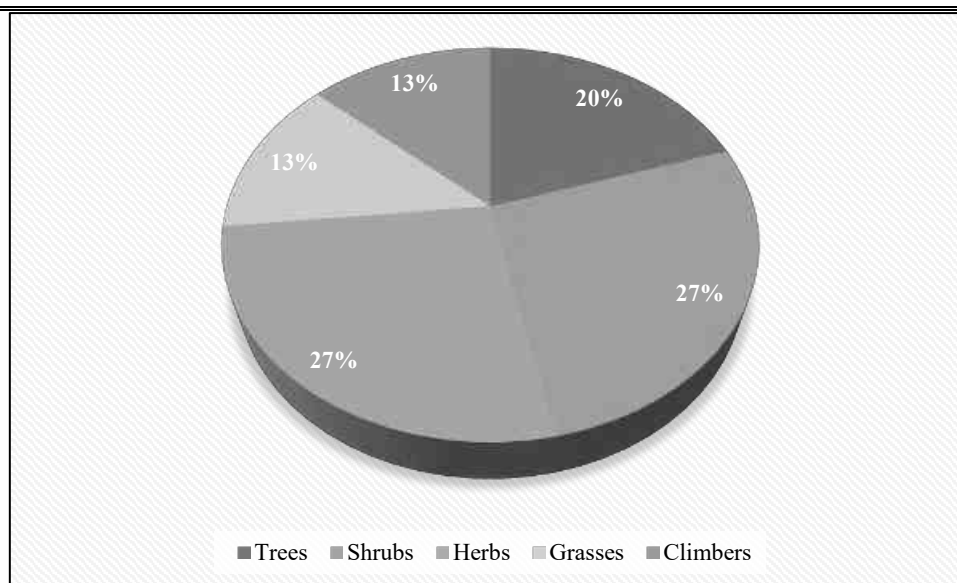


Fig No. 3.29: Graph Showing % Distribution of Floral Life Forms (Core Zone- Cluster area)

The trees surveys were conducted around 300m radius from the proposed project site cluster area of Pachapalayam and Kallapalayam village. This is the standard scientific method followed by various workers in respect of phytosociological studies (Cotton and Curtis 1956; Ralhan et al. 1982; Saxena and Sing 1982; Nayak et al. 2000; Lu et al. 2004; Nautiyal 2008). While sampling, circumference at breast Height (CBH) of tree species was measured at 1.37m from ground level, along with the name of the species, phenology (flowering, fruiting, and flushes), and uses. After surveying areas, a detailed trees inventory has been compiled. A list of all plants from the study area was prepared and their habitats were recorded. The species of trees were documented during this base line survey. The dominant plant species growing in this area were *Cocos nucifera* *Prosopis juliflora*, etc. Please refer the Table No.3.25.

Table No: 3.25. Tree survey around 300m radius from the proposed project site (Primary data)

S.No	English Name	Vernacular Name	Scientific Name	No of trees
Trees				
1.	Acacia Nilotica	Karuvelammaram	<i>Vachellianilotica</i>	4
2.	Mesquite	Mullumaram	<i>Prosopis juliflora</i>	12
3.	Neem	Vembu	<i>Azadirachta indica</i>	6
4.	Millettia Pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	2
5.	Mango	Manga	<i>Mangifera indica</i>	3
6.	Coconut	Thennai maram	<i>Cocos nucifera</i>	50

(Sources: Species observation in the field study)

Table No: 3.26. Flora in Buffer Zone of Pachapalayam Cluster area, Rough stone and gravel quarry (Primary data & Secondary data)

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

34.	Henna	Marudaani	<i>Lawsonia inermis</i>	Lythraceae
35.	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae
36.	Peepal	Asoka maram	<i>Ficus religiosa</i>	legume
37.	Banana tree	Vazhaimaram	<i>Musa acuminata</i>	Musaceae
38.	Jack fruit	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae
39.	Custard apple	Seethapazham	<i>Annona reticulata</i>	Annonaceae
40.	Manilkara zapota	Sapota	<i>Manilkara zapota</i>	Sapotaceae
Shrubs				
1.	Devil's trumpet	Umathai	<i>Datura metel</i>	Solanaceae
2.	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae
3.	Castor bean	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae
4.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae
5.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
6.	Jungle geranium	Idly Poo	<i>Ixora coccinea</i>	Rubiaceae
7.	Prickly pear	Nagathali	<i>Opuntia</i>	Cactaceae
8.	Rosy Periwinkle	Nithyakalyani	<i>Cathranthus roseus</i>	Apocynaceae
9.	Ceylon Date Palm	Icham	<i>Phoenix pusilla</i>	Arecaceae
10.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae
11.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
12.	Ipomoea cornea	Nevelikattamanaku	<i>Ipomoea carnea</i>	Convolvulaceae
13.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae
14.	Malabar catmint	Pei veratti	<i>Anisomeles malabarica</i>	Lamiaceae
15.	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae
16.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
17.	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae
18.	Rosary pea	Kundumani	<i>Abrus precatorius</i>	Fabaceae
19.	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae
20.	West Indian Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
Herbs				
1.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
2.	Billygoat weed	Pumpillu	<i>Ageratum conyzoides</i>	Asteraceae
3.	Aloe barbadensis	Katrazhai	<i>Aloe vera</i>	Asphodelaceae
4.	Madagascar Periwinkle	Nithyakalyani	<i>Catharanthus roseus</i>	Apocynaceae
5.	Indian Mercury	Kuppamani	<i>Acalypha indica</i>	Euphorbiaceae
6.	Indian nettle	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae
7.	Bui	Ciru-pulai	<i>Aervalanata</i>	Amaranthaceae
8.	Chocolate weed	Punnakku poondu	<i>Melochia corchorifolia</i>	Sterculiaceae

9.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
10.	Cleome viscosa	Nai kadugu	<i>Celome viscosa</i>	Capparidaceae
11.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
12.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
13.	Poor land flatsedg	Kunnakora	<i>Cyperus compressus</i>	Cyperaceae
14.	False daisy	Karisilanganni	<i>Eclipta prostrata</i>	Asteraceae
15.	Tridax daisy	Veetukaayapoonda	<i>Tridax procumbens</i>	Asteraceae
16.	Slender amaranth	Sirukeerai	<i>Amaranthus polygonoides</i>	Amaranthaceae
17.	European black nightshade	Manathakkali	<i>Solanumnigrum</i>	Solanaceae
18.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
19.	Mexican prickly poppy	Eli-yotti	<i>Argemone mexicana</i>	Papaveraceae
20.	Punarnava	Mukkirattai	<i>Boerhaavia diffusa</i>	Nyctaginaceae
21.	Prickly amaranth	Mullukkeerai	<i>Amaranthus spinosus</i>	Amaranthaceae
22.	Peanut	Kadalai	<i>Arachis hypogaea</i>	Fabaceae
23.	Red Hogweed	Mukurattai	<i>Boerhavia diffusa</i>	Nyctaginaceae
24.	Tridax daisy	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
25.	Gale of the wind	Keelaneeli	<i>Phyllanthus niruri</i>	Phyllanthaceae
26.	Eggplant	kathirikai	<i>Solanum melongena</i>	Solanaceae
27.	European black nightshade	Manathakkali	<i>Solanumnigrum</i>	Solanaceae
Climber				
1.	Ivy gourd	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae
2.	Butterfly pea	Sangu poo	<i>Clitoria ternatea</i>	Fabaceae
3.	Rosary pea	Kuntumani	<i>Abrus precatorius L</i>	Fabaceae
4.	Wild water lemon	Poonai puduku chedi	<i>Passiflora foetida</i>	Passifloraceae
5.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
6.	Butterfly-pea	Sangupoo	<i>Clitoriaternatia</i>	Fabaceae
7.	Wild jasmine	Malli	<i>Jasminum augustifolium</i>	Oleaceae
8.	Bitter gourd	Pavakkai	<i>Momordica charantia</i>	Cucurbitaceae
9.	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae
Creeper				
1.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae
2.	Grona triflora	Siru puladi	<i>Desmodium triflorum</i>	Fabaceae
3.	Bitter Apple	Thumattikai	<i>Cucumis callosus</i>	Cucurbitaceae
4.	Merremia	Muthiyar koontha	<i>Merremia tridentata</i>	Convolvulaceae
5.	Frog fruit	Poduthalai	<i>Phyla nodifolia</i>	Verbenaceae
Grass				
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae

2.	Finger grass	Kuruthupillu	<i>Chloris dolichostachya</i>	Poaceae
3.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae
4.	Marvel grass	Marvel grass	<i>Dichanthium annulatum</i>	Poaceae
5.	Jungle rice	Kuthirai vaal Kattu arusi	<i>Echinochloa colona</i>	Poaceae
6.	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae

(Sources:

Species observation in the field study

Global Biodiversity Information Facility

https://commons.wikimedia.org/wiki/Category:Forests_in_Coimbatore_district

Tamil Nadu state Forest department working plan

https://commons.wikimedia.org/wiki/Category:Flora_of_Coimbatore_district

3.6. Flora Composition in the Buffer Zone (Primary & Secondary data)

Buffer zone flora sampling was conducted between 10.00 am to 4.00 pm in eight different locations in 10 km radius as per the ToR. The most important and widely used methods for a general assessment is belt transect/quadrant methods. The study area was divided according to habitat types followed the random sampling methods in the selected area. For plant biodiversity study in the ecosystems, the quadrat methods were followed. The proposed applied area is exhibiting flat topography. 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 floral (107) varieties among them Trees 40, Herbs 27, Shrubs 20, Climbers 9, Creepers 5, and Grasses 6 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Cucurbitaceae, Euphorbiaceae is the main dominating species in the study area mentioned in Table No.3.56. 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 3.27 and their % distribution is shown in Figure 3.30.

Table No: 3.27. Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	40
2	Shrubs	20
3	Herbs	27
4	Creepers	5
5	Climbers	9
6	Grasses	6
Total No. of Species		106

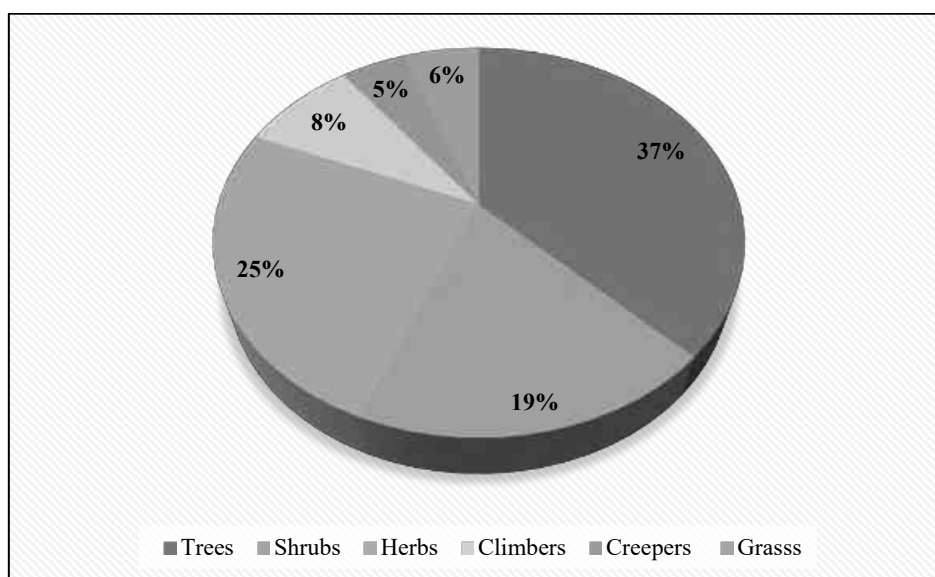


Fig No. 3.30: Graph Showing % Distribution of Floral Life Forms (Buffer Zone)

3.6.1. 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 is 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.

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

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

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

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

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

3.6.2. Biodiversity Indices

Biodiversity index is a quantitative measure that reflects how many different type of species, there are in a dataset, and simultaneously takes into account how evenly the basic entities (such as individuals) are distributed among those types of species. The value of biodiversity index increases both when the number of types increases and when evenness increases. For a given number of type of species, the value of a biodiversity index is maximized when all type of species is equally abundant. Interpretation of Vegetation results in the study area is given in Table No.3.28.

Table No: 3.28. Interpretation of Vegetation Results in the study area

Community	Biodiversity indices		
	Shannon-Wiener Index (H)	Simpson Diversity Index (1/D)	Species Evenness
Tree	3.55	0.96	0.24
Shrub	2.69	0.92	0.42
Herb	2.77	0.94	0.40

From Table 3.58. It can be interpreted that tree community has higher diversity. While the shrubs community shows less diversity. It is also observed that most of the quadrates have controlled generation of plant species with older strands. Higher tree species diversity can be interpreted as a greater number of successful

species and a more stable ecosystem where more ecological niches are available and the environment is less likely to be hostile, environmental change is less likely to be damaging to the ecosystem as a whole.

3.6.3. Vegetation Analysis

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: 3.31).

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.

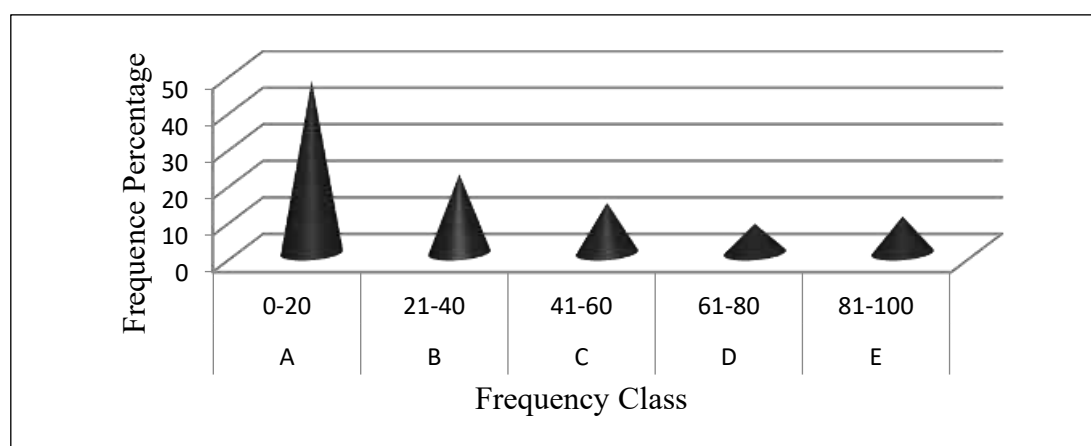


Fig No: 3.31. Frequency class of vegetation

<i>Frequency class</i>	<i>Class value</i>	<i>Raunkier's value</i>	<i>Observed Frequency</i>
A	0-20	53	33
B	21-40	14	27.71
C	41-60	9	19.81
D	61-80	8	16.5
E	81-100	16	3

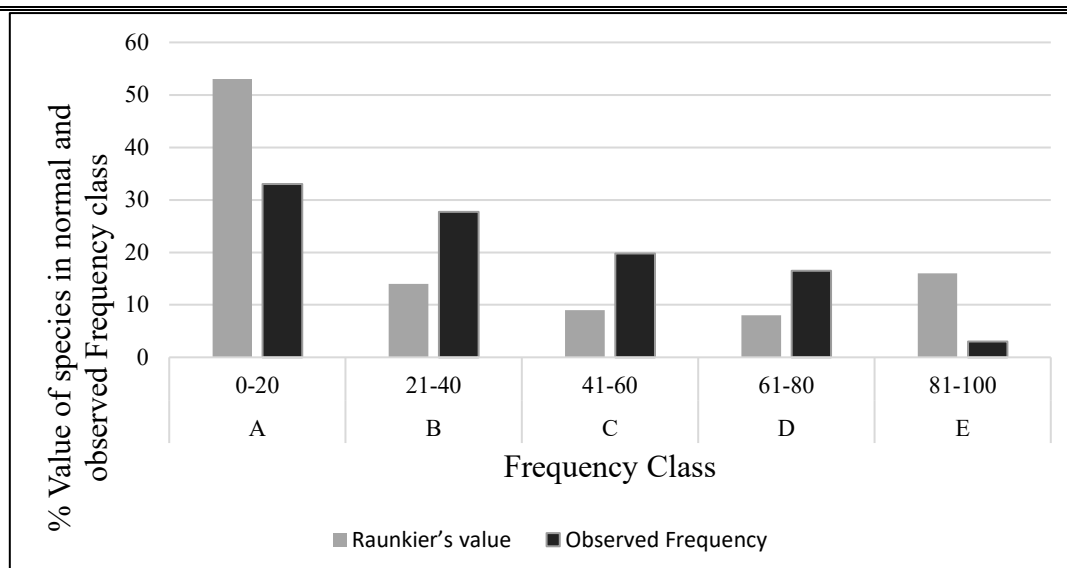


Fig No: 3.32. Comparison of Raunkiaer's Law of frequency (Normal) with observed frequency

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

3.6.2. 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.

3.6.3. 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. 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.

3.7. 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 the 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.

3.7.1. Fauna Composition in the Core Zone (Primary data)

Core zone fauna samplings were conducted between 6.00 am to 8.00 am in three locations. A total of 19 varieties of species were observed in the Core zone of Pachapalayam Village Cluster area, rough stone, and gravel quarry (Table No.3.59) among them numbers of Insects/ Butterflies 6, Reptiles 3, Mammals 2, and Avian 8. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and 10species 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. Details of fauna in the core zone with the scientific name were mentioned in Table No. 3.29.

Table No: 3.29. Fauna in the Core zone of Cluster area, Pachapalayam Village, Rough stone and gravel quarry (Primary data)

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

(Sources: Species observation in the field study)

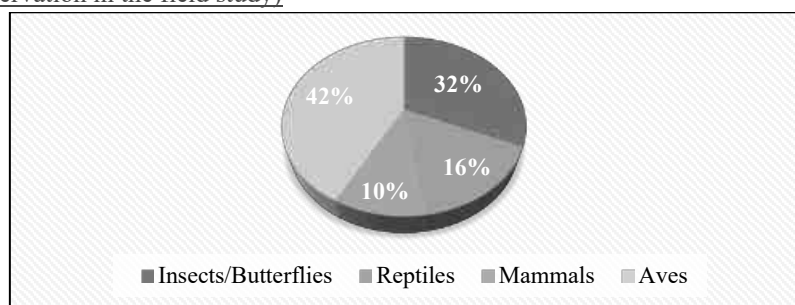


Fig No: 3.33. Distribution Of Faunal Communities (Core Zone)

3.7.2. Fauna Composition in the Buffer Zone

The Buffer zone fauna samplings were conducted between 6.00 am to 8.00 am and 2.30 pm to 6.30 pm in different locations. As 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. There is no reserve forest located around 10km radius in the study area. 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 of 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, Indian blue robin, Common Mynas, Black drangos, Crows, Grey Francolin, Woodpecker bird etc.

The list of Mammals (*directly sighted animals & Secondary data) is given in table No.3.30. The list of bird species recorded during the field survey and literature from the study area are given in Table 3.31. The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.32. The list of insect species recorded during the field survey and literature from the study area are given in Table 3.33. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.34. 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 58 species were recorded from the buffer zone area. Based on habitat classification the majority of species were Insects 3, followed by birds 24, Reptiles 7, Mammals 5, amphibians 4, and Butterflies 13 and Insects 5. There are four Schedule II species, one Schedule V species and thirty-three species are under schedule IV according to the Indian wildlife Act 1972. A total of 24 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*, *Euphlyctis cynophlyctis*. The result of the 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 No: 3.30. List of Fauna & Their Conservation Status,
Mammals: (*directly sighted animals & Secondary data)**

Sl. No	Common Name	Family Name	Scientific Name	Schedule list WPA 1972
1.	Indian palm squirrel	Sciuridae	<i>Funambulus palmarum</i>	Schedule IV
2.	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV
3.	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule (Part II)
4.	Indian hare	Leporidae	<i>Lepus nigricollis</i>	Schedule (Part II)
5.	Brown rat	Muridae	<i>Rattus norvegicus</i>	Schedule IV

Table No: 3.31. Listed birds (Primary & Secondary data)

Sl. No	Common Name	Family Name	Scientific Name	Schedule list
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				WPA 1972
1.	Asian Koel	Cuculidae	<i>Eudynamis</i>	Schedule IV
2.	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	Schedule IV
3.	Rock pigeon	Columba livi	<i>Columbidae</i>	Schedule IV
4.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	Schedule IV
5.	House crow	Corvidae	<i>Corvus splendens</i>	Schedule V
6.	Sunbird	Nectariniidae	<i>Nectariniidae</i>	Schedule IV
7.	Red Vented Bulbul	Pycnonotidae	<i>Pycnonotus cafer</i>	Schedule IV
8.	Small Bee Eater	Meropidae	<i>Merops orientalis</i>	Schedule IV
9.	Small blue Kingfisher	Alcedinidae	<i>Alcedo atthis</i>	Schedule IV
10.	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	Schedule IV
11.	Asian Palm Swift	Apodidae	<i>Cypsiurus balasiensis</i>	Schedule IV
12.	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV
13.	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV
14.	Woodpecker bird	Picidae	<i>Picidae</i>	Schedule IV
15.	Two-tailed Sparrow	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV
16.	Grey Francolin	Phasianidae	<i>Francolinus pondicerianus</i>	Schedule IV
17.	Wood Sandpiper	Scolopacidae	<i>Tringa glareola</i>	Schedule IV
18.	Blue-Tailed Bee Eater	Meropidae	<i>Merops philippinus</i>	Schedule IV
19.	Indian Roller	Coraciidae	<i>Coracias benghalensis</i>	Schedule IV
20.	Common Swallow	Hirundinidae	<i>Hirundo rustica</i>	Schedule IV
21.	Purple Rumped Sunbird	Nectariniidae	<i>Leptocoma zeylonica</i>	Schedule IV
22.	Common Tailor Bird	Cisticolidae	<i>Orthotomus sutorius</i>	Schedule IV
23.	Purple Sunbird	Chordata	<i>Cinnyris asiaticus</i>	Schedule IV
24.	Lesser Golden Backed Woodpecker	Picidae	<i>Dinopium benghalense</i>	Schedule IV

Reference: Birds of Coimbatore Wetlands, By Dr. P.Pramod

Ali, S. (2002). The Book of Indian Birds (13th revised edition). Oxford University Press, New Delhi. 326pp.

Table 3.32. List of Reptiles either spotted or reported from the study area.

(*indicates direct observations & Secondary data)

SI. No	Common Name	Family Name	Scientific Name	Schedule list WPA 1972
1.	Oriental garden lizard	Agamidae	<i>Calotes versicolor</i>	NL
2.	House lizards	Gekkonidae	<i>Hemidactylus flaviviridis</i>	Schedule IV
3.	Indian cobra	Elapid snakes	<i>Naja naja</i>	Sch II (Part II)
4.	Green vine snake	Colubridae	<i>Ahaetulla nasuta</i>	Schedule IV
5.	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch IV (Part II)
6.	Common krait	Elapid snakes	<i>Bungarus caeruleus</i>	Schedule IV
7.	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL

Table No: 3.33. List of insects either spotted or reported from the study area

SI. No	Common Name	Family Name	Scientific Name	Schedule list WPA 1972
1.	Dragonfly	Gomphidae	<i>Ceratogomphus pictus</i>	-
2.	Indian honey bee	Apidae	<i>Apis cerana</i>	-
3.	Termite	Blattodea	<i>Hamitermes silvestri</i>	NE
4.	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL
5.	Ant	Formicidae	<i>Camponotus Vicinus</i>	NL

Table No: 3.34. List of Butterflies reported from the study area and Secondary data

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

3.	Common rose	<i>Pachlioptaaristolochiaee</i>	-
4.	Spotless grass yellow	<i>Eurema laeta</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.	Dark Blue Tiger	<i>D. hamata (McLeay)</i>	-
10.	Lime Butterfly	<i>Papilio demoleus</i>	-
11.	Yellow Pansy	<i>Junonia hierta</i>	-
12.	Chocolate Pansy	<i>Junonia iphita</i>	-
13.	Double-branded Black Crow	<i>Euploea sylvester</i>	-

Reference: Butterflies of Coimbatore- <https://www.researchgate.net/publication/301730778>

Butterflies of Coimbatore by K.Gunathilaraj, M.Ganeshkumar

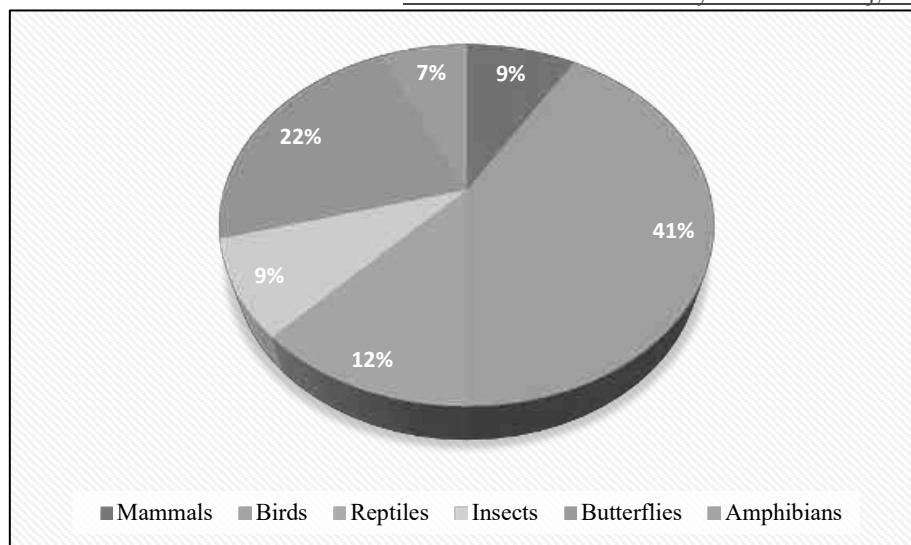


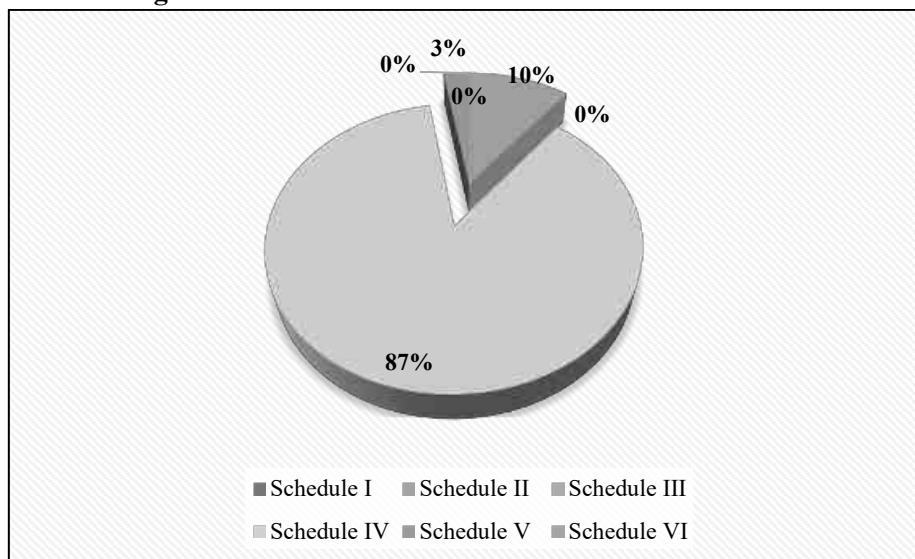
Fig No: 3.34. Distribution Of Faunal Communities (Buffer Zone)

Livestock like cattle, buffalo, goat, poultry, duck and pig are reared for dairy products, meat, and egg and for agriculture purpose. Majority of cattle and buffalo are of local variety. Backyard poultry farms are mostly common in this area; however, some commercial poultry farms are also recorded in the study area.

The study area is marked with moderate population of flora and fauna. With reference to the Wildlife Protection Act 1972 total number of wildlife tabulated in this study can be characterized as given in the Table No 3.65.

Table No: 3.35 Characterization of Fauna in the Study Area (As Per W.P Act, 1972)

S. No	Schedule of Wildlife Protection Act 1972	No. of species	Remark
1.	Schedule I	0	-
2.	Schedule II	4	-
3.	Schedule III	0	-
4.	Schedule IV	33	-
5.	Schedule V	1	-
6.	Schedule VI	0	-

Fig No: 3.35. Schedule Of Wildlife Protection Act 1972**Table No: 3.36. Description of Flora & Fauna**

S.No	Type of Species	Name	Local Name
Flora			
1.	Endangered species	None	None
2.	Threatened species	None	None
3.	Near Threatened species	None	None
4.	Vulnerable species	None	None
Fauna			
5.	Endangered species	None	None
6.	Threatened species	None	None
7.	Near Threatened species	None	None
8.	Vulnerable species	None	None
9.	Migratory Corridors & Flight Paths	No corridors & flight paths	-
10.	Breeding & Spawning grounds	None	-
11.	Invasive Alien species	None	None

A comprehensive Central Legislation namely Wild Life (Protection) Act was enforced in 1972 to provide protection to wild animals. Schedule-I of this act contains the list of rare and endangered species, which are completely protected throughout the country. The list of wild animals and their conservation status as per Wild Life Act (1972) presented in Table 3.66 are the species recorded/reported from the study area, out of which 4 species belongs to schedule-II, 1 species belongs to schedule-V and rest of the species belongs to schedule-IV of Wildlife protection Act, 1972. And there is no Invasive alien species (IAP) in the study area.

3.8. Aquatic Ecology

The study area has many small seasonal water bodies away from the proposed project site. But no major drainage system can be found within the study area. No Aquatic diversity is noticed in the core zone area. Aquatic weeds are found to be growing everywhere in 10 km radius area, in every water bog, pond, etc. Typha angustata can be found growing all along the drains of villages, small water-logged depressions, and agricultural fields lacking water but containing enough moisture to support its growth. And where water is present, Eichhornia crassipes has taken its roots and covers the entire water surface by its sprawl and invasion.

3.8.1. Objectives of Aquatic Studies

- ✓ Generating data through actual field collection in these locations over the study period;
- ✓ Consulted with locals to obtain knowledge about aquatic flora and animals.

The aquatic ecological study was conducted in different water bodies of the study area and the flora and fauna was recorded.

3.8.2. Macrophytes

The macrophytes observed within the study area are tabulated in Table No 3.37.

Table No.3.37. Description of Macrophytes

S.No	Scientific Name	Common Name	Type
1.	<i>Ipomea aquatica</i>	Water Morning Glory	Marshy amphibious hydrophytes
2.	<i>Hydrilla verticillata</i>	Hydrilla	Submerged hydrophytes
3.	<i>Pistia stratiotes</i>	Water lettuce	Free floating hydrophytes
4.	<i>Cyperus articulatus</i>	Jointed flatsedge	Emergent Hydrophytes
5.	<i>Eichhornia crassipes</i>	Common water hyacinth	Free floating hydrophytes

3.8.3. Aquatic Faunal Diversity

Amphibian species like the common Pond frog, and Skipper frog, Indian Pond Frog were sighted near the water bodies located in the study area.

Table No: 3.38. List of Amphibians either spotted or reported from the study area

Sl. No	Common Name	Family Name	Scientific Name	Schedule list WPA 1972
1.	Indian Burrowing frog	Dicroglossidae	<i>Sphaerotheca breviceps</i>	Schedule IV
2.	Green pond frog	Dicroglossidae	<i>Euphlyctis hexadactylus</i>	Schedule IV
3.	Indian Toad	Bufo	<i>Bufo melanostictus</i>	Schedule IV
4.	Skipper	Dicroglossidae	<i>Euphlyctiscynophlyctis</i>	Schedule IV

3.8.4. Other Aquatic Fauna

3.8.4.1. Fishes

The species of fish reported during the primary visit are Rohu, Catla, Catfish, etc. Species of fish reported in the study area are given in table no. 3.39.

The species of fish given in Table no. 3.39 are commonly reported in the freshwater bodies like rivers, streams, lakes, and ponds. They are cosmopolitan in distribution and are reported all over India and Indian Sub continents.

Table No: 3.39. Fish Species reported in the study area

S.No	Common name	Scientific name	Family
1.	Ponithia	<i>Puntius sophore</i>	Cyprinidae
2.	Catla	<i>Catla Catla</i>	Cyprinidae
3.	Catfish	<i>Siluriformes</i>	-
4.	Rohu	<i>Labeo rohita</i>	Cyprinidae

3.9. Findings/Results

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

S. No	Ecological sensitive habitat	Direction and Distance from the project site
1.	National Parks/ Wildlife Sanctuary/ Biosphere reserves/ Elephant Reserve/ Any Other Reserve	Nil
2.	Reserved Forests	Nil
3.	Wildlife Corridors & Routes	No notified wildlife corridors are present in 10 km vicinity.
4.	Wetlands / Water bodies	-
5.	Ramsar Site	Nil
6.	Important Bird Habitats	Nil
7.	Breeding/nesting areas of endangered species	Not present
8.	Mangroves	None

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.

3.10. 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.

Sources:

[Invasive Alien Species | IUCN](#)

[The field guide to the birds of Coimbatore- 2nd edition by Balaji balachandran.](#)

[Diversity Of Birds From The Urban Wetlands Of Coimbatore, Tamil Nadu, India](#)

https://commons.wikimedia.org/wiki/Category:Animals_of_Coimbatore

[Ali, S. \(2002\). The Book of Indian Birds \(13th revised edition\). Oxford University Press, New Delhi. 326pp.](#)

[Ali, S and Ripley, S.D. 1969. Handbook of the Birds of India and Pakistan together with those of Nepal, Sikkim,](#)

[Bhutan and Ceylon,3. Stone Curlews to Owls. Oxford University Press, Bombay, 327pp.](#)

[Bird Life International 2012. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.](#)

3.6 SOCIO ECONOMIC ENVIRONMENT

The major developmental activities in Mining sector are required for economic development as well as creation of employment opportunities (direct and indirect) and to meet the basic/modern needs of the society, which ultimately results in overall improvement of the quality of life through upliftment of social, economic, health, education and nutritional status in the project region, state as well as the country. In this manner all developmental projects have direct as well as indirect relationships with socioeconomic aspects, which also include public acceptability for new/proposed/Existing projects.

The study of these parameters helps in identification, prediction and evaluation of the likely impacts on the socio economics and parameters of human interest due to the project.

3.6.1 Objectives

The primary objectives of the Social Impact Assessment study are:

- To assess the impact on socio-economic environment due to the project.
- Understanding the baseline socio-economic environment obtaining in the impact zone.
- Identifying the key stakeholders who are likely to be impacted by the establishment of the proposed project.
- Predicting the positive and negative impacts of the project on the socioeconomic environment in the area.
- Suggesting mitigation measures to minimize the negative impacts.

3.6.2 Scope of Work

In keeping with its objectives, the scope of the study extends to:

- Making a reconnaissance of the villages and human settlements within the 10km radius from the Existing project site.
- Understanding the overall socio-economic profile of the impact area.
- Assessing the baseline socio-economic environment prevailing in the impact area focusing the core and buffer zones.
- Identifying key economic sectors and major sources of livelihood in the study area.
- Understanding social structures and lifestyles of people in the area who are likely to be affected the most by the Existing project.
- Assessing physical and social infrastructure facilities accessible to inhabitants in the project impact area.
- Predicting the likely socio-economic impacts as a consequence of establishing the project.
- Suggesting adverse impact mitigation measures in line with the felt needs, aspirations and expectations of the project affected population.
- Preparing an appropriate Socio-Economic Environment Management Plan.

3.6.3 Approach & Methodology

The basic approach for carrying out the SIA is focused on:

- Zeroing-in on the project impact area, covering all the villages and other habitations falling within the 10 km radius from the project site.
-
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- Collecting basic information with respect to constituent villages in terms of census village code, name of the Tehsil in which a particular village falls, number of households, population level (as per Census 2011) and growth of village population during the last decade, distance from the proposed project site etc.
- Identifying critical knowledge/information gaps which impede an objective and reliable assessment of the socio-economic impacts of the project.
- Zeroing-in on the data/information to be collected for a fair impact assessment and deciding upon the sources and means to collecting the same.
- Identifying the key stakeholders and potential respondents for collecting the required information.
- Drawing a sampling frame and sample size specifying villages and number of households to be contacted for primary data/information collection and agencies to be contacted for eliciting information on various aspects relevant to the study.

3.6.4 Methodology

- The Social Impact Assessment (SIA) of the proposed project is relied on a judicious mix of Secondary (i.e., Census 2011, Govt. Dept., Maps and Literature Research) and Primary data (i.e., Field survey and Interview / Interactions) collected from different sources.
- Various socio-economic aspects considered for impact assessment include livelihoods, relocation and rehabilitation, incomes, employment, skills, education, health and overall lifestyles. The cultural aspects considered are archaeological, historical, religious and aesthetic places of importance, arts and crafts etc.

The SIA was carried out in the three distinct stages:

- Desktop review / research
- Field Survey
- Data Analysis & its interpretation

3.6.5 Project Impact Zones

The geographical area for impact assessment extends over 10 Kms. Radius from the project site and comprises of 21 Villages and towns. To facilitate a more realistic and objective assessment, the 21 villages / towns Panchayat are categorized into three zones:

- Core zone (within 0 -3 Kms.) Radial distance from the project site)
- Buffer zone (> 3 – 7 Kms.)
- Transition/Outer zone (> 7 – 10 Kms.)

It is obvious from the above data that only 1 no. of villages fall in core impact zone, accounting for just 2 % of the total population in the study area. 8 no. of villages accounting for 22% of the total population fall in buffer impact zone, while 12no. of villages accounting for 76% of the total population fall in transition zone.

Impact Zone	No of Village	in %
0-3km	1	2
3-7km	8	22
7-10km	12	76
Total	21	100%

Source: census 2011.

Given the nature of the project, its socio-economic impacts will be more pronounced on the people inhabiting the core and buffer impact zones rather than on the transition zone. Hence the study focus was more on the socio-economic conditions obtaining among the households in the core and buffer zones.

The key demographic features of the villages / towns in the three impact zones are shown below:

Table.3.40 Demographic & Occupational Characteristics (0-10km Radius)

S no	Name	Total/Rural/Urban	Total House holds	Total Population	Male Population	Female Population	0-6y Population	0-6y Male Population	0-6y Female Population	SC Population	ST Population	Literate Population	Male Literate	Female Literate	Total workers	Main workers	Marginal workers	Non workers
0-3km																		
1	Pachapalayam	Rural	842	2933	1488	1445	271	141	130	556	0	1754	1003	751	1627	1466	161	1306
3-7km																		
2	Peedampalli	Rural	1134	3896	1955	1941	339	185	154	683	24	2982	1601	1381	1869	1465	404	2027
3	Kallapalayam	Rural	860	3066	1581	1485	253	130	123	686	4	2350	1293	1057	1547	1522	25	1519
4	Pappampatti	Rural	1172	4143	2052	2091	415	196	219	961	0	2865	1524	1341	1977	1761	216	2166
5	Edayapalayam	Rural	667	2251	1130	1121	193	98	95	269	4	1659	930	729	1150	977	173	1101
6	Bogampatti	Rural	686	2415	1254	1161	155	85	70	170	0	1515	905	610	1165	985	180	1250
7	Chettipalayam (TP)	Urban	2841	10366	5268	5098	880	480	400	2920	0	7304	3991	3313	4450	4078	372	5916
8	Panappatti	Rural	763	2635	1383	1252	199	113	86	450	0	1740	1026	714	1579	1566	13	1056
9	Okkilipalayam	Rural	298	996	481	515	91	45	46	460	0	626	327	299	514	503	11	482
		Total	8421	29768	15104	14664	2525	1332	1193	6599	32	21041	11597	9444	14251	12857	1394	15517
7-10km																		
10	Appanaickenpatti	Rural	1121	3992	1998	1994	337	170	167	947	0	2665	1413	1252	2199	2006	193	1793
11	Pallapalayam (TP)	Urban	3369	11910	5993	5917	1074	563	511	1418	0	9648	5080	4568	5491	5255	236	6419
12	Kannampalayam (TP)	Urban	4577	15868	7937	7931	1553	816	737	2077	4	12578	6615	5963	6915	6539	376	8953
13	Pattanam (CT)	Urban	2604	9196	4681	4515	864	446	418	1234	0	7239	3895	3344	4402	3596	806	4794
14	Seerappalayam	Rural	1646	5881	3053	2828	505	282	223	1041	0	4457	2470	1987	2623	2451	172	3258

15	Myleripalayam	Rural	1393	4990	2451	2539	447	227	220	1381	0	3169	1746	1423	2912	2581	331	2078
16	Vellalur (TP)	Urban	6837	24872	12794	12078	2232	1129	1103	4389	16	19571	10684	8887	11357	10051	1306	13515
17	Othakalmandapam (TP)	Urban	3394	12207	6028	6179	1087	551	536	1479	69	9133	4831	4302	5399	4571	828	6808
18	Arasampalayam	Rural	1090	3818	1894	1924	298	160	138	947	0	2473	1384	1089	2041	1863	178	1777
19	Mettubavi	Rural	719	2485	1281	1204	173	93	80	301	8	1671	971	700	1372	1325	47	1113
20	Vadasithur	Rural	1532	5080	2483	2597	342	173	169	940	2	3452	1878	1574	2512	2419	93	2568
21	Kondampatty	Rural	738	2467	1218	1249	165	77	88	455	2	1625	889	736	1310	986	324	1157
		Total	29020	102766	51811	50955	9077	4687	4390	16609	101	77681	41856	35825	48533	43643	4890	54233
		G.Total	38283	135467	68403	67064	11873	6160	5713	23764	133	100476	54456	46020	64411	57966	6445	71056

Source: Census 2011, Coimbatore district, Tamil Nadu.

TABLE 3.41: COMMUNICATION & TRANSPORT FACILITIES IN THE STUDY AREA

Sl.No	Village Name	P O	SP O	PT O	T	PC O	M P	IC/ CS C	PC F	B S	PB S	R S	N H	S H	MD R	BT R	G R	NW R	F P
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 3.42: 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 3.43: 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 3.44: 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 3.45: 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

3.7.5.1 Desktop Review / Research

A fairly comprehensive desk research to understand the socio-economic setting of the project area was the first initiative towards carrying out SIA. Accordingly, published and unpublished information available on the subject was referred, reviewed and critical information gaps identified by the SIA team.

It was during this stage, the key stakeholders were identified and study instruments – schedules and checklists – prepared, tested and finalised. Similarly, the sampling frame and sample size were also designed and finalised. The sampling frame for the study consisted of villages, households and District and Tehsil level officials, key informants as also local opinion leaders.

3.7.5.2 Baseline Data and Analysis of Surveyed Villages

A proportional random sampling technique was followed to select the sample villages and households. Accordingly, the sample villages were picked up at random from the three impact zones considered – Core, Buffer and Transition. The number of households to be contacted in each sample village was determined on the basis of the size of population of the respective village. In the absence of household level information, the respondent households were selected randomly during the course of visit to the respective village. However, while selecting the respondent households, emphasis was on contacting households, who are economically poor, susceptible to shifts in livelihood patterns and belonged to vulnerable social communities.

To ensure the accuracy of the primary data collected from the study area, all the village specific information was verified from the data of Census 2011 and secondary information collected from various Govt. Dept., Map, Literature etc.

3.7.6 Field survey

Field survey helped in collecting fairly reliable primary data with respect to the major livelihood sources, education, health status, basic amenities and standard of living. It also helped in eliciting information from the natives about the negative environmental impacts of industrial units already existing in the area and the measures initiated by them (industrial units) to mitigate the impacts.

The potential respondents in the sample households were approached personally by members of the core **study team and Field Investigators** who explained the purpose of the visit and asked their participation by sharing the intended information unbiasedly. The study team clarified the doubts and addressed the apprehensions expressed by the respondents. Once the respondents were willing and ready to participate,

household level socio-economic information was collected with the help of a structured questionnaire. A number of questions were open ended to facilitate capturing perceptions of the respondents objectively.

In addition, Participatory Rapid Assessment (PRA) tools comprising Villages / Town Transect Walks, Focus Group Discussions (FGD), Key Informant Interviews and Local Opinion Leader interviews were used for collecting qualitative information with regards to key socio-economic challenges of the area.

3.7.7 Data Analysis & Its Interpretation

3.7.7.1 Population Distribution and Composition of Study Area

The population as per 2011 Census records is 1,35,467 (for 10 km radius buffer zone). Total no. of household is 842, 8421, 29020 respectively, in primary, secondary and tertiary zone. Sex ratio is 971, 971 and 983 (females per 1000 males) observed in primary, secondary and tertiary zone respectively. SC population distribution is 556, 6599

and 16609 respectively in primary, secondary and tertiary zone. ST population distribution is 0,32 and 101 respectively in primary, secondary and tertiary. Average household size is 4. Zone wise Demographic profile of study area is given in the table below:

Source: <https://censusindia.gov.in/census.website/data/census-tables>

Table 3.46 Zone wise Demographic Profile of Study Area

Zone	No. of Villages	Total Household	Total Population	Male Population	%	Female Population	%
Primary Zone (0 - 3 Km)	1	842	2933	1488	50.73	1445	49.27
Secondary Zone (3 - 7 Km)	8	8421	29768	15104	50.74	14664	49.26
Tertiary/Outer Zone (7 - 10 km)	12	29020	102766	51811	50.42	50955	49.58
Study Area (0-10 km)	21	38283	135467	68403	50.49	67064	49.51

Source: Census of India, 2011

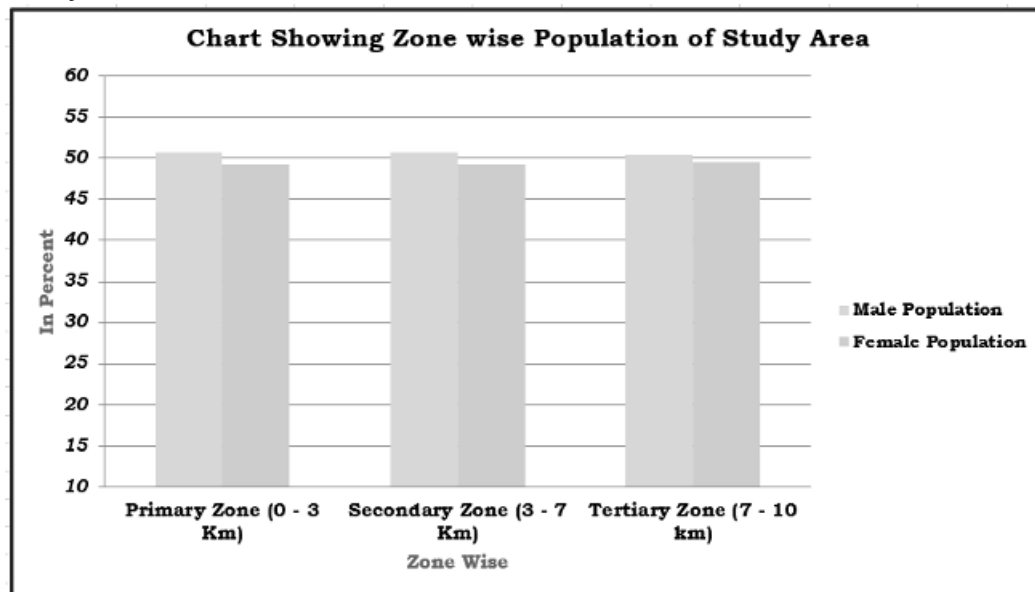


Figure.3.36 Population of study area

- ✓ Above table identifies the presence of villages and their subsequent population divided under three zones from Mine lease boundary (i.e., Primary, secondary and Outer zone)
- ✓ Primary zone has 1 village where as much as 842 households with 2933 population are located. Mostly lying on Built-up land for their livelihood and substance.
- ✓ Secondary and tertiary zone both comprise of 8 and 12 Villages having a total population of 29,768 and 1,02,766 respectively.

3.7.7.2 Gender and Sex Ratio

Sex ratio is used to describe the number of females per 1000 of males. Sex ratio is a valuable source for finding the population of women in India and what is the ratio of women to that of men in India. In the Population Census of 2011, it was revealed that the population ratio in India 2011 is 940 females per 1000 of males. The study

area has 980 females per 1000 males. Gender and sex ratio determine the Human Development Index (HDI) of an area thereby understanding the status of women in that region. Following table entails information about sex ratio of 21 villages lying in study area (buffer zone) as primary, secondary and tertiary zone.

Table 3.47 Sex ratio of the study area

S. No.	Buffer Zone	Sex Ratio of Study area Female/ 1000 Male
1	Primary Zone (0-3 km)	971
2	Secondary zone (3-7 km)	971
3	Tertiary/Outer Zone (7-10 km)	983

Source: Census of India, 2011

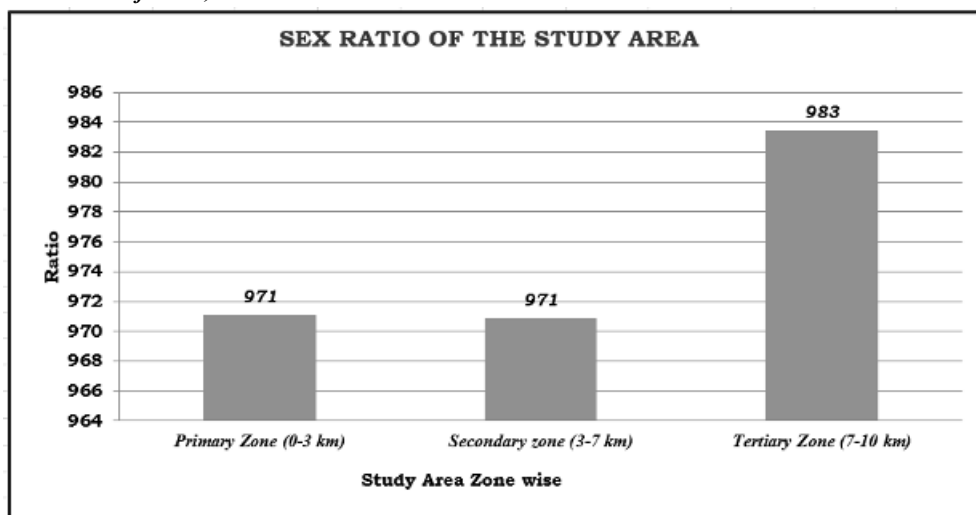


Figure.3.37 Sex Ratio within 10 Km study area

3.7.7.3 Literacy Rate in Study Area

Literacy Rate is the percentage of people in a country with the ability to read and write. The analysis of the literacy levels is done in the study area. The 10 km radius of study area demonstrates a literacy rate of 81% as per census data 2011. The male literacy rate in the study area indicates 87% whereas the female literacy rate, which is an important indicator for social change, is observed to be 75% as per the census data 2011. This needs to focus on the region and enhance further development focusing on education.

Table.3.48 Literacy Rate of the Study Area

Zone	No. of Villages	Male Literacy Population	Male literacy Rate	Female Literacy Population	Female literacy Rate	Total Literacy	Total Literacy Rate
Primary Zone (0 - 3 Km)	1	1003	74.46	751	57.11	1754	65.89
Secondary Zone (3 - 7 Km)	8	11597	84.21	9444	70.11	21041	77.23
Tertiary/Outer Zone (7 - 10 Km)	12	41856	88.82	35825	76.94	77681	82.91
Study Area (0-10km)	21	54456	87.49	46020	75.01	100476	81.30

Source: Census of India, 2011

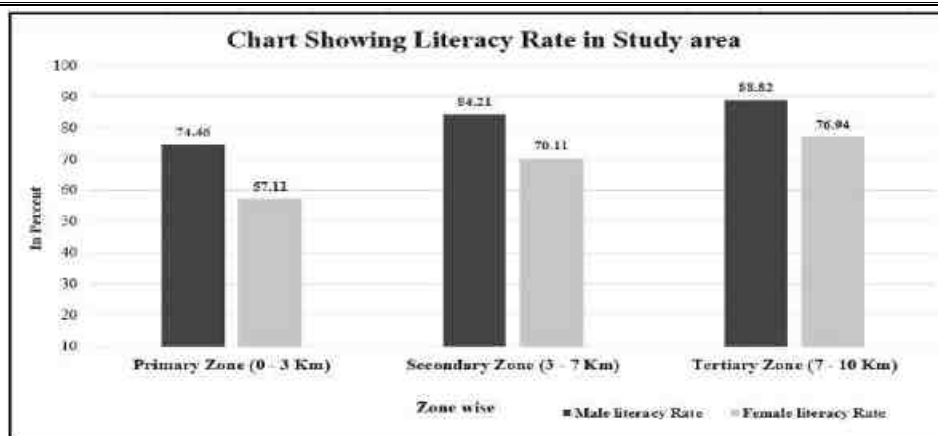


Figure.3.38 Gender wise Literacy Rate in the study area

3.7.7.4 Family Size

Size of family also describes about family functioning, resource consumption, total income generated and their expenditure pattern. Census 2011 data suggests that most of these households have a family size of up to 4 members, knowing the size of family also give fair understanding of relating how much resource consumption is being incurred, and annual income being generated and spent.

3.7.7.5 Vulnerable Group

While developing an action plan, it is very important to identify the population who fall under the marginalized and vulnerable groups and special attention has to be given towards these groups while making action plans. Special provisions should be made for them. In the observed villages schedule caste (SC) population is 17.5% and Schedule Tribe population 0.10%, Other Population is 82.36% in the total study area.

Table. 3.49 vulnerable groups of the study area

Zone	No. of Villages	Vulnerable Groups					
		SC Population	%	ST Population	%	Other Population	%
Primary Zone (0 - 3 Km)	1	556	18.96	0	0.00	2377	81.04
Secondary Zone (3 - 7 Km)	8	6599	22.17	32	0.11	23137	77.72
Tertiary Zone (7 - 10 Km)	12	16609	16.16	101	0.10	86056	83.74
Total area (10km)	21	23764	17.54	133	0.10	111570	82.36

Source: Census of India, 2011

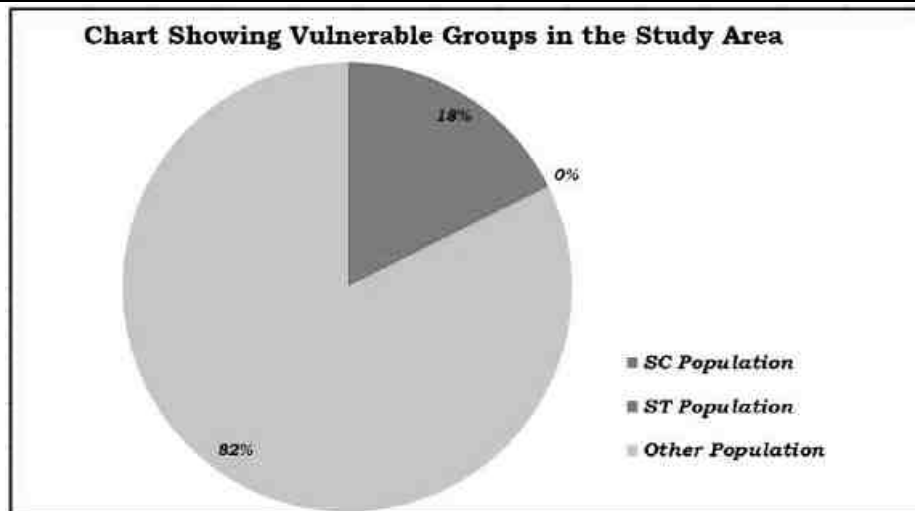


Figure.3.39 vulnerable groups

3.7.7.6 Economic Activities

The economy of an area is defined by the occupational pattern and income level of the people in the area. The occupational structure of residents in the study area is studied with reference to work category. The population is divided occupation wise into three categories, viz., Total workers, Main workers and non-workers. The main workers include cultivators, agricultural laborers, those engaged in household industry and other services. The non-workers include those engaged in unpaid household duties like, students, retired persons, dependents, beggars, vagrants etc. besides Institutional intimates or all other non-workers who do not fall under the above categories.

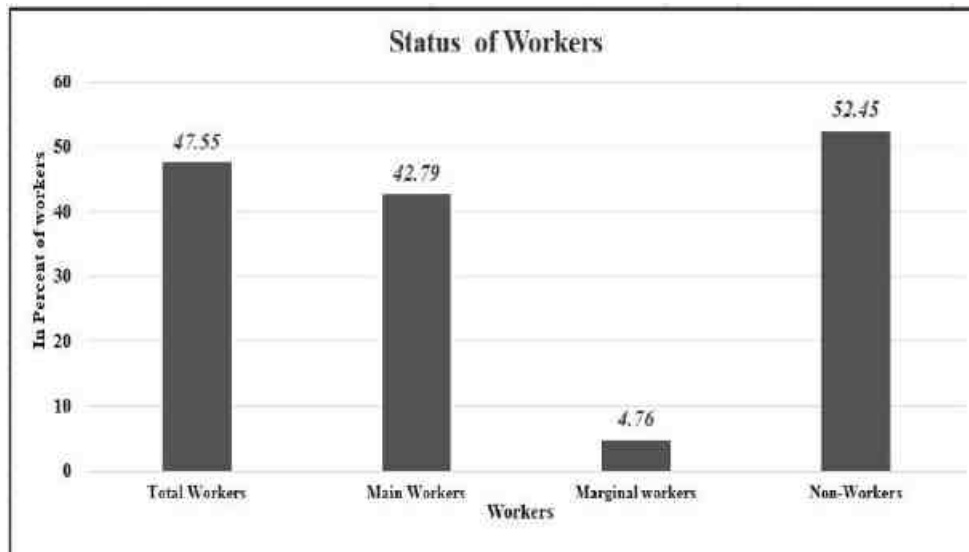
Table. 3.50 Shows the work force of the study area

Zone	No. of Villages	Total Workers	%	Main Workers	%	Marginal Workers	%	Non-Workers	%
Primary Zone (0 - 3 Km)	1	1627	55.47	1466	49.98	161	5.49	1306	44.53
Secondary Zone (3 - 7 Km)	8	14251	47.87	12857	43.19	1394	4.68	15517	52.13
Tertiary/Outer Zone (7 - 10 Km)	12	48533	47.23	43643	42.47	4890	4.76	54233	52.77
Study Area (10 Km)	21	64411	47.55	57966	42.79	6445	4.76	71056	52.45

Source: Census of India, 2011

The above table shows that out of the total working population, the percentage of main workers is 43 % while 5% are marginal workers. Number of working populations is 48% and non-working population is 52% in the study area. As per the data obtained from the survey (as mentioned previously in occupational structure) most of these people are employed for major period of the year. Also, to mention the natural environment also restricts the people in finding stable business is performed for only certain months. Thus, proposed project will act as possible exposure for them to get enrol and earn sustain livelihood.

Figure.3.40 Working population in the study area



3.7.7.7 Structure Map around 300m Radius-P1

Figure.3.41 Structure Map 300m Radius-P1



Table. 3.51 Structure details 300m radius-P-1

Distance Range	No. of Structures	Type of Structures (Kutchu/ Brick/ Cement/ RCC/ Framed Structures)	Usage/ Purpose	No. of occupants	Ownership (Belongs to PP/ Not belongs to PP)	Remarks
0-100m	Nil					
100-200m	4	Shed – 2 Nos	Storage Purpose	Nil	Not belongs to PP	Nil

		Crusher – 1 No Windmill – 1 No	Production of M-Sand, P – Sand & Jelly Production of Electricity			
200-300m	5	Shed – 2 Nos Mines Office – 1 No Farmhouse – 1 No Windmill – 1 No	Storage Purpose Storage of Mine Documents Agriculture Production of Electricity	Nil	Not belongs to PP	Nil

Source: Field survey.

Figure.3.43 Structure Map 300m Radius-P2

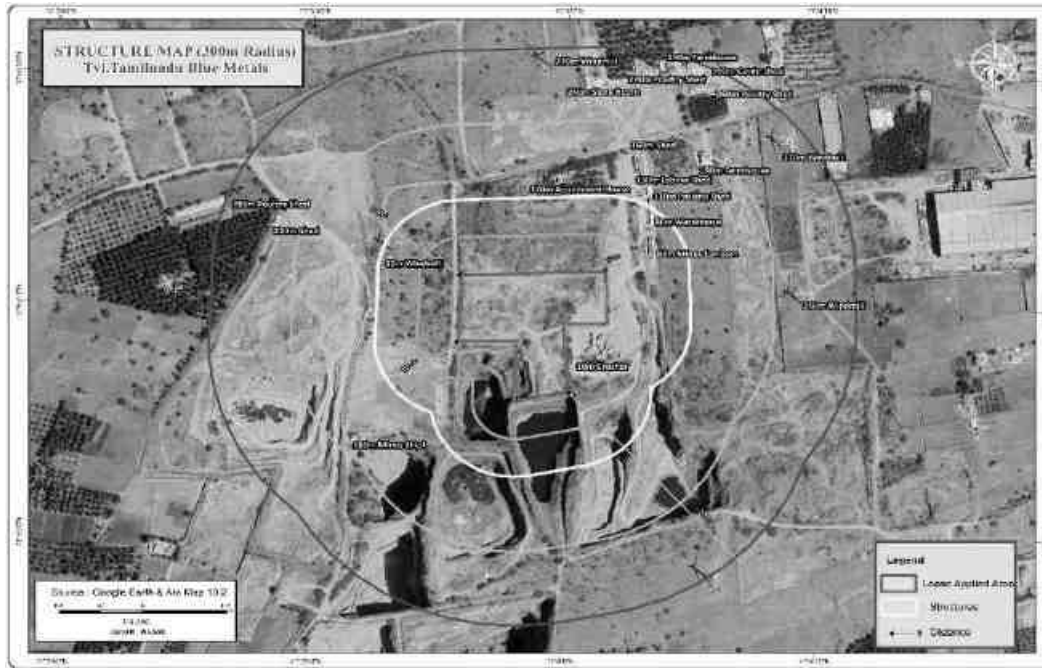


Table. 3.53 Structure details 300m radius-P-3

Distance Range	No. of Structures	Type of Structures (Kutchha/ Brick/ Cement/ RCC/ Framed Structures)	Usage/ Purpose	No. of occupants	Ownership (Belongs to PP/ Not belongs to PP)	Remarks
0-50m	1	Crusher-10m-SE	Mine purpose	Nil	Not belongs to PP	Nil
50-100m	3	1.Windmil-80mNW 2.Mines canteen-60m-NE	Industrial production and Mine purpose and Labourers and instrumentation, Production of Electricity	Nil	Not belongs to PP	Nil

		3. Warehouse- 80m-NE				
100-200m	4	1. Mines Shed – 180m-SW 2. Parking shed- 110m-NE 3. Abandoned House-120m-N 4. Labour shed- 130m-NE 5. Shed-160m 6. Farm house- 190m-NE	Mines occupation and Labourer and Instrumentation room with rest room. Farm house for agriculture purpose only	Nil	Not belongs to PP	Nil
200-300m	7	1. store room- 240m-N 2. Poultry sheds- 260m & 270m-NE 3. Windmill- 270m-N and NE 4. Cattle shed- 290m-NE 5. Farm house- 290m-NE	Storage Purpose Storage of Mine Documents Agriculture Production of Electricity Farm house staying 3 people for farming and cultivators	Nil	Not belongs to PP	Nil

Source: On-Site visit.

3.7.8 Other Issues in the Study Area

1. Agriculture Land decreases
2. Lack of awareness among vulnerable groups for their welfare.
3. Medical facilities and PHC need for the impact zone area.
4. Environmental clean with solid wastage pin each village.
5. Need proper drainage system with public toilet men and women separately.
6. Road damage when load carriage way.
7. Employment and wages issue during quarry operation.

3.7.9 Interpretation

Based on the data, following inferences could be drawn:

- Total literacy rate in the study area is 81%.
- The study area had average educational facilities. The overall status depicts that the education is limited to primary and middle level.
- The schedule tribe community forms 0.10% and Scheduled Caste forms 18% of the total population of study area.
- The Other Population forms 82% of the total population of study area.
- The study area is well connected by District/Village Road.
- The study area not well health facilities of primary level.

-
- Considering the above facts, the existing project will boost the socio-economic development activities in the area and hence will leave positive impact.
 - The study area has mobile connectivity.

3.7.10 Recommendation and Suggestions

The village development plans are made in consultation with the community through Gram Sabha; these appear to address the needs of the community. However, it may be noted that at the implementation stage these plans often are fraught with problem of inadequate funds, lack of proper planning, corruption, vested interests and political agendas. Hence while ascertaining the scope for convergence with the government activities, care must be taken to ascertain realistic possibilities for implementation.

- **Women empowerment**– Home based income generation activities, vocational training programs and common education centre for increasing the literacy rate.
- **Education** – Free uniform, construction of common rooms and library, computer education and physical education, additional schools for girls, furniture and equipment in schools, up-gradation of existing school infrastructure.
- **Agriculture/livestock** – Infrastructure such as agricultural practices, electricity connections, assistance with buying improved tools and equipment, capacity building, supply and/or knowledge of better variety of seeds, pasture land development and trainings on animal husbandry& facility of veterinary doctor.
- **Health** – Improvements in sanitary conditions of villages, assistance with construction of latrines, improvement in drainage system, health camps and awareness campaigns for diseases like Covid-19, malaria, typhoid, tuberculosis, yellow fever and pneumonia. Repairing of PHCs and Anganwadi centers.
- **People with disability** – Establishment of center for special education, sensitization of the community towards disabled and awareness on Government schemes.
- 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.
- **Connectivity** –Transport connectivity to easiness accessibility to the region.

3.7.11 Conclusion

To evaluate the impacts of existing quarry project on the surrounding area, it is vital to assess the baseline status of the environmental quality in the locality of the site. Hence it can be concluded that the present environment status of the study area will not be affected by the project as **Pachapalayam and Kallapalayam Rough Stone and Gravel Quarries** will adopt adequate control measures to protect the surrounding environment and will contribute in development of the study areas. The Existing 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.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 GENERAL

Environmental impacts both direct and indirect on various environmental attributes due to proposed mining activity will be created in the surrounding environment, during the operational and post-operational phases. The occurrence of mineral deposits, being site specific, their exploitation, often, does not allow for any choice except adoption of eco-friendly operation. The methods are required to be selected in such a manner, so as to maintain environmental equilibrium ensuring sustainable development.

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 sustainable resource extraction.

Several scientific techniques and methodologies are available to predict impacts of physical environment. Mathematical models are the best tools to quantitatively describe the cause-and-effect relationships between sources of pollution and different components of environment. In cases where it is not possible to identify and validate a model for a particular situation, predictions have been arrived at based on logical reasoning / consultation / extrapolation.

The following parameters are of significance in the Environmental Impact Assessment and are being discussed in detail

- Land environment
- Soil environment
- Water Environment
- Air Environment
- Noise Environment
- Socio economic environment
- Biological Environment

Based on the baseline environmental status at the project site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed.

4.1 LAND ENVIRONMENT:

4.1.1 Anticipated Impact-P1

- 2.07.50Ha of the land will be under mining since the permanent or temporary change on land use and land cover will occur
- 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

4.1.3 Anticipated Impact-P2

- 1.46.0Ha of the land will be under mining since the permanent or temporary change on land use and land cover will occur
- 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

4.1.4 Mitigation Measures -P1

- The 2.07.50 Ha of the land will be converted into temporary reservoir which will full fill the water scarcity in the drought season and the nearby agriculture land will benefitted by the supply of water
- About 1220 Nos of trees will be planted in the lease area and approach road will retain the ecosystem
- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development in the production
- Construction of garland drains all around the quarry pits and construction of silt trap 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.,
- Fencing will be constructed before starting the mining operation and it will be maintained in the conceptual stage Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.1.6 Mitigation Measures –P2

- The 1.46.0 Ha of the land will be converted into temporary reservoir which will full fill the water scarcity in the drought season and the nearby agriculture land will benefitted by the supply of water.
- About 1000 Nos of trees will be planted in the lease area and approach road will retain the ecosystem.
- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development in the production.
- Construction of garland drains all around the quarry pits and construction of silt trap 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.,
- Fencing will be constructed before starting the mining operation and it will be maintained in the conceptual stage Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.2 Soil Environment

4.2.1 Impact on Soil Environment

- Removal of vegetation cover
- Soil Erosion in the project site during rainy season due to quarry operation

4.2.2 Mitigation Measures

-
- Garland drains will be constructed all around the project boundary to prevent surface flows from entering the quarry. 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 (Silt Pond). 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.

4.2.3 Waste Dump Management

There is no waste anticipated in this Rough Stone and gravel quarrying operation. The entire quarried out materials will be utilized (100%).

4.3 WATER ENVIRONMENT

4.3.1 Anticipated Impact

- The major sources of water pollution normally associated due to mining and allied operations are:
 - Generation of waste water from vehicle washing.
 - Washouts from surface exposure or working areas
 - Domestic sewage
 - Disturbance to drainage course in the project area
 - Mine Pit water discharge
- Increase in sediment load during monsoon in downstream of lease area
- This being a mining project, there will be no process effluent. Waste from washing of machinery may result in discharge of Oil & grease, suspended solids.
- The sewage from soak pit may percolate to the ground water table and contaminate it.
- Surface drainage may be affected due to Mining
- Abstraction of water may lead to depletion of water table
- 1.4 KLD water will be utilized for the quarrying operation

4.3.2 Mitigation Measures

- Water for the quarrying operation such as sprinkling on haul roads, Greenbelt development will be sourced from the lower part of the mine pit which is specifically allotted to collect the rain water.
 - 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.
 - 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.

4.4 AIR ENVIRONMENT

4.4.1. 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.

4.4.1.1. 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**.

Prediction of impacts on air environment has been carried out taking into consideration cumulative production all the quarries fall in the Cluster. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software AERMOD 12.

4.4.2.1 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 Rough Stone. 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.

4.4.3 Frame work of Computation & Model details

Suspended Particulate Matter (SPM) is the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting (Occasionally), 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 10 km 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

TABLE 4.1: ESTIMATED EMISSION RATE-P1

PM ₁₀			
Activity	Source type	Value	Unit
Drilling	Point Source	0.084754060	g/s
Blasting	Point Source	0.001057833	g/s
Mineral Loading	Point Source	0.042052163	g/s
Haul Road	Line Source	0.002491204	g/s/m
Overall Mine	Area Source	0.056234368	g/s
So ₂	Point Source	0.00062964	g/s
Nox	Point Source	0.000034139	g/s

TABLE 4.3: ESTIMATED EMISSION RATE-P2

PM ₁₀			
Activity	Source type	Value	Unit
Drilling	Point Source	0.072580791	g/s
Blasting	Point Source	0.000487218	g/s
Mineral Loading	Point Source	0.040257349	g/s
Haul Road	Line Source	0.002488007	g/s/m
Overall Mine	Area Source	0.050392825	g/s
So ₂	Point Source	0.000394932	g/s
Nox	Point Source	0.000017069	g/s

FIGURE 4.1: AERMOD TERRAIN MAP

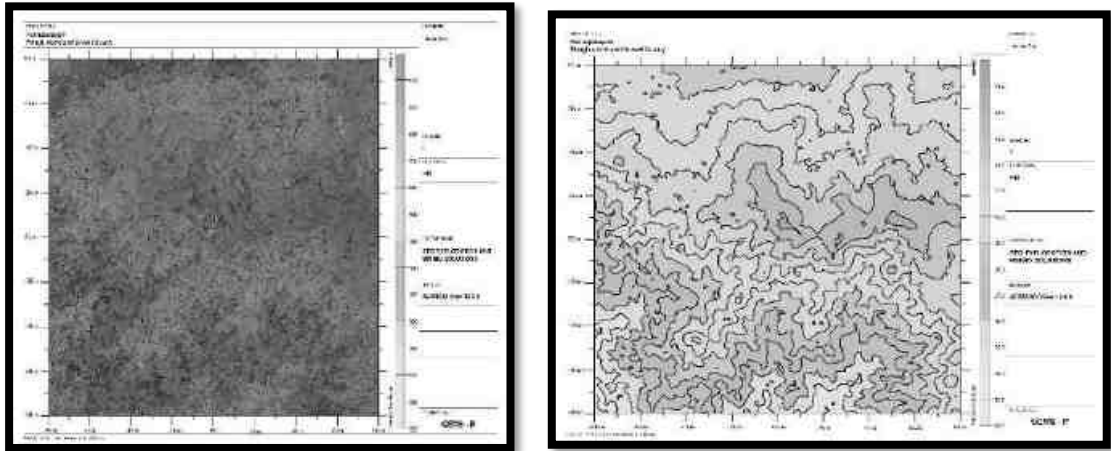


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

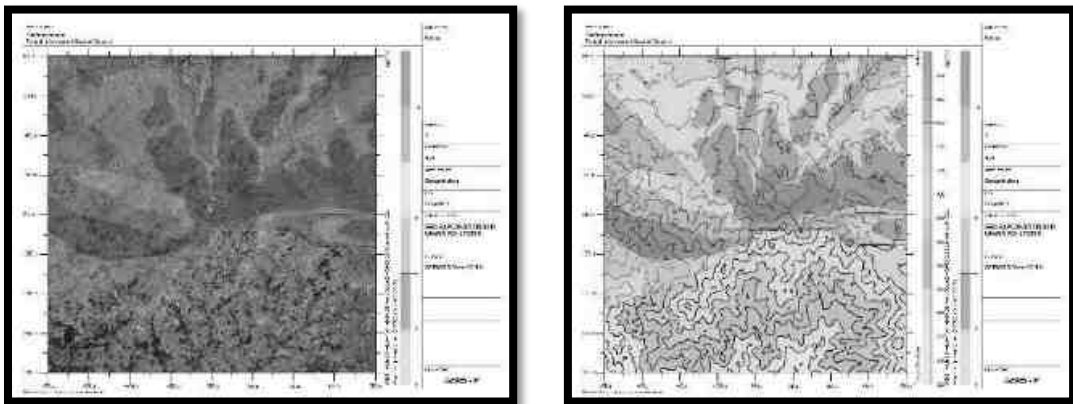


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM₂₅

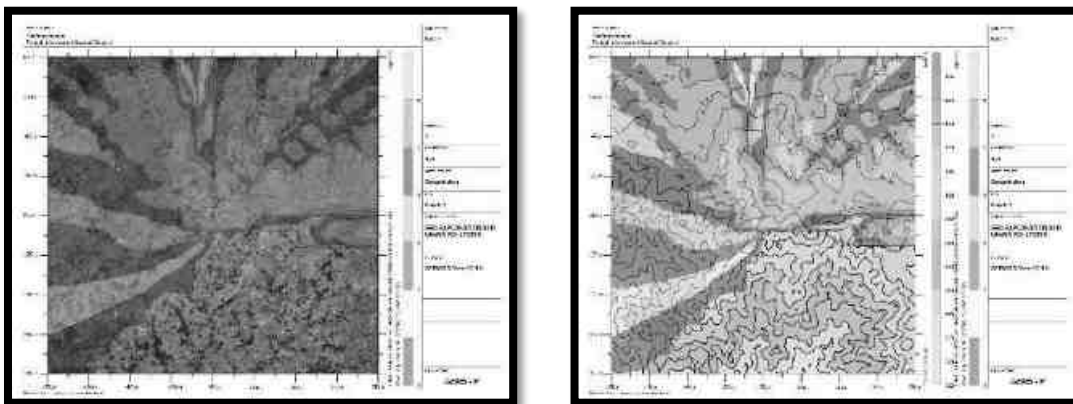


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO_x

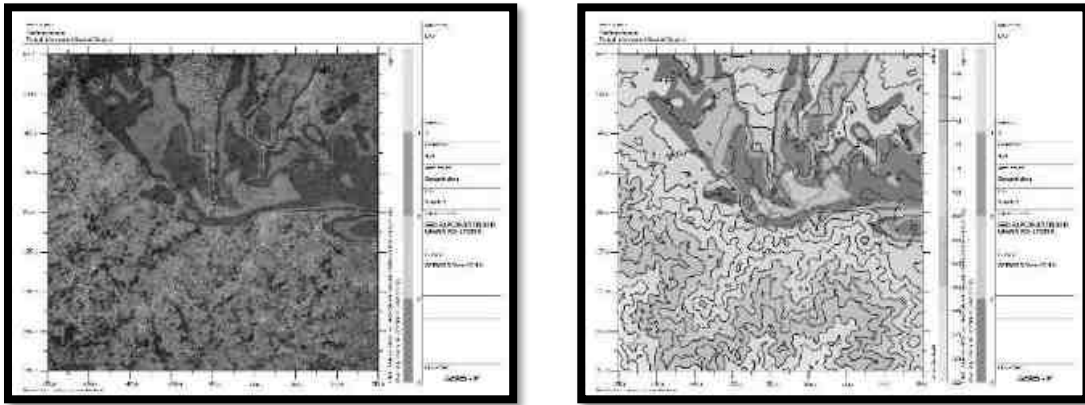


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF So₂

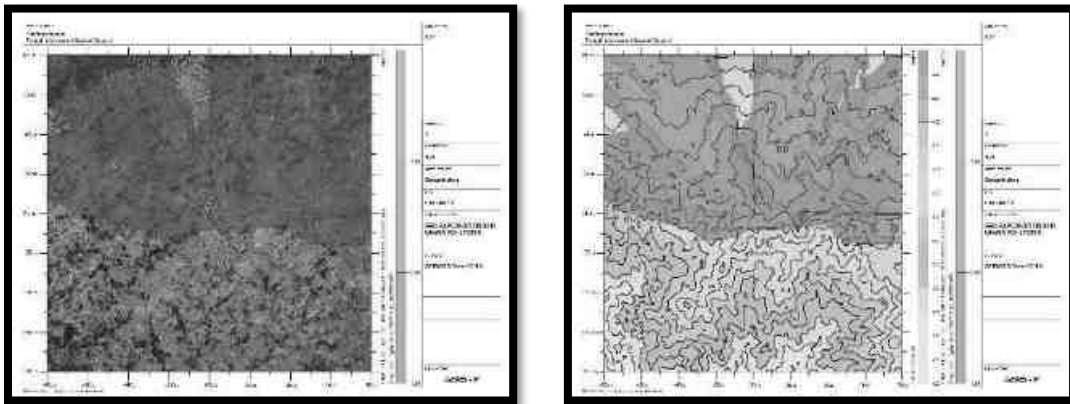
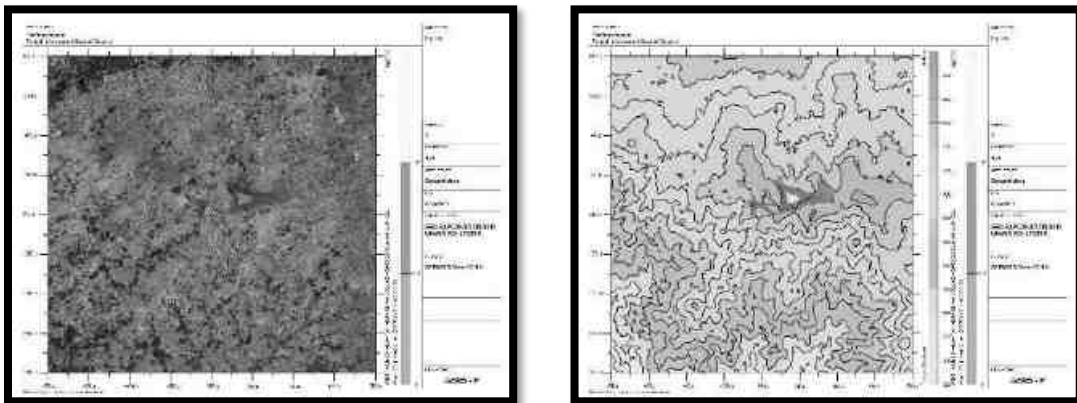


FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST



4.4.3.1 Model Results

The post project Resultant Concentrations of PM₁₀, PM_{2.5}, SO₂ & NO_x (GLC) is given in Table below:

TABLE 4.4: 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)
AAQ1	10°54'57.19"N 77° 3'55.78"E	-45	-100	46.1	14.81	60.9
AAQ2	10°55'3.55"N 77° 3'58.18"E	29	101	43.4	14.37	57.8
AAQ3	10°55'15.15"N 77° 4'2.51"E	161	456	43.9	13	56.9
AAQ4	10°54'7.24"N 77° 4'30.69"E	1025	-1646	45.8	0	45.8
AAQ5	10°56'7.54"N 77° 1'26.62"E	-4604	2078	44.1	7.69	51.7
AAQ6	10°52'8.09"N 77° 1'25.61"E	-4633	-5330	44.1	0	44.1
AAQ7	10°57'23.86"N 77° 5'39.70"E	3124	4435	45.3	10	55.3

TABLE 4.5: 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)
AAQ1	10°54'57.19"N 77° 3'55.78"E	-45	-100	21.1	6.92	28.0
AAQ2	10°55'3.55"N 77° 3'58.18"E	29	101	20.0	6.5	26.5
AAQ3	10°55'15.15"N 77° 4'2.51"E	161	456	21.1	6.15	27.2
AAQ4	10°54'7.24"N 77° 4'30.69"E	1025	-1646	21.3	0	21.3
AAQ5	10°56'7.54"N 77° 1'26.62"E	-4604	2078	44.1	4.43	48.5
AAQ6	10°52'8.09"N 77° 1'25.61"E	-4633	-5330	46.6	0.54	47.1
AAQ7	10°57'23.86"N 77° 5'39.70"E	3124	4435	19.5	5.72	25.3

TABLE 4.6: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO ₂ (µg/m ³)	Incremental value due to mining (µg/m ³)	Total SO ₂ (µg/m ³)
AAQ1	10°54'57.19"N 77° 3'55.78"E	-45	-100	6.2	1.89	8.1
AAQ2	10°55'3.55"N 77° 3'58.18"E	29	101	5.4	1.85	7.2
AAQ3	10°55'15.15"N 77° 4'2.51"E	161	456	5.6	1.8	7.4
AAQ4	10°54'7.24"N 77° 4'30.69"E	1025	-1646	5.7	0	5.7
AAQ5	10°56'7.54"N 77° 1'26.62"E	-4604	2078	6.0	0.7	6.7
AAQ6	10°52'8.09"N 77° 1'25.61"E	-4633	-5330	5.9	0	5.9
AAQ7	10°57'23.86"N 77° 5'39.70"E	3124	4435	5.8	1.3	7.1

TABLE 4.7: INCREMENTAL & RESULTANT GLC OF NO_x

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NO _x (µg/m ³)	Incremental value due to mining (µg/m ³)	Total NO _x (µg/m ³)
AAQ1	10°54'57.19"N 77° 3'55.78"E	-45	-100	24.0	9.79	33.8
AAQ2	10°55'3.55"N 77° 3'58.18"E	29	101	24.3	9.41	33.7
AAQ3	10°55'15.15"N 77° 4'2.51"E	161	456	24.7	8	32.7
AAQ4	10°54'7.24"N 77° 4'30.69"E	1025	-1646	25.3	0	25.3
AAQ5	10°56'7.54"N 77° 1'26.62"E	-4604	2078	24.5	0	24.5
AAQ6	10°52'8.09"N 77° 1'25.61"E	-4633	-5330	24.7	0	24.7
AAQ7	10°57'23.86"N 77° 5'39.70"E	3124	4435	24.9	2.9	27.8

TABLE 4.8: INCREMENTAL & RESULTANT GLC OF FUGITIVE DUST

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive (µg/m ³)	Incremental value due to mining (µg/m ³)	Total Fugitive Dust (µg/m ³)
AAQ1	10°54'57.19"N 77° 3'55.78"E	-45	-100	67.85	27.46	95.3
AAQ2	10°55'3.55"N 77° 3'58.18"E	29	101	65.31	27	92.3
AAQ3	10°55'15.15"N 77° 4'2.51"E	161	456	65.51	0	65.5
AAQ4	10°54'7.24"N 77° 4'30.69"E	1025	-1646	67.71	0	67.7
AAQ5	10°56'7.54"N 77° 1'26.62"E	-4604	2078	67.94	0	67.9
AAQ6	10°52'8.09"N 77° 1'25.61"E	-4633	-5330	67.24	0	67.2
AAQ7	10°57'23.86"N 77° 5'39.70"E	3124	4435	66.75	0	66.8

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 µg/m³ for PM₁₀, SO₂ & NO_x respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.4.3.2. Mitigation Measures

Drilling – To control dust at source, wet drilling will be practiced. Where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar.

Advantages of Wet Drilling: -

- In this system dust gets suppressed close to its formation. Dust suppression become very effective and the work environment will be improved from the point of occupational comfort and health.
- Due to dust free atmosphere, the life of engine, compressor etc., will be increased.
- The life of drill bit will be increased.
- The rate of penetration of drill will be increased.
- Due to the dust free atmosphere visibility will be improved resulting in safer working conditions.

Blasting –

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas

-
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e. at the time lunch hours, controlled charge per hole as well as charge per round of hole
 - Before loading of material water will be sprayed on blasted material
 - Dust mask will be provided to the workers and their use will be strictly monitored

Haul Road & Transportation –

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Grading of haul roads and service roads to clear accumulation of loose materials

Green Belt –

- 680 Nos of trees will be planted through this project in the lease area and village roads (Approach Road) 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

4.5 NOISE ENVIRONMENT

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 within 300m radius from the project site. 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 4.9: 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

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

The total noise to be produced by mining machineries 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 4.10: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7	N8
Maximum Monitored Value (Day) dB(A)	47.9	48.1	49.8	48.6	45.9	46.80	49.70	46.20
Incremental Value dB(A)	66.1	60.1	48.1	35.0	26.1	23.4	24.8	27.0
Total Predicted Noise level dB(A)	66.2	60.4	52.0	48.8	45.9	46.8	49.7	46.3

The incremental noise level is found within the range of 60.1-66.1dB (A) in Core Zone and 23.4 – 48.1 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 are within permissible limits of Industrial area (core zone) & 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.).

4.5.1 Mitigation Measures

The following noise mitigation measures are proposed for control of Noise

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise;
- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects

4.5.2 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 proposed project areas is listed in below table. The ground vibrations due to the blasting in the quarry 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

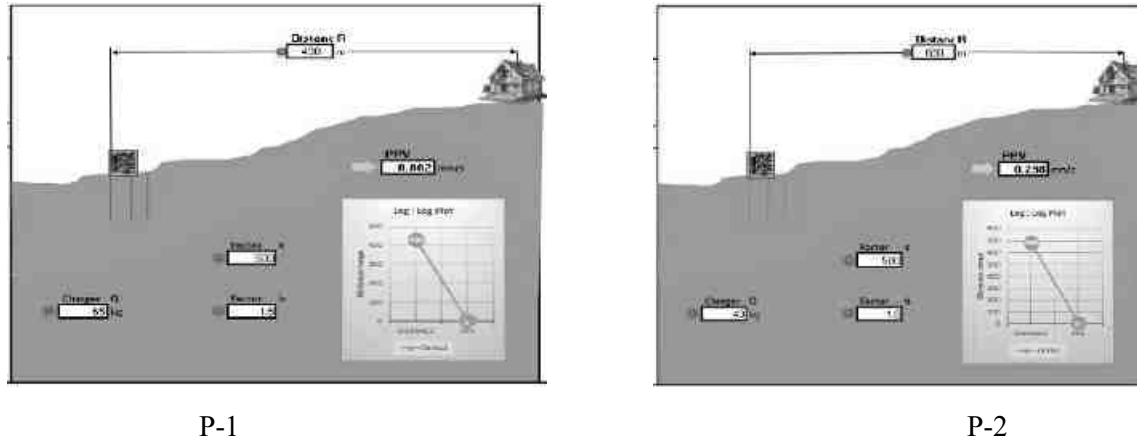
Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

TABLE 4.11: PREDICTED PPV VALUES DUE TO BLASTING

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	65	430m-SE	0.862
P2	43	680m-SE	0.298

FIGURE 4.6: GROUND VIBRATION PREDICTIONS-P1,&P2

From the above graph, the charge per blast of 65kg 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. But the all the project proponents ensure that the charge per blast shall be less than 85kg and carry out blasting twice or thrice a day based on the onsite conditions under the supervision of competent person employed. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.5.2.1 Mitigation Measures

- It is proposed to carry out blasting operation 20kg per round so that the vibration will be minimal
- The mining operation will be carried out without deep hole drilling, 25mm small dia cartridge will be utilized for the blasting
- The blasting operations in the project site 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.
 - 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 mm/s.
 - Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

4.6 IMPACT ON THE BIOLOGICAL ENVIRONMENT

4.6.1. Anticipated Impact on agricultural land associated with flora

1. Dust particle settle on neighbouring coconut farms it is located about 250m on the west side. Mostly dust emission from nearby crusher unit and during operation and minerals are transported in approach roads.
2. Dust deposition on leaf observed on nearby lease boundary local plant species which may result in decline the rate of photosynthesis and retards the plant growth.

4.6.2 Mitigation Measures

4.6.2.1. General Guidelines for Green Belt Development

Drone survey was covered the green belt and fencing as per the terms of references. The green belt and plantation purposes in and around the proposed mine lease area native species, fruit-bearing trees, medicinal plants, and dense canopy trees should be selected. These species should be tolerant to pollution levels as per Bio- Geography zones of India.

After the operation of mining production capacity, green belt and Plantation species should be in accordance with the Terms and Conditions of the Environmental Clearance Green belt is created not only for the purpose of protecting sensitive areas or maintaining the ecological balance but because they also act as efficient biological filters or sinks for particulate and gaseous emissions, generated by vehicular movements and various industrial and mining activities. Optimally designed green belts can be effective in reducing the impact of fugitive emissions and pollutants accidentally or otherwise released at ground levels.

4.6.2.2 Proposed Green Belt

Extensive green belt development will be started during the construction phase, which will continue till the operation of the plant. About 1500-2000 trees will be planted per hectare all around the plant, approach roads, and township premises. Locally available types of trees that are resistant to pollutants will be planted. In addition to the above, all open spaces available within the premises will be developed as nurseries, parks, gardens and other forms of greenery. 5 m wide greenbelt will be developed along the plant premises, as per land available.

4.6.2.3 Development of Green Belt

The plantation matrix adopted for the green belt development includes pit of 0.3 m x 0.3 m in size with a spacing of 2 m x 2 m. In addition, earth filling and manure may also be required for the proper nutritional balance and nourishment of the sapling. It is also recommended that the plantation has to be taken up randomly and the landscaping

aspects could be taken into consideration. Multi-layered plantations comprising of medium height trees (7 m to 10 m) and shrubs (5 m height) are proposed for the green belt.

4.6.2.4 Selection of Plant Species for Green Belt Development

It is also recommended that the plantation has to be taken up randomly and the landscaping aspects could be taken into consideration. Multi-layered plantations comprising of medium height trees (7 m to 10 m) and shrubs (5 m height) are proposed for the green belt. Green belt is plantation of trees for reducing the air pollution as they absorb both gaseous and particulate pollutant, thus removing them from atmosphere. Green plants form a surface capable of absorbing air pollutants and forming sinks for pollutants. It improves the aesthetic value of local environment. Under present project, green belts have been planned with emphasis on creating biodiversity; enhance natural surroundings and mitigating pollution. Regional tree saplings in eco-friendly bags like *Pterocarpus marsupium*, *Pongamia pinnata*, *Limonia acidissima*, and *Cassia roxburghii* will be planted along the Lease boundary and avenues as well as over non-active dumps with intervals 3m in between with the GPS Coordinates. The greenbelt development plan aims to overall improvement in the environmental conditions of the region native plant species will be preferred.

- The species should be wind-firm and deep-rooted.
- The species should form a dense canopy.
- Fast-growing plants will be planted.
- Species tolerance to air pollution like SO₂ and NO₂ should be preferred.
- Plants having large leaf area index will be considered.
- Soil improving plants (Nitrogen fixing rapidly decomposable leaf litter).
- Attractive appearance with good flowering and fruit-bearing.
- Birds and insects attract tree species.
- Roadsides will be planted with local vegetation.

Table No 4.12. List of plant species proposed for Greenbelt development

S. No	Scientific name	Tamil Name
1	<i>Aegle marmelos</i>	Vilva maram
2	<i>Albizia lebbeck</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 4.13. Species suitable for abatement of noise and dust pollution

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

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

The above-suggested list covers species with thick canopy cover, perennial green nature, native origin, and a large leaf area index. The proposed species will help in forming an effective barrier between the mine site area and the surroundings.

These species need to be planted along the periphery of the lease area for absorb fugitive emissions and noise levels which is 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.

4.6.3 Anticipated Impact on Fauna

- Noise generation due to vehicle may affect avifauna.
- The lease area is not inhabited by any wild life, as there is no forest cover, hence there will not be any effect on migration or extinction of wildlife.
- There is no National Park, Biosphere Reserve, Wildlife corridors and Tiger/Elephant Reserve found within 10 km radius of the project site.

4.6.3.1. 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.

4.6.4. Impact on Aquatic Biodiversity

- The major lake along the project sites doesn't have a rich biodiversity and almost all the species of both fauna and flora listed are either least concerned or not evaluated.
- There is no impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.

Table No. 4.14. Overall Ecological impact assessments of Pachapalayam Village, Rough stone and gravel Quarry, Sulur Taluk, Coimbatore District and Tamil Nadu.

S.No	Attributes	Assessment
1	Activities of the project affect the breeding/nesting sites of birds and animals.	No breeding and nesting site was identified in the mining lease site. The fauna sighted mostly migrated from the buffer area.
2	Located near an area populated by rare or endangered species	No Endangered, Critically Endangered, or vulnerable species were sighted in the core mining lease area.
3	Proximity to national park/wildlife Sanctuary /reserve forest / mangroves/ coastline /estuary/ sea	Nil.
4	The proposed project restricts access to waterholes for wildlife	'No '
5	Proposed mining project impact surface water quality that also provides water to wildlife.	'No 'scheduled or threatened wildlife animals are sighted regularly in the core area.
6	Proposed mining project increase siltation that would affect nearby biodiversity areas.	Surface runoff management such as drains is constructed properly so there will be no siltation effect in the nearby mining area.
7	Risk of fall/slip or cause death to wild animals due to project activities.	'No'
8	The project release effluents into a water body that also supplies water to a wildlife.	No water body near to core zone so the chances of water becoming polluted is low.
9	Mining projects affect the forest-based livelihood/ any specific forest product on which local livelihood depended.	'No'
10	The project likely to affect migration routes.	'No 'migration route was observed during the monitoring period.
11	The project is likely to affect the flora of an area, which have medicinal value	'No'
12	Forestland is to be diverted, has carbon high sequestration.	'No' There was no forest land diverted.

13	The project is likely to affect wetlands, Fish breeding grounds, and marine ecology.	'No' Wetland was not present in the near core Mining lease area. No breeding and nesting ground is present in the core mining area.
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(*Source: EIA Guidance Manual-Mining and Minerals, 2010)

TABLE 4.15: RECOMMENDED SPECIES FOR GREENBELT DEVELOPMENT PLAN

Sl.No	Name of the plant (Botanical)	Family Name	Common Name	Habit
1	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree
2	<i>Albiziafalcatoria</i>	Fabaceae	Tamarind, Puliymaram	Tree
3	<i>Polyalthialongifolia</i>	Annonaceae	Kattumaram	Tree
4	<i>Borassus Flabellifer</i>	Arecaceae	Palmyra Palm	Tree

The 7.5m Safety distance along the boundary has been identified to be utilized for subsequent Afforestation. However, the afforestation should always be carried out in a systematic and scientific manner. Regional trees like Neem, Pongamia, Pinnata will be planted along the Lease boundary and avenue plantation will be carried out in the project site. The rate of survival expected to be 80% in this area. Greenbelt development Plan is given in

TABLE 4.16: GREENBELT DEVELOPMENT PLAN

Year	No. of tress proposed to be planted	Considering survival rate of 80% additionally 20% of plantation is proposed	Area to be covered in m ²	Name of the species
I	1220	1000	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Neem, Pongamia Pinnata etc.,
I	500	400		
I	1000	800		

4.7 SOCIO ECONOMIC

Impact and Mitigation Measures: The proposed project could result due to migrant workers, worker camps, induced development etc. Due to the migrant workers, there would impact on the existing infrastructure facilities in the surrounding villages. The impact of the proposed project on socio economic conditions of the study area is as follows.

Impacts		Mitigation measures
Positive	Negative	
<p>It would generate employment opportunities to the local people and reduce the migrants to outside</p> <ul style="list-style-type: none"> ➤ Increase of floating population. ➤ Increase in demand of services includes hotels, lodges, public transport (including taxis), etc. ➤ Economic up liftment of the area. ➤ Rapid growth of sector will result in increase of incomes in the area. ➤ Expanding of services like retail shops, banks, automobile workshops, school, health care, etc. ➤ The project would also trigger many direct and indirect benefits for 	<ul style="list-style-type: none"> ➤ There will be structural changes in occupation and alternative works will be performed. ➤ Expecting release of surreptitiously air Pollution during the operation period. ➤ Loss of cultivable lands. ➤ Increase in the cost of man power in the agriculture sector due to Industrial/Mining services wage rates. This has affected cultivation. ➤ Dust generation from mining activity can have negative impact on the health of the workers and people in the nearby area. 	<ul style="list-style-type: none"> ➤ To prevent the air, water and noise pollution for this implements the adequate scientific measures (treat) as per the pollution control regulatory standards. ➤ Employment facilities to the local people on the priority bases to the impacted families who lost their land due to the proposed Project. ➤ Periodical monitoring of the families in surrounding villages. Regular medical check-up and developing infrastructure.

economic advancement and social development of project area.		<ul style="list-style-type: none"> ➤ Initiating Skill development programs for better opportunities for the educated youth. ➤ Dust and air control twice time using water sprinkler. ➤ Greenbelt will be developed in and around the project site
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4.8 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

4.8.1 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

4.8.2 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

4.8.3 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

4.8.4 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.

4.9 MINE WASTE MANAGEMENT

No waste is anticipated, the entire mined out material will be sold to needy crushers and customers.

4.10 MINE CLOSURE-P1

The ultimate depth of the mine is 46m bgl for P1 and 51m for P2 and 27m Bgl for P3 and the life of the mine is 5years, after completion of mining operation the following action will be taken in the project site as a part of Mine closure plan

- The total Mined out land would be around 2.07.50ha-P1 and 0.60.9ha -P2, 1.46.0ha for P3 this land will be converted into temporary water reservoir which will facilitate to collect the rain water
- The stagnant water will be supplied to the nearby agriculture land during drought seasons
- Fencing will be re constructed around the pit after closure, the warning/ danger display board will be placed on all the sides of the project site
- The unutilized area and haul roads will be converted as plantation area, fruit bearing trees will be planted to retain the eco system of the area
- Final Mine closure plan will be prepared and submitted to the concerned authority

Mine closure plan is the most important environmental requirement in mining project. 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.

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.

4.10.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

4.10.2 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.,

4.10.3 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.

4.10.4 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 mine 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.

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 INTRODUCTION

Consideration of alternatives to a project proposal is a requirement of EIA process. During the scoping process, alternatives to a proposal can be considered or refined, either directly or by reference to the key issues identified. A comparison of alternatives helps to determine the best method of achieving the project objectives with minimum environmental impacts or indicates the most environmentally friendly and cost-effective options.

5.1 FACTORS BEHIND THE SELECTION OF PROJECT SITE

The surrounding areas already undergone quarrying operation, there are 1-2 Crushers within the radius of 1km. Most of the quarries in the regions are Existing quarries. Hence this quarry will feed the rough stone material to the crushing units.

The Rough Stone and Gravel Quarry Project for excavation of Rough Stone, which is site specific. The proposed mining lease areas have 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 areas.
- Availability of skilled, semi-skilled and unskilled workers in this region.
- All the basic amenities such as medical, firefighting, 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 – II, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history.

5.2 ANALYSIS OF ALTERNATIVE SITE

No alternatives are suggested as all the mine sites are mineral specific

5.3 FACTORS BEHIND SELECTION OF PROPOSED TECHNOLOGY

The existing quarries in the area operated by Opencast Mechanised Mining operation with drilling and blasting method will be used to extract Rough Stone in the area. All the applied mining lease areas have following advantages –

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working is preferred over underground method
- The material will be loaded 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 these projects. 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.

6. ENVIRONMENTAL MONITORING PROGRAMME

6.0 GENERAL

The main objective of environmental monitoring is to ensure that the obtained results in respect of environmental attributes and prevailing conditions during operation stage are in conformity with the prediction during the planning stage. In case of substantial deviation from the earlier prediction of results, this forms as base data to identify the cause and suggest remedial measures. Environmental monitoring is mandatory to meet compliance of statutory provisions under the Environment (Protection) Act, 1986, relevant conditions regarding monitoring covered under EC orders issued by the SEIAA as well as the conditions set forth under the order issued by Tamil Nadu Pollution Control Board while granting CTO.

6.1 METHODOLOGY OF MONITORING MECHANISM

Implementation of EMP and periodic monitoring will be carried out by the project proponent. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to this project; Environmental protection measures like dust suppression, control of noise and blast vibrations, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of Environmental Management Plan and environmental clearance conditions will be monitored by Mine Management. On the other hand, implementation of area level protection measures like green belt development, environmental quality monitoring etc., are taken up by a senior executive who reports to their Mine Management.

An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures in all the proposed quarries.

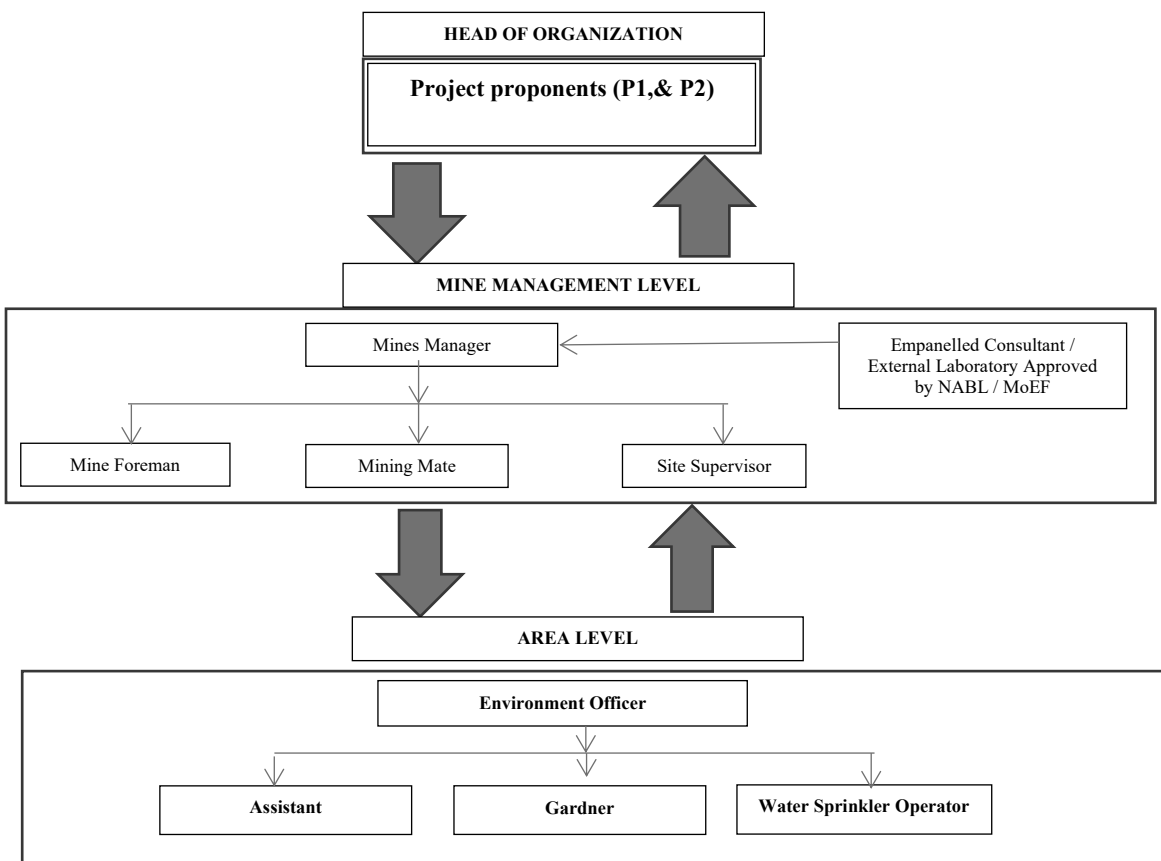
The responsibilities of this cell will be:

- 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 as compliance status reports. 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 half-yearly and yearly by each proposed project proponent. The half-yearly reports are 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).

FIGURE 6.1: PROPOSED ENVIRONMENTAL MONITORING CELL



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

SI No.	Recommendations	Time Period	Schedule
1	Land Environment Control Measures	Before commissioning of the project	Immediately after the commencement of project
2	Soil Quality Control Measures	Before commissioning of the project	Immediately after the commencement of 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,& P2

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 BUDGETARY PROVISION FOR EMP

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 capital cost for Environmental Monitoring Programme is Rs 76,000/- and the recurring cost is Rs 3,80,000/- per annum for each Proposed Project.

TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET

PROPOSAL – P1,P2&P3			
Sl.No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	Rs. 76,000/-	Rs. 76,000/-
2	Meteorology		

3	Water Quality		
4	Hydrology		
5	Soil Quality		
6	Noise Quality		
7	Vibration Study		
Total		Rs 76,000/-	Rs 76,000/-

Source: Approved Mining Plan

6.5 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 Cluster Mine Management Coordinator and Respective Head of Organization for taking necessary corrective measures. 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

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

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

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. And 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

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 whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad for all proposed projects. 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 these proposed 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	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; Workers will be sent to the Training in the nearby Group Vocational Training Centre 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

			<p>Working of quarry, as per approved plans and regularly updating the mine plans;</p> <p>Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut;</p> <p>Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager;</p> <p>Maintenance and testing of all mining equipment as per manufacturer 's guidelines.</p>
2	Drilling	<p>Improper and unsafe practices</p> <p>Due to high pressure of compressed air, hoses may burst</p> <p>Drill Rod may break</p>	<p>Safe operating procedure established for drilling (SOP) will be strictly followed.</p> <p>Only trained operators will be deployed.</p> <p>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,</p> <p>Drilling shall not be carried on simultaneously on the benches at places directly one above the other.</p> <p>Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual.</p> <p>All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition.</p> <p>Operator shall regularly use all the personal protective equipment.</p>
4	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>	<p>Restrict maximum charge per delay as per regulations and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blasting can be conducted safely.</p> <p>SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation</p> <p>Shots are fired during daytime only.</p> <p>All holes charged on any one day shall be fired on the same day.</p> <p>The danger zone will be distinctly demarcated (by means of red flags)</p>
5	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>	<p>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.</p> <p>Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle.</p> <p>Concave mirrors should be kept at all corners</p> <p>All vehicles should be fitted with reverse horn with one spotter at every tipping point</p> <p>Loading according to the vehicle capacity</p>

		Operator of truck leaving his cabin when it is loaded.	Periodical maintenance of vehicles as per operator manual
6	Natural calamities	Unexpected happenings	Escape Routes will be provided to prevent inundation of storm water Fire Extinguishers & Sand Buckets
7	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

Source: Analysed and Proposed by FAE & EC

7.3 DISASTER MANAGEMENT PLAN

Natural disasters like Earthquake, Landslides have not been recorded in the past history as the terrain is categorized under seismic zone II. The area is far away from the sea hence the disaster due to heavy floods and tsunamis are not anticipated

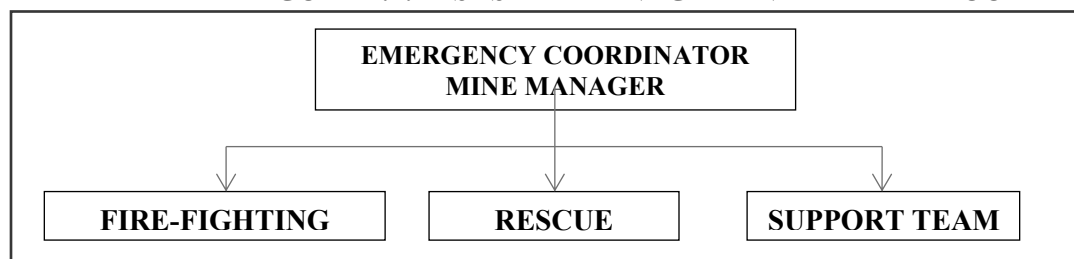
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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



The emergency organization shall be headed by emergency coordinator who will be qualified competent mine manager. In his absence senior most people available at the mine shall be emergency coordinator till arrival of 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 and shall be located at MECR.

(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 carry out 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 has been proposed at strategic locations within the mine.

TABLE 7.3: PROPOSED FIRE EXTINGUISHERS AT DIFFERENT LOCATIONS

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.

7.4 CUMULATIVE IMPACT STUDY

For easy representation of Proposed and Existing, Expired and abandoned Quarries in the Cluster are given unique codes and identifies and studied in this EIA EMP Report.

TABLE 7.4: LIST OF QUARRIES WITHIN 500 METER RADIUS

PROPOSED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru. V.Gopalakrishnan	Pachapalayam	291/1A	2.43.5	Lr.No. SEIAA-TN/F.No.10502/SEAC/1 (a)ToR-1666/2023 Dated:08.02.2024
P2	Tvl.Tamilnadu Blue metals	Kallapalayam	263/1A(P), 264/1(P)	1.91.0	F.No.10786/ToR Identification No: TO24B0108TN5672058N Dated: 31/05/2024
P3	Thiru.D.Ramesh	Pachapalayam	291/1B1A	0.91.0	F.No.7812/ ToR Identification No TO24B0108TN5380920A Dated:03.06.2024
P4	M/s.Ultra sahara Sand	Orattukuppai	320 (P)	6.36.0	Application Processed
TOTAL EXTENT				11.61.5Ha	
EXISTING QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Lease Period
E-1	M/S. Ultra Readymix Concrete P Ltd,	Orattukuppai	320 (P), 332/2A (P)	3.07.4	22.12.2018 -21.12-2023
E-2	M/S.Ultra sahara Sand P Ltd	Orattukuppai	188 (P), 190/1	2.37.0	14.12.2022 -13.12-2027
E-3	M/S.Ultra sahara Sand P Ltd	Orattukuppai	191(P), 198(P)	2.50.0	14.12.2022 -13.12-2027
TOTAL EXTENT				7.94.4Ha	
EXPIRED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Lease Period
Ex-1	Thiru.V. Velusamy	Pachapalayam	291/1B2,291/1D1,291/1D2	2.43.5	07.04.2017 -06.04-2020
Ex-2	Thiru.K. Balakrishnan	Pachapalayam	291/1B1B(P)	2.40.5	15.09.2017 -14.09-2022
Ex-3	Thiru.K. Natarajan	Pachapalayam	291/2A2,291/2B	1.83.5	02.06.2016-01.06.2021
Ex-4	M/s.Tamilnadu Blue metals	Kallapalayam	263/2A	6.09.0	EC granted Lr. No. SEIAA-TN/F.No.5418/1(a)/EC No:3288/2016 Dated:11.07.2016
TOTAL EXTENT				12.76.5Ha	
ABANDONED QUARRIES					
A-1	Thiru.N.Boopathyraja	Orattukuppai	291/2A2, 291/2B	1.06.5	02.06.2016 to 01.06.2021
A-2	Tvl.Tamil Nadu Blue metals	Kallapalayam	263/2A	1.60.0	22.05.2011 to 21.05.2016
TOTAL EXTENT				2.66.5Ha	
CLUSTER EXTENT				19.55.9Ha	

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

TABLE 7.5: SALIENT FEATURES OF PROPOSAL “P1”

Name of the Project	Thiru. V. Gopalakrishnan Rough stone and Gravel quarry	
S.F. No.	291/1A	
Extent	2.43.5 ha	
Village Taluk and District	Pachapalayam Village, Suler Taluk, Coimbatore District.	
Land Type	Proponent own patta land	
Land Ownership	It is a Patta land. Registered in the name of the Thiru. R. Palaniappan vide Patta No.296 . The applicant has obtained consent from the pattadars for the period of five years from the date of execution of lease.	
Existing quarry operation	<p>It is a fresh lease application but, the quarry lease was previously granted in favour of Thiru.R. Palaniappan, over an extent of 2.43.5 Hectares of Patta land in S.F.No.291/1A of Pachapalayam Village, Suler Taluk, Coimbatore District vide Rc.No.418/Mines/2015, dated: 07.10.2017 for the period of five years from 07.10.2017 to 06.10.2022.</p> <p>The applicant (Thiru.R. Palaniappan) has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu vide Lr. No. SEIAA – TN / F.No.5797 / 1(a) / EC.No.3873 / 2016, Dated: 19.06.2017.</p> <p>Now the applicant (Thiru. V.Gopalakrishnan) has applied a quarry lease for the period of five years on 12.07.2022 over an extent of 2.43.5 Hectares of patta lands in S.F.No. 291/1A of Pachapalayam Village, Suler Taluk, Coimbatore District.</p>	
EC certificate	Lr. No. SEIAA – TN / F.No.5797 / 1(a) / EC.No.3873 / 2016, Dated: 19.06.2017.	
Explosive certificate	Selva Nandhini Explosives and chemicals (Licence no-E/SC/TN/22/654 (E85920))	
Toposheet No	58 -F/01	
Latitude between	10° 54' 56.99"N to 10° 55' 03.75"N	
Longitude between	77° 03' 54.96"E to 77° 04' 00.37"E	
Elevation of the area	424m AMSL	
Lease period	5 Years	
Mining Plan period	5 years	
Proposed Depth of Mining	46m (1m Gravel + 45m Rough stone) bgl	
	Rough Stone in m ³	Gravel m ³
Geological Resources	8,72,511	8,822
Mineable Reserves	2,26,170	7,764
Proposed Production quantity for the current mining plan	2,26,170	7,764
Peak Production	51,660	6,620
Ultimate Pit Dimension	186m(L) x 142m(W) x 46m(D) (BGL)	
Existing Pit Dimension	Pit I: 140m(L) x 98m(W) x 21m(D) Pit II: 79m(L) x 34m(W) x 1m(D)	
Water Level in the region	70-65 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is flat terrain. The area has gentle sloping towards Southwestern side and altitude of the area is 424m above from Mean sea level. The area is covered by 1m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the existing quarry pit.	
Machinery proposed	Jack Hammer	7 Nos
	Compressor	2 No
	Excavator with Bucket and Rock Breaker	2 Nos
	Tippers	3 Nos

Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	31 Nos	
Operational Cost	Rs. 82,85,000 /-	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs. 86,85,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Seasonal Odai	930m South
	Odai	2km NE
	Pallapalayam Lake	7.7km NE
	Noyyal River	8km NW
	Vellalore Lake	8.5km NW
	Singanallur Tank	8.7km NW
Greenbelt Development Plan	Proposed to plant 1220Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	1.5 KLD	
Nearest Habitation	430m – SouthEast	
Nearest Reserve Forest	Bolampatti I R.F – 12.88km –West	
Nearest Wild Life Sanctuary	Indira Gandhi (Anamalai) Wildlife Sanctuary – 44km - South	

Source: Approved Mining Plan

TABLE 7.7: SALIENT FEATURES OF PROPOSAL “P2”

Name of the Quarry	Tvl. Tamilnadu Blue Metals Rough Stone & Gravel Quarry Project	
Toposheet No	58 -I/16	
Latitude between	10°55'05.8546” N to 10°55'11.5313” N	
Longitude between	77°03'56.3316”E to 77°04'02.1862” E	
Highest Elevation	455 m AMSL	
Proposed Depth of Mining (As Per ToR)	27m bgl	
Geological Resources	Rough Stone in m ³	Gravel m ³
	4,37,000	17,912
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	1,51,295	10,064
Proposed Production quantity for the current mining plan (As per ToR)	1,51,295	10,064
Ultimate Pit Dimension	Section XY-AB 148m (L) * 158 m (W) * 27 m Bgl (D)	
Water Level in the surrounds area	45 – 50 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is exhibits plain topography. The area has gentle sloping towards South side and altitude of the area is 455m 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.	
Machinery proposed	Jack Hammer	5 Nos
	Compressor	1 No
	Excavator with Bucket and Rock Breaker	1 No
	Tipplers	2 No
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	

Proposed Manpower Deployment	26 Nos	
Operational Cost	Rs.1,27,94,000/-	
EMP cost	Rs.3,80,000/-	
Total Project cost	Rs. 1,31,74,000/-	
CER Cost	Rs.5,00,000/-	
Nearby Water Bodies	Seasonal Odai	1.2km South
	Odai	1.8km NE
	Pallapalayam Lake	7.5km NE
	Noyyal River	7.8km NW
	Vellalore Lake	8.3km NW
	Singanallur Tank	8.5km NW
Greenbelt Development Plan	Proposed to plant 1000 trees in 4,120 Sq.m area in the 7.5 m Safety Zone	
Proposed Water Requirement	2.0 KLD	
Nearest Habitation	680m SE	
R.F boundary	Boluvampatti R.F – 12.8km-W	
Wildlife Sanctuary	Indira Gandhi (Anamalai) -45km-S	

TABLE 7.8: SALIENT FEATURES OF PROPOSAL “E1”

Name of the Project	M/S. Ultra Readymix Concrete P Ltd, (Thiru. K.R. Ananth Kumar is the Chief Executive Officer)	
EC granted	Lr.No.DEIAA-CBE-IV/F.No.1129/1 (a&b)/EC.No:25/2018 dated :04.10.2018	
TNPCB CTO copy	Proceedings No F.0346CBS/OS/DEE/TNPCB/CBS/W/2017 dated: 16/09/2017	
S.F. No.	320 (P),332/2A (P)	
Extent	3.07.4 ha	
Scheme Period	Five years (2023-2028)	
Period of Permission	from 22.12.2023 to 21.12.2028 (Extension from 06.09.2021 to 05.09.2026).	
Village Taluk and District	Orattukuppai Village, Madukkarai Taluk, Coimbatore District.	
Land Type	It is a Patta land	
Land Ownership	It is a Patta land. Registered in the name of the Company, vide Patta No.558.	
Toposheet No	58 - F/01	
Latitude between	10°54'58.15"N to 10°55'04.96"N	
Longitude between	77°03'43.58"E to 77°03'51.95"E	
Elevation of the area	425m AMSL	
Proposed Depth of Mining	57m (12m AGL + 45m BGL)	
Existing depth	32m maximum below from existing ground profile.	
Geological Resources	Rough Stone in m ³	Gravel m ³
	13,63,477m ³	10,626m ³
Mineable Reserves	4,37,002	-
Year wise Production	4,37,002	-
Peak Production	90,205m ³	-
Ultimate Pit Dimension	Ultimate Pit Dimension Length 226m x Width 131.5m Depth 57m (Max) (12m Agl+45m Bgl)	

Existing Pit Dimension	Pit ID	Existing R.L. (m)	Pit R.L. (m)	Area (m ²)	Total Depth (m)	Depth (m)	
						Gravel	Rough stone
	D-1	425	423	4667	2	2	-
	D-2	425	418	8923	7	2	5
	D-3	425	408	4217	17	2	15
	D-4	425	403	3512	22	2	20
	D-5	425	398	1050	27	2	25
	D-6	425	393	1813	32	2	30
	Total						
Water Level in the region	60m bgl						
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives						
Topography	The lease area exhibits an undulated terrain. The area has sloping towards Southern side. The altitude of the area is 425m above from Mean Sea level. The area is covered by 2m thickness of Gravel formation. Massive Charnockite is found after 2m (Gravel) which is clearly inferred from the existing quarry pit.						
Machinery proposed	Jack Hammer				10Nos		
	Compressor				3 No		
	Excavator with Bucket and Rock Breaker				2Nos		
	Tippers				5Nos		
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.						
Proposed Manpower Deployment	40 Nos						
Project Cost	Rs.3,15,74,000/-						
EMP Cost	Rs. 3,80,000/-						
Total Project cost	Rs.3,19,54,000/-						
CER Cost	Rs. 5,00,000/-						
Greenbelt Development Plan	Proposed to plant 1540Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads						
Proposed Water Requirement	1.0 KLD						
Nearest Habitation	210m -SW						

Source: Approved Scheme of Mining Plan

TABLE 7.9: SALIENT FEATURES OF PROPOSAL “E2”

Name of the Project	M/S.Ultra sahara Sand P Ltd (Thiru.M.Biju is the Managing Partner)
EC granted	Lr.No. SEIAA-TN/F.No.3487/EC/1(a)/2528/2015 dated 18.12.2015
TNPSB CTO copy	Proceedings No F.0346CBS/OS/DEE/TNPSB/CBS/W/2017 dated: 16/09/2017
S.F. No.	188 (P), 190/1
Extent	2.37.0 ha
Mining Plan Period	Five years
Period of Permission	from 22.12.2023 to 21.12.2028 (Extension from 06.09.2021 to 05.09.2026).
Village Taluk and District	Orattukuppai Village, Madukkarai Taluk, Coimbatore District.
Land Type	It is a Patta land

Land Ownership	It is a Patta lands. Registered in the name of the applicant (Thiru.M.Biju, Managing Partner of M/s. Ultra Sahara Sand), vide Patta Nos.764 & 727.	
Existing quarry operation	It is a fresh lease application.	
Toposheet No	58 - F/01	
Latitude between	10°55'35.79"N to 10°55'43.36"N	
Longitude between	77°03'44.74"E to 77°03'49.80"E	
Elevation of the area	434m AMSL	
Proposed Depth of Mining	37m (2m gravel +35m Roughstone)	
	Rough Stone in m ³	Gravel m ³
Geological Resources	8,27,820m ³	47,304m ³
Mineable Reserves	1,94,880m ³	23,520m ³
Year wise Production	1,94,880m ³	23,520m ³
Peak Production	41,060m ³	9,660
Ultimate Pit Dimension	Length 170 x Width 72m x 37m Depth (Max)	
Water Level in the region	65-60m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is exhibits plain topography. The area has gentle sloping towards Southwestern side. The altitude of the area is 434m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation. Massive Charnockite is found after 2m (Gravel formation) which is clearly inferred from the nearby existing quarry pits.	
Machinery proposed	Jack Hammer	5Nos
	Compressor	2 No
	Excavator with Bucket and Rock Breaker	1Nos
	Tippers	3Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	25 Nos	
Project Cost	Rs.58,58,000/-	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs.62,38,000/-	
CER Cost	Rs. 5,00,000/-	
Greenbelt Development Plan	Proposed to plant 1200Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	3.0 KLD	
Nearest Habitation	750m -NW	

Source: Approved Mining Plan

TABLE 7.10: SALIENT FEATURES OF PROPOSAL "E3"

Name of the Project	M/S.Ultra sahara Sand P Ltd (Thiru.M.Biju is the Managing Partner)
S.F. No.	191(P), 198(P)
Extent	2.50 ha
Mining Plan Period	Five years
Period of Permission	from 22.12.2023 to 21.12.2028 (Extension from 06.09.2021 to 05.09.2026).
Village Taluk and District	Orattukuppai Village, Madukkarai Taluk, Coimbatore District.
Land Type	It is a Patta land
Land Ownership	It is a Patta lands. Registered in the name of the applicant (Thiru.M.Biju, Managing Partner of M/s. Ultra-Sahara Sand), vide Patta Nos.763 & 765.

Existing quarry operation	It is a fresh lease application.	
Toposheet No	58 - F/01	
Latitude between	10°55'26.28"N to 10°55'34.55"N	
Longitude between	77°03'37.26"E to 77°03'46.48"E	
Elevation of the area	434m AMSL	
Proposed Depth of Mining	47m (2m Gravel + 45m Rough stone) below ground level	
	Rough Stone in m ³	Gravel m ³
Geological Resources	11,25,000m ³	50,000m ³
Mineable Reserves	3,59,870m ³	37,208m ³
Year wise Production	3,59,870m ³	37,208m ³
Peak Production	77040m ³	13,566 m ³
Ultimate Pit Dimension	Pit XY-AB Length 132 x Width 121m x 47m Depth Bgl Pit X1Y1-CD Length 69 x Width 40m x 22m Depth Bgl Pit X2Y2-EF Length 07 x Width 111m x 07m Depth Bgl	
Water Level in the region	65-60m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is exhibits plain topography. The area has gentle sloping towards Southwestern side. The altitude of the area is 434m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation. Massive Charnockite is found after 2m (Gravel formation) which is clearly inferred from the nearby existing quarry pits.	
Machinery proposed	Jack Hammer	9Nos
	Compressor	3 No
	Excavator with Bucket and Rock Breaker	2 Nos
	Tipppers	5Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	43 Nos	
Project Cost	Rs. 1,04,03,000/-	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs.1,07,83,000/-	
CER Cost	Rs. 5,00,000/-	
Greenbelt Development Plan	Proposed to plant 1250Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	3.5 KLD	
Nearest Habitation	700m -NW	

Source: Approved Mining Plan

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.

Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.16 & 7.17.

TABLE 7.11: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE

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
P1	2,26,170	45,234	151	13
P2	60,002	12,000	40	3
P3	1,51,295	30,259	101	8
Total	4,37,467	87,493	292	24
E1	4,37,002	87,400	291	24
E2	1,94,880	38,976	130	11
E3	3,59,870	71,974	240	20
Total	9,91,752	198350	661	55
Grand Total	1,429,219	285843	953	79

TABLE 7.12: CUMULATIVE PRODUCTION LOAD OF GRAVEL

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
P1	7,764	3,882	13	1
P2	-	-	-	-
P3	10,064	5,032	17	1
Total	17,828	8,914	30	2
E1	-	-	-	-
E2	23,520	7,840	26	2
E3	37,208	12,402	41	3
Total	60,728	20,242	67	5
Grand Total	78,556	29,156	97	7

On a cumulative basis considering the proposed quarry, it can be seen that the overall production of Rough Stone is 292m³ per day and overall production of Gravel is 30m³ per day with a capacity of 24rips of Rough Stone per day and 2Trips per day of Gravel from the cluster.

Note: Per day production of Rough Stone is calculated for 5 Years Lease Period and for Gravel production with 2 or 3 years of production period. And the load of existing quarries is covered under existing environment of the cluster.

Based on the above production quantities the emissions due to various activities in all the 2 mines 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 7.18.

TABLE 7.13: EMISSION ESTIMATION FROM QUARRIES WITHIN 500 METER RADIUS

EMISSION ESTIMATION FOR QUARRY "P1"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.084754060	g/s
	Blasting	Point Source	0.001057833	g/s
	Mineral Loading	Point Source	0.042052163	g/s
	Haul Road	Line Source	0.002491204	g/s/m
	Overall Mine	Area Source	0.056234368	g/s

Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.00062964	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000034139	g/s
EMISSION ESTIMATION FOR QUARRY "P2"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.059622401	g/s
	Blasting	Point Source	0.000182248	g/s
	Mineral Loading	Point Source	0.036951733	g/s
	Haul Road	Line Source	0.002484642	g/s/m
	Overall Mine	Area Source	0.036995409	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000162883	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000003583	g/s
EMISSION ESTIMATION FOR QUARRY "P3"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.072580791	g/s
	Blasting	Point Source	0.000487218	g/s
	Mineral Loading	Point Source	0.040257349	g/s
	Haul Road	Line Source	0.002488007	g/s/m
	Overall Mine	Area Source	0.050392825	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000394932	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000017069	g/s
EMISSION ESTIMATION FOR QUARRY "E1"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.100180541	g/s
	Blasting	Point Source	0.002440795	g/s
	Mineral Loading	Point Source	0.043929822	g/s
	Haul Road	Line Source	0.002496159	g/s/m
	Overall Mine	Area Source	0.062966882	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.001007484	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000068258	g/s
EMISSION ESTIMATION FOR QUARRY "E2"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.079111546	g/s
	Blasting	Point Source	0.000749573	g/s
	Mineral Loading	Point Source	0.041471936	g/s
	Haul Road	Line Source	0.002490031	g/s/m
	Overall Mine	Area Source	0.055354816	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000539628	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000028463	g/s
EMISSION ESTIMATION FOR QUARRY "E3"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.095549644	g/s
	Blasting	Point Source	0.001926459	g/s
	Mineral Loading	Point Source	0.043949312	g/s
	Haul Road	Line Source	0.002496221	g/s/m
	Overall Mine	Area Source	0.057891143	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000962446	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000054089	g/s

Source: Emission Calculation

TABLE 7.14: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM₁₀ in µg/m³	
Background	46.1
Incremental	14.81
Resultant	60.9
NAAQ Norms	100 µg/m³
PM_{2.5} in µg/m³	
Background	21.1
Incremental	6.92
Resultant	28.0
NAAQ Norms	60 µg/ m³
So₂ in µg/m³	
Background	6.2
Incremental	1.89
Resultant	8.1
NAAQ Norms	80 µg/ m³
No₂ in µg/m³	
Background	24.0
Incremental	9.79
Resultant	33.8
NAAQ Norms	80 µg/ m³

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 7.15: PREDICTED NOISE INCREMENTAL VALUES FROM QUARRY

Location ID	N1	N2	N3	N4	N5	N6	N7	N8
Maximum Monitored Value (Day) dB(A)	47.9	48.1	49.8	48.6	45.9	46.80	49.70	46.20
Incremental Value dB(A)	66.1	60.1	48.1	35.0	26.1	23.4	24.8	27.0
Total Predicted Noise level dB(A)	66.2	60.4	52.0	48.8	45.9	46.8	49.7	46.3

Source: Lab Monitoring Data

The incremental noise level is found within the range of 48.1 (Buffer zone) – 66.1 dB (A) in Core 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 all the 6 Mines 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 all the 4 mines 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 nearby the mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from 4 mines respectively are as in below Table 7.17.

TABLE 7.16: NEAREST HABITATION FROM EACH MINE

Location ID	Distance & Direction
Habitation Near P1	430m-SE
Habitation Near P2	450m-SE
Habitation Near P3	680m-SE
Habitation Near E1	210m -SW
Habitation Near E2	750 NW
Habitation Near E3	700m-NW

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 7.17: GROUND VIBRATIONS AT PROPOSED MINES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	65	430m-SE	0.862
P2	17	450m-SE	0.274
P3	43	680m-SE	0.298

Source: Blasting Calculations

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 4 mines shall contribute towards CER and the community shall develop.

TABLE 7.18: SOCIO ECONOMIC BENEFITS FROM 6MINES

Location ID	Project Cost	CER
P1	Rs. 86,85,000/-	Rs.5,00,000
P2	Rs. 36,85,670/-	Rs.5,00,000
P3	Rs. 1,31,74,000/-	Rs.5,00,000
Total	Rs.2,55,44,670/-	Rs.15,00,000/-
E1	Rs.3,19,54,000/-	Rs.5,00,000
E2	Rs.62,38,000/-	Rs.5,00,000
E3	Rs.1,07,83,000/-	Rs.5,00,000
Total	Rs. 4,89,75,000/-	Rs.15,00,000/-
G.Total	Rs.7,45,19,670/-	Rs.30,00,000/-

As per para 6 (II) of the office memorandum, all the mines being a green field project & Capital Investment is \leq 100 crores, they shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC.

- Proposed Projects shall fund towards **CER – Rs 15,00,000/-**
- Existing Projects shall fund towards **CER- Rs.15,00,000/-**

TABLE 7.19: EMPLOYMENT BENEFITS FROM 6MINES

Code	Employment
P1	31
P2	15
P3	26
Total	72
E1	40
E2	25
E3	43
Total	108
Grand Total	180

A total of 72 people will get employment due to three proposed mines in cluster and 108 people are already employed at existing mines.

TABLE 7.20: GREENBELT DEVELOPMENT BENEFITS FROM 6 MINES

CODE	No of Trees proposed to be planted	Survival %	Area Covered Sq.m	Name of the Species
P1	1220	80%	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development	Neem, Pinnata, Pongamia, Ashoka etc.,
P2	500			
P3	1000			
Total	2,720			
E1	1540			
E2	1200			
E3	1250			
Total	3,940			
G. Total	6,660			

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Pinnata et., in the Cluster at a rate of 2,720 Trees Planted over a period of 5 Years with Survival Rate of 80%.

7.5 PLASTIC WASTE MANAGEMENT PLAN

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 7.21: 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

8.PROJECT BENEFITS

8.0 GENERAL

The Proposed Project for Quarrying Rough Stone and gravel at Pachapalayam and Kallapalayam Village aims to cumulatively production about **3,77,465m³** Rough Stone over a period of 5 Years and Gravel **17,828m³** for period of two year. 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 72 persons for carrying out mining operations and give preference to the local people in providing employment in the one proposed quarry in the cluster. 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.

8.2 SOCIO-ECONOMIC WELFARE MEASURES PROPOSED

The impact of mining activity in the area will be more positive 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.

8.3 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

The proposed quarry is located in Pachapalayam and Kallapalayam Village, Sulur 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 proposed mine.

- 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.

8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

Employment is expected during civil construction period, in trade, garbage lifting, sanitation and other ancillary services, Employment in these sectors will be primarily temporary or contractual and involvement of unskilled labour will be more. A major part of the labour force will be mainly from local villagers who are expected to engage themselves both in agriculture and mining activities. This will enhance their income and lead to overall economic growth of the area.

8.5 OTHER TANGIBLE BENEFITS

The proposed mine 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 mine 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

The Project Proponent 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.

CSR Cost Estimation

- CSR activities will be taken up in the Pachapalayam & Kallapalayam 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

For the existing quarries 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.

Proponent intends to spent Rs 5,00,000/- towards CER for the Government School near the project site the details are given below:

TABLE 8.1 CER – ACTION PLAN

Activity	CER
<ul style="list-style-type: none"> • Renovation/ Construction of Existing Toilet • Providing Environmental Related books to the school Library • Carrying out plantation and maintenance in the school Ground • Any other requirements in consultation with the school Head master 	Rs 5,00,000/-

9. ENVIRONMENTAL COST BENEFIT ANALYSIS

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

10. ENVIRONMENTAL MANAGEMENT PLAN - THIRU. V.GOPALAKRISHNAN

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. V.Gopalakrishnan will –

- 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.
- 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 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 –

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir and the remaining part of the area (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation will be developed under greenbelt development programme.

TABLE 10.1. PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Design vehicle wash-down areas so that all runoff water is captured and passed through oil water separators and sediment catchment devices.	Mines Manager
Refueling to be undertaken in a safe location, away from vehicle movement pathways & 100 m away of any watercourse Refueling activity to be under visual observation at all times. Drainage of refueling areas to sumps with oil/water separation	Mine Foreman & Mining Mate
Soil and groundwater testing as required following up a particular incident of contamination.	Mines Manager
At conceptual stage, the mining pits will be converted into Rain Water Harvesting. Remaining area will be converted into greenbelt area	Mines Manager
No external dumping i.e., outside the project area	Mine Foreman
Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.	Mines Manager
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

Source: Proposed by FAE's & EIA Coordinator

10.3. SOIL MANAGEMENT

There overburden in the form of gravel which will directly loaded into tippers for the filling and levelling of low-lying areas.

TABLE 10.2. PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Surface run-off from the project boundary 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	Mines Manager
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Mines Manager
Test soils for pH, EC, chloride, size & water holding capacity	Manager Mines

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 mines office. The quarrying operation is proposed upto a depth of 46m BGL, 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 proposed quarrying activity would result in the increase of particulate matter concentrations due to fugitive dust. Daily water sprinkling 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 POLLUTION CONTROL

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and cutting 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 is 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

The Rough stone quarry operation creates vibration due to the blasting and movement of Heavy Earth moving machineries, fly rocks due to the blasting.

TABLE 10.6.: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK – P1

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 1220nos. 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

Year	No. of trees proposed to be planted	Considering survival rate of 80% additionally 20% of plantation is proposed	Area to be covered in m ²	Name of the species
I	1220	1000	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Neem, Pongamia Pinnata etc.,

Source: Approved Mining plan

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 FOR THE PLANTSATION

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 –

The health status of workers in the mine will be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detailed 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

Sl.No	Activities	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
I	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)					

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.
- 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.
- 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



10.9.3: Health and Safety Training Programme

The Proponent 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 as per Metalliferous Mines Regulation, 1961.

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 10.10 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.10: 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	24350	24350
	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	175000	17500
	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 - 3Units	15000	750
	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	48700
	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 Tons of Blasted Material	0	588042
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 management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	24350	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	487000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 1200Trees - (400 Inside Lease Area & 1060 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)	80000	12000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	318000	31800

	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	62400	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	1334403	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) - 31Employees	124000	31000
	Health check up for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	31000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	4870
	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. Flagger's 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	121750	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			2829450	1772012

*Marked cost is already discussed in the mining plan hence that is not included in the total Environmental Management plan cost Total Cost for the five years. The EMP has been prepared for the entire **lease period of 5 years** for the peak production capacity of **51,660m³ of Rough stone**.

Year	Total Cost
1 st	Rs. 46,01,462
2 nd	Rs. 18,60,612.6
3 rd	Rs.19,53,643.2
4 th	Rs. 20,51,325.4
5 th	Rs. 22,16,291.7
Total	Rs. 127 Lakhs

Cost inflation 5% per annum

Note: This Environmental Management plan cost will vary according to the public consultation comments

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.

10. ENVIRONMENTAL MANAGEMENT PLAN - TVL.TAMILNADU BLUE METALS

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 TVL.TAMILNADU BLUE METALS will –

- 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.
- 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 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 –

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir and the remaining part of the area (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation will be developed under greenbelt development programme.

TABLE 10.1. PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Design vehicle wash-down areas so that all runoff water is captured and passed through oil water separators and sediment catchment devices.	Mines Manager
Refueling to be undertaken in a safe location, away from vehicle movement pathways & 100 m away of any watercourse Refueling activity to be under visual observation at all times. Drainage of refueling areas to sumps with oil/water separation	Mine Foreman & Mining Mate
Soil and groundwater testing as required following up a particular incident of contamination.	Mines Manager
At conceptual stage, the mining pits will be converted into Rain Water Harvesting. Remaining area will be converted into greenbelt area	Mines Manager
No external dumping i.e., outside the project area	Mine Foreman
Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.	Mines Manager
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

Source: Proposed by FAE's & EIA Coordinator

10.3. SOIL MANAGEMENT

There overburden in the form of Gravel which will directly loaded into tippers for the filling and levelling of low-lying areas.

TABLE 10.2. PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Surface run-off from the project boundary 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	Mines Manager
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Mines Manager
Test soils for pH, EC, chloride, size & water holding capacity	Manager Mines

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 mines office. The quarrying operation is proposed up to

a depth of 27m BGL, the water table in the area is 45m –50m 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 proposed quarrying activity would result in the increase of particulate matter concentrations due to fugitive dust. Daily water sprinkling 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 POLLUTION CONTROL

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and cutting 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 are 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

The Rough stone quarry operation creates vibration due to the blasting and movement of Heavy Earth moving machineries, fly rocks due to the blasting.

TABLE 10.6.: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK – P2

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 955nos. 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 -P3

Year	No. of tress proposed to be planted	Considering survival rate of 80% additionally 20% of plantation is proposed	Area to be covered in m ²	Name of the species
I	955	1150	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Neem, Vembu , Puliymaram etc.,

Source: Approved Mining plan

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 FOR THE PLANTSATION

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 –

The health status of workers in the mine will be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detailed 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

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)					

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.

- 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.
- 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



10.9.3: Health and Safety Training Programme

The Proponent 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 as per Metalliferous Mines Regulation, 1961.

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 10.10 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.10: 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	19100	19100
	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	125000	12500
	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 - 2Units	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 200m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	38200
	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	393367
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 management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	19100	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	382000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 955Trees - (300Inside Lease Area & 850 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)	255000	25500
	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	73200	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	892641	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) - 26Employees	104000	26000
	Health checks up for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	26000
	First aid facility will be provided	Provision of 2 kits per Hectare @ Rs. 2000/-	0	3820
	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	95500	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			2529700	1535987

*Marked cost is already discussed in the mining plan hence that is not included in the total Environmental Management plan cost Total Cost for the five years. The EMP has been prepared for the entire **lease period of 5 years** for the peak production capacity of **30,810m³ of Rough stone**.

Year	Total Cost
1 st	Rs.40,65,687
2 nd	Rs.16,12,786.35
3 rd	Rs. 16,93,425.668
4 th	Rs. 17,78,096.951
5 th	Rs. 19,40,201.798
Total	Rs. 111 Lakhs

Cost inflation 5% per annum

Note: This Environmental Management plan cost will vary according to the public consultation comments

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.

11. SUMMARY AND CONCLUSION

This EIA & EMP report prepared for the Pachapalayam & Kallapalayam Rough Stone and Gravel Quarries (Cluster Extent 19.55.9Ha), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District belongs to the Project falls in the Cluster category consist of 3 Proposed, 3 Existing Quarries 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.

The proposed project is 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”.

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- May 2024 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 as per market demand. Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 72 people directly in the proposed projects and indirectly around 100 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 Pachapalayam & Kallapalayam Rough Stone and Gravel Quarries (Cluster Extent 19.55.9Ha).

12. DISCLOSURE OF CONSULTANT

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 for the proposed project.

P1- Thiru. V.Gopalakrishnan

P2- M/s.Tamil Nadu Blue metals

Name and address of the consultancy:

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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	EB	Ecology and bio-diversity
AEC	Associate EIA Coordinator	NV	Noise and vibration
FAE	Functional Area Expert	SE	Socio economics
FAA	Functional Area Associates	HG	Hydrology, ground water and water conservation
TM	Team Member	SC	Soil conservation
GEO	Geology	RH	Risk assessment and hazard management
WP	Water pollution monitoring, prevention and control	SHW	Solid and hazardous wastes
AP	Air pollution monitoring, prevention and control	MSW	Municipal Solid Wastes
LU	Land Use	ISW	Industrial Solid Wastes
AQ	Meteorology, air quality modeling, and prediction	HW	Hazardous Wastes

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

This EIA/EMP for Pachapalayam & Kallapalayam Rough Stone and Gravel Quarries (Cluster Extent 19.55.9Ha) of Tamil Nadu is prepared as per the Generic Structure of EIA Guidelines manual. 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:









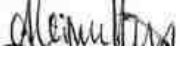





Period of Involvement: **January 2022 to till date**

Associated Team Member with EIA Coordinator:

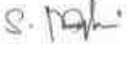
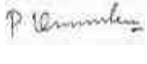


1. Mr. S. Nagamani
2. Mr.P. Viswanathan
3. Mr. M. Santhoshkumar
4. Mr. S. Ilavarasan

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. 	Mrs. Amirtham	

		<ul style="list-style-type: none"> Impact of the project on flora and fauna. Suggesting species for greenbelt development. 	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. Iftikhah 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. Viswathanan	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 	

			<ul style="list-style-type: none"> ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan 	
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>A. 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. Nathiya</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 Cluster EIA/EMP for Pachapalayam and Kallapalayam Rough Stone and Gravel Quarries (Cluster Extent 19.55.9Ha) in Pachapalayam & Kallapalayam Village, Sulur 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 AND KALLAPALAYAM ROUGH STONE AND GRAVEL QUARRIES

Pachapalayam & Kallapalayam Villages,
Sulur Taluk,
Coimbatore District

CLUSTER EXTENT: 19.55.9Ha

ToR obtained

Lr. No. SEIAA-TN/F.No.10502/SEAC/1(a)ToR-1666/2023 Dated:08.02.2024-P1

Lr.No. F.No.10786/ToR Identification No: TO24B0108TN5672058N

Dated: 31/05/2024-P2

Code	P1	P2
Project Location	Thiru. V.Gopalakrishnan S.F No. 291/1A Extent: 2.43.5Ha of Pachapalayam Village, Sulur Taluk, Coimbatore District.	M/s.Tamilnadu Blue Metals S.F No. 263/1A(P), 264/1(P) Extent: 1.91.0 ha of Kallapalayam Village, Sulur Taluk, Coimbatore District,

LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NOS
P1- THIRU. V.GOPALAKRISHNAN	COPY OF TERMS OF REFERENCE	1A-23A
	COPY OF 500M RADIUS QUARRIES DETAILS AND EXISTING PIT LETTER	24A-28A
	COPY OF MINING PLAN APPROVED LETTER	29A-30A
	COPY OF APPROVED MINING PLAN WITH PLATES	31A-96A
	COPY OF HYDROGEOLOGICAL REPORT	97A-106A
	COPY OF EXPLOSIVE LETTER	107A-108A
	COPY OF INSPECTION LETTER	109A-118A
	COPY OF 300m & VAO ATTESTATION LETTER	119A-120A
P2- M/S.TAMILNADU BLUE METALS	COPY OF TERMS OF REFERENCE	121A-134A
	COPY OF 500M RADIUS QUARRIES DETAILS AND EXISTING PIT LETTER	135A-139A
	COPY OF MINING PLAN APPROVED LETTER	140A-142A
	COPY OF APPROVED MINING PLAN WITH PLATES	143A-259A
	COPY 300m AND VAO ATTESTATION LETTER	260A-262A
	COPY OF HYDROGEOLOGICAL REPORT	263A-272A
	COPY OF INSPECTION LETTER	273A-278A
P3-	COPY OF TERMS OF REFERENCE	279A-291A

THIRU.D. RAMESH	COPY OF APPROVED MINING PLAN WITH PLATES	292A-348A
E1 M/S. ULTRA READYMIX CONCRETE P LTD,	COPY OF MINING PLAN APPROVED LETTER	349A-352A
E2 - M/S.ULTRA SAHARA SAND P LTD	COPY OF ENVIRONMENTAL CLEARANCE	353A-376A
E3 - M/S.ULTRA SAHARA SAND P LTD	COPY OF ENVIRONMENTAL CLEARANCE	377A-400A
	COPY OF BASE LINE MONITORING DATA	401A-442A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	443A



THIRU.A.R. RAHUL NADH, I.A.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.10502/SEAC/1(a)ToR-1666/2023 Dated:08.02.2024.

To

Thiru. Gopalakrishnan,
S/o. R. Velusamy,
Old Post Office Street, Kangayampalayam,
Sulur Taluk,
Coimbatore District – 641 401.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Proposed Rough Stone and Gravel Quarry Lease over an extent of 2.43.5 Ha at S.F.No. 291/IA in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu by Thiru. V. Gopalakrishnan - under project category – “B1” and Schedule S.No.1 (a) “Mining of Minerals Projects” of EIA Notification, 2006, as amended – **ToR issued along with Public Hearing** - preparation of EIA report – Regarding.

- Ref:**
1. Online proposal No. SIA/TN/MIN/450291/2023 dated.26.10.2023.
 2. Your application submitted for Terms of Reference dated:01.11.2023.
 3. Minutes of the 436th SEAC meeting held on 29.12.2023.
 4. Minutes of the 693rd SEIAA meeting held on 08.02.2024.

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

The proponent, Thiru. V. Gopalakrishnan has submitted an application for Terms of Reference (ToR) on 01.11.2023, for the Proposed Rough Stone and Gravel Quarry Lease over an extent of 2.43.5 Ha at S.F.No. 291/IA in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.


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Discussion by SEAC and the Remarks:-

The proposal was placed for appraisal in the 436th Meeting of SEAC held on 29.12.2023. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

1. The Proponent, **Thiru. V. Gopalakrishnan** has applied for Terms of Reference for the Proposed Rough Stone and Gravel Quarry Lease over an extent of 2.43.5 Ha at S.F.No. 291/1A in Pachapalayam Village, Sular Taluk, Coimbatore District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
3. It is an existing quarry which was earlier quarried by Mr.Palanippan from 2017-2022. He has obtained EC from SEIAA vide Lr.No.SEIAA-TN/F.No.5797/1(a)/EC.No.3873/2016 dated.19.06.2017.
4. Now, the proponent Thiru. V. Gopalakrishnan has submitted an application for quarrying in the proposed area for a period of 5 years.
5. As per the AD Mines letter dated.01.06.2023, the existing pit dimensions are as follows:
Pit 1 – 140m x 98m x 21m; Pit 2 – 79m x 34m x 1m
6. As per the approved mining plan, the quantity for 5 years is 2,26,170m³ of Rough stone & 7,764m³ of Gravel up to the depth of 46m below ground level.

Based on the presentation made by the proponent, **SEAC decided to recommend the proposal for Terms of Reference (TOR) with Public Hearing subject to the following additional TORs & ToRs in Annexure of this minutes**, 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 Project Proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to proposed quarrying operations on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation.
2. **Since the structures are situated within a radial distance of 500 m**, the PP shall carry out the scientific studies by involving anyone of these reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus to design the controlled blast parameters and safe blasting practices in the cluster of mines for reducing the blast-induced ground/air- vibrations and eliminating the fly rock from the blasting

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operations, through conducting the trial blasts in the adjacent operating quarry located in the same cluster to monitor the blast-induced ground & air vibration (noise) by installing the DGMS approved 'Vibration Monitoring System (VMS)' near the all the structures (houses/temples/public roads) located within 500 m radial distance from the mine leases of the cluster and also at the distances of 750 m & 1000 m. Apart from the above, the PP shall capture the level & direction fly rock produced through slow-motion video. **The PP shall submit a copy of the aforesaid report to the SEIAA during the time of appraisal for obtaining the EC after incorporating the same in the revised EIA being submitted at the Public Hearing.**

3. The PP shall prepare a conceptual working plan accommodating the remedial actions based on the scientific studies carried out 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 slope stability action plan during the time of appraisal for obtaining the EC.
4. The PP shall undertake Hydrogeology study considering nearby existing wells, Aquifers, Ground water & surface water levels etc within the radius of 1km.

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.



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2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.



10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
14. Quantity of minerals mined out.
 - Highest production achieved in any one year
 - Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions


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- of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
 23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
 24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
 25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
 26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.



27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
28. Impact on local transport infrastructure due to the Project should be indicated.
29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.



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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.



Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	வில்வம்
2	<i>Adenaanthera pavonina</i>	Marjadi	மஞ்சாடி, ஆனைக்குன்றிமணி
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 tomentos</i>	Iruvathu	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	புன்னை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon sweitenia</i>	Purasamaram	புரசு மரம்
16	<i>Codilospermum religiosum</i>	Kongu, Marjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவுளி.
18	<i>Cretova adansonii</i>	Mavalingum	மாவிலங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சிறு உசா
21	<i>Diospyro sobenium</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகணை
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>Lannea coromandelica</i>	Odhiam	ஓதியம்
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	அரம்பா. பிசின்பட்டை
32	<i>Madhuca longifolia</i>	Illuppai	இலுப்பை
33	<i>Mankara 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	முன்னை
41	<i>Premna serratifolia</i>	Narumunai	நறு முன்னை
42	<i>Premna tomentosa</i>	Malaiipoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Vanni maram	வன்னி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Verunangu, Tada	வெண்ணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	பலவு
47	<i>Puthranjiva roxburghii</i>	Karipala	கரிபாலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manipungan, Soapukai	மணிப்புங்கன் சோபுகாய்
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	தேத்தான கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandi	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	வால்சுரா
60	<i>Wrightia tinctoria</i>	Veppalai	வெப்பாலை
61	<i>Pithecolobium dulce</i>	Kodukkapudi	கொடுக்காப்புளி

Discussion by SEIAA and the Remarks:-

The subject was placed in the 693rd authority meeting held on 08.02.2024. The authority noted that the subject was appraised in the 436th SEAC meeting held on 29.12.2023. 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 & the conditions mentioned in 'Annexure B' of this minutes.

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.

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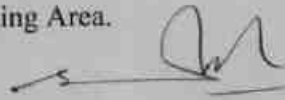
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining 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. 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.


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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.
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.

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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.

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

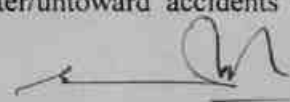
35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine 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/untoward accidents in


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&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.
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 µplastics 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, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.



- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project


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- including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
 - 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
 - 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
 - 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
 - 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
 - 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
 - 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

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- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and

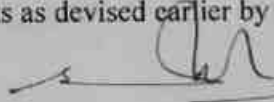

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necessary safeguard measures, if any required, should be provided.

- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical

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- examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
 - 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
 - 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
 - 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
 - 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 - 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
 - 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
 - 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
 - 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the


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Ministry shall also be filled and submitted.

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

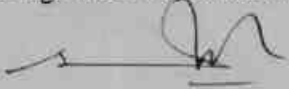
In addition to the above, the following shall be furnished:-

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be shall be submitted along with EIA report.

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9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during


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the operations of the mines.

29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

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

MEMBER SECRETARY
SEIAA-TN

- 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. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
5. The District Collector, Coimbatore District.
6. The Assistant Director, Department of Geology & Mining, Coimbatore District.
7. Stock File.

.From

Thiru.V.Sasikumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To

Thiru.V.Gopalakrishnan,
S/o.R.Velusamy,
2/20, Kongu Illam,
Old Post Office Street,
Kangayampalayam,
Sulur Taluk,
Coimbatore.

Rc.No.797/Mines/2022 Dated: 01.06.2023

Sir,

Sub: Mines & Minerals - Minor Mineral - Coimbatore District - Sulur Taluk - Pachapalayam Village - Survey No.291/1A - over an extent of 2.43.5 hectares of patta land - Application preferred by Thiru.V.Gopalakrishnan 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.797/Mines/2022, Dated: 16.12.2022
2. Thiru.V.Gopalakrishnan, Coimbatore letter dated: 02.01.2023

I invite kind attention to the reference cited wherein Thiru.V.Gopalakrishnan has been issued precise area for the grant of Rough Stone and Gravel quarry lease over an extent of 2.43.5 hectares of patta land in Survey No. 291/1A of Pachapalayam Village, Sulur Taluk, Coimbatore District.

In the reference 2nd cited of Thiru.V.Gopalakrishnan 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
--NIL--					

ii) Expired Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1	Thiru. V.Velusamy	Pachapalayam 291/1B2, 291/1D1, 291/1D2	2.43.5	07.04.2017 to 06.04.2020	
2	Thiru. K.Balakrishnan	Pachapalayam 291/1B1B(Part)	2.40.5	15.09.2017 to 14.09.2022	
3	Thiru.K.Nataraj	Pachapalayam 291/2A2, 291/2B	1.83.5	02.06.2016 to 01.06.2021	

iii) Abandoned quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1	Thiru.N.Boopathyraj	Orattukuppai 333	1.06.5	21.02.2004 to 20.02.2009	
2	R.Sellammal	Pachapalayam 261/1A & 261/1B	1.22.0	04.11.2010 to 03.11.2015	
3	Tvl.TamilNadu Blue Metals	Kallapalayam 263/2A	1.60.0	22.05.2011 to 21.05.2016	

iv) Proposed quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Remarks
1	Thiru.V.Gopala krishnan	Pachapalayam 291/1A	2.43.5	Subject area precise area communicated
2	Tvl.TamilNadu Blue Metals	Kallapalayam 261/1B, 261/2, 263/1A, 264/1	6.09.0	--
3	D.Ramesh	Pachapalayam 291/1B1A	0.91.0	Pending with SEIAA

v) Future Proposed quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Remarks
---NIL---				

A. T. / 16/10/13
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

16/10/13

16/10/13

From
Thiru.V.Sasikumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.V.Gopalakrishnan,
S/o.R.Velusamy,
2/20, Kongu Illam,
Old Post Office Street,
Kangayampalayam,
Sulur Taluk,
Coimbatore.

Rc.No.797/Mines/2022 Dated: 01.06.2023

Sir,

Sub : Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Pachapalayam Village – Survey No.291/1A – over an extent of 2.43.5 hectares of patta land – Application preferred by Thiru.V.Gopalakrishnan 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.797/Mines/2022, Dated: 12.07.2022.
2. Thiru.V.Gopalakrishnan, Coimbatore letter dated: 02.01.2023.

In the reference 2nd cited Thiru.V.Gopalakrishnan has requested to furnish certain particulars regarding the precise area granted in Survey No. 291/1A over an extent of 2.43.5 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	R.Palaniappan	291/1A 2.46.5 Hec	Rc.No.371/1999/ MM3 dt: 28.02.2000	5 years	30.03.2000 to 29.03.2005
2	R.Palaniappan	291/1A 2.46.5 Hec	Rc.No.656/2005/ MM2 dt: 31.03.2005	5 years	14.04.2005 to 13.04.2010
3	R.Palaniappan	291/1A 2.43.5 Hec	Rc.No.134/2010/ MM2 dt: 01.05.2010	5 years	01.05.2010 to 30.04.2015

4	R.Palaniappan	291/1A 2.43.5 Hec	Rc.No.418/Mines/ 2015 dt: 07.10.2017	5 years	07.10.2017 to 06.10.2022
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At the time of inspection, the quarry with pit dimensions of pit 1 - 140 Meter (length) X 98 Meter (width) X 21 Meter depth and pit 2 - 79 Meter (length) X 34 Meter (width) X 1 Meter depth are noticed in the applied area.

A. J. / 10/10/2022
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

1/6/18

1/6/18

From

Thiru.V.Sasikumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To

Thiru.V.Gopalakrishnan,
S/o.R.Velusamy,
2/20, Kongu Illam,
Old Post Office Street,
Kangayampalayam,
Sulur Taluk,
Coimbatore.

Rc.No.797/Mines/2022 Dated: 01.06.2023

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Pachapalayam Village - Survey No.291/1A - over an extent of 2.43.5 hectares of patta land - Application preferred by Thiru.V.Gopalakrishnan for quarrying Rough stone and Gravel – Submission of mining plan for approval – approved – regarding.

- Ref: 1. Quarry lease application dated 12.07.2022 preferred by Thiru.V.Gopalakrishnan, Coimbatore.
2. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.797/Mines/2022, Dated: 16.12.2022.
3. Mining Plan submitted by Thiru.V.Gopalakrishnan dated: 02.01.2023.

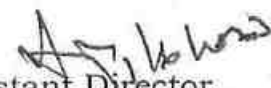
In response to the precise area communicated by the Assistant Director of Geology and Mining, Coimbatore the applicant Thiru.V.Gopalakrishnan vide reference 3rd cited has submitted three copies of mining plan for the grant of Roughstone and Gravel quarry lease over an extent of 2.43.5 hectares of patta land in Survey No. 291/1A 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 2.43.5 hectares of patta land in Survey No. 291/1A 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.797/Mines/2022, Dated: 16.12.2022 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) A safety distance of 10 meters should be provided to the Government poramboke cart track situated on the Northern, North Western and Eastern side of the applied area.
- d) 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.
- e) 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.



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 : 2.43.5 Ha
S.F.No : 291/1A
VILLAGE : PACHAPALAYAM
TALUK : SULUR
DISTRICT : COIMBATORE
STATE : TAMIL NADU

FOR

APPLICANT

Thiru. V.Gopalakrishnan,

S/o. R.Velusamy,

No.2/20, Kongu Illam, Old Post office Street,

Kangayampalayam, Sulur Taluk,

Coimbatore District,

Tamil Nadu State – 641 401.

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



V.Gopalakrishnan,

S/o. R.Velusamy,

No.2/20, Kongu Illam, Old Post office Street,

Kangayampalayam, Sulur Taluk,

Coimbatore District,

Tamil Nadu State – 641 401.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Pachapalayam Rough Stone and Gravel Quarry lease applied area over an extent of 2.43.5 Hectares of patta lands in S.F.No. 291/1A 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


V.Gopalakrishnan

Place: Coimbatore

Date: 17.12.2022



V.Gopalakrishnan,

S/o. R.Velusamy,

No.2/20, Kongu Illam, Old Post office Street,

Kangayampalayam, Sulur Taluk,

Coimbatore District,

Tamil Nadu State -- 641 401.

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Pachapalayam Rough Stone and Gravel Quarry lease applied area over an extent of 2.43.5 Hectares of patta lands in S.F.No. 291/1A 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


V.Gopalakrishnan

Place: Coimbatore

Date: 17.12.2022



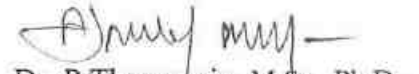
CERTIFICATE

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, 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 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 in S.F.No. 291/1A over an extent of 2.43.5 Ha of Patta lands in Pachapalayam Village, Sulur Taluk, Coimbatore District and Tamilnadu State for **Thiru. V.Gopalakrishnan**, S/o. R.Velusamy, residing at No.2/20, Kongu Illam, Old Post office Street, Kangayampalayam, Sulur Taluk, Coimbatore District, Tamil Nadu State – 641 401. 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: 22.12.2022



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 and Gravel Quarry in S.F.No. 291/1A over an extent of 2.43.5 Ha of Patta lands in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for


Thiru. V.Gopalakrishnan,

S/o. R.Velusamy,
No.2/20, Kongu Illam, Old Post office Street,
Kangayampalayam, Sulur Taluk,
Coimbatore District,
Tamil Nadu State – 641 401.

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.

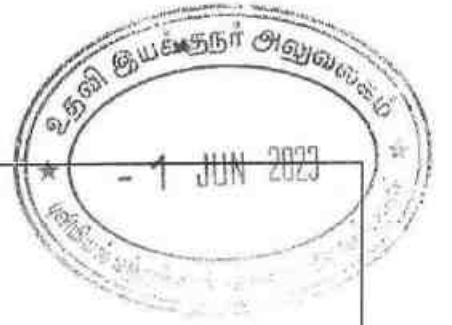
It is also certified that information furnished in the above Mining Plan are true and correct to the best of my knowledge.

Signature of the Qualified Person


Dr. P.Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 22.12.2022



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 and Gravel Quarry in S.F.No. 291/1A over an extent of 2.43.5 Ha of Patta lands in Pachapalayam Village, Sulur Taluk, Coimbatore District and Tamil Nadu State has been prepared for

Thiru. V.Gopalakrishnan,

S/o. R.Velusamy,

No.2/20, Kongu Illam, Old Post office Street,

Kangayampalayam, Sulur Taluk,

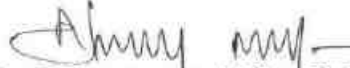
Coimbatore District,

Tamil Nadu State – 641 401.

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.

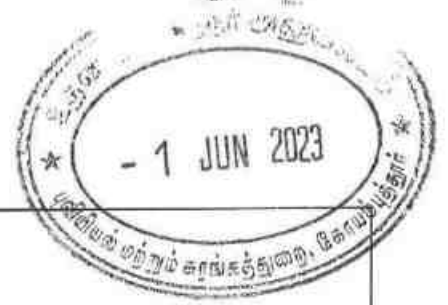
It is also certified that information furnished in the Mining Plan are true and correct to the best of my knowledge.

Signature of the Qualified Person


Dr. P.Thangaraju, M.Sc., Ph.D.,

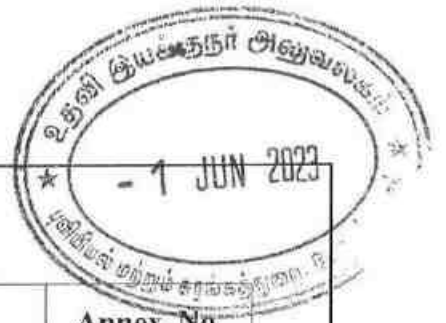
Place: Salem

Date: 22.12.2022



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LIST OF PLATES

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**MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN
FOR PACHAPALAYAM ROUGH STONE AND GRAVEL QUARRY OVER
AN EXTENT OF 2.43.5 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. V.Gopalakrishnan**, S/o. R.Velusamy, residing at No.2/20, Kongu Illam, Old Post office Street, Kangayampalayam, Sulur Taluk, Coimbatore District, Tamil Nadu State – 641 401.

The applicant applied for Rough Stone quarry over an extent of 2.43.5 Hectares of patta lands in S.F.No. 291/1A 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 **Rc.No.797/Mines/2022, Dated:16.12.2022** to submit an approved Mining Plan and obtain Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu with the conditions to provide:

1. No hindrance shall be caused to the adjoining patta lands and Public while carrying out Rough stone and Gravel quarrying operations.
2. A safety distance of 7.5 meters should be provided to the adjacent Patta lands.
3. A safety distance of 10 meters should be provided to the Government Poramboke Cart Track passing on the North, North west and East side of the lease applied area
4. 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.
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-1M and Pre feasibility report to obtain environmental clearance from the State Level Environment Impact Assessment 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 2022.

Short Notes of Mining plan:

- a. Village Panchayat - Pachapalayam
- b. Panchayat Union - Sulur
- c. The Geological Resources are **8,72,511m³** of Rough stone, **2,202m³** of Gravel and **6,620m³** of existing Gravel dump in the entire area.
- d. The Total Mineable Reserves are **2,26,170m³** of Rough stone, **1,144m³** of Gravel and **6,620m³** of existing Gravel dump in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are **2,26,170m³** of Rough stone, **1,144m³** of Gravel and **6,620m³** of existing Gravel dump for five years in the entire area.
- f. Total extent of the lease applied area is about 2.43.5 Ha.
- g. Topography of the area = The area is flat topography.
- h. Proposed Depth of mining = 46m (1m Gravel + 45m 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 Thiru.R.Palaniappan, over an extent of 2.43.5 Hectares of Patta land in S.F.No.291/1A of Pachapalayam Village, Sulur Taluk, Coimbatore District vide **Rc.No.418/Mines/2015, dated: 07.10.2017** for the period of five years from 07.10.2017 to 06.10.2022 for quarrying of Rough Stone and Gravel. The applicant (Thiru.R.Palaniappan) has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu vide **Lr. No. SEIAA – TN / F.No.5797 / 1(a) / EC.No.3873 / 2016, Dated: 19.06.2017** for quarrying of Rough stone and Gravel.
- k. Now the applicant (**Thiru. V.Gopalakrishnan**) has applied a quarry lease for the period of five years on 12.07.2022 over an extent of 2.43.5 Hectares of patta lands in S.F.No. 291/1A 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.



- I. 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	140	98	21m below ground level
II	79	34	1m below ground level

Table – 2

Existing Gravel Dump		
Area	Height(m)	Volume(m ³)
1655 Sq.m	4	6,620

- m. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves shallow jackhammer drilling, slurry blasting.
- n. Type of machineries proposed in the quarrying operation is given below.
Excavators attached with rock breaker (Rental Basis).
Jackhammer, 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 2.43.5 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.
- 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 31 employees are deploying in the quarrying operation.
- x. Total Cost of the project is about **Rs.88,39,000/-**.
- y. Infrastructures around the quarry lease applied area:

Table - 3

Particulars	Location	Approximate aerial distance from lease applied area.
Nearest Post Office	Chettipalayam	3km - SW
Nearest School	Chettipalayam	3km - SW
Nearest Dispensary	Chettipalayam	3km - SW
Nearest Town	Coimbatore	14km - NW
Nearest Police Station	Chettipalayam	3km - SW
Nearest Govt. Hospital	Coimbatore	14km - NW
Nearest D.S.P. Office	Coimbatore	14km - NW
Nearest Railway Station	Coimbatore	14km - NW
Nearest Airport	Coimbatore	14km - NW
Nearest Seaport	Kochi	140km - SW
District Head quarters	Coimbatore	14km - NW

**2.0 GENERAL INFORMATION**

2.1 a) Name of the Applicant : Thiru. V.Gopalakrishnan,
S/o. R.Velusamy,

b) Address of the Applicant (With Phone No and Aadhaar No.)

Address : No.2/20, Kongu Illam,
Old Post Office Street, Kangayampalayam,
Sulur Taluk, Coimbatore District.

Pin Code : 641 401

Mobile No : +91 98422 39937

Aadhaar No : 6810 8112 0661

E-mail : kghluemetals@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.797/Mines/2022, Dated:16.12.2022** to submit an approved mining plan and Environmental Clearance from the State Level Environment Impact Assessment Authority, 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

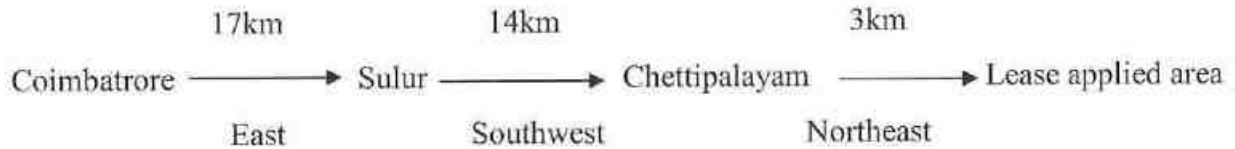
Email : infogeoexploration@gmail.com



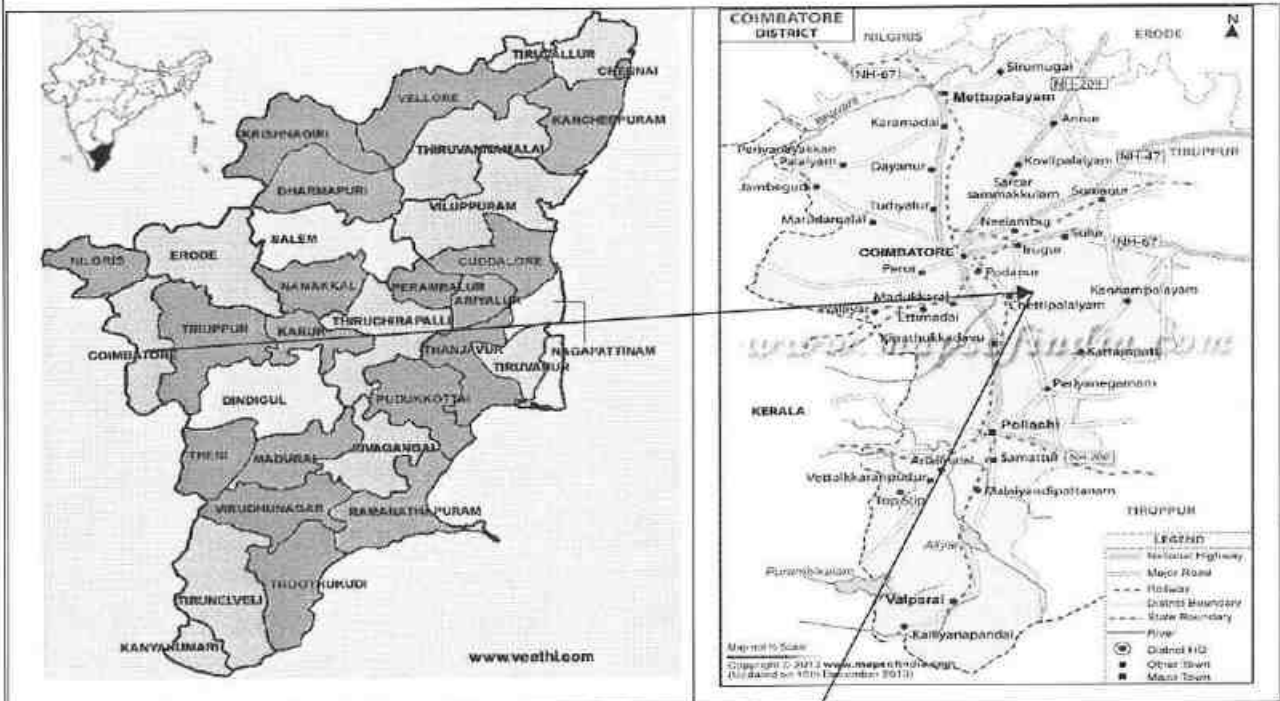
3.0 LOCATION

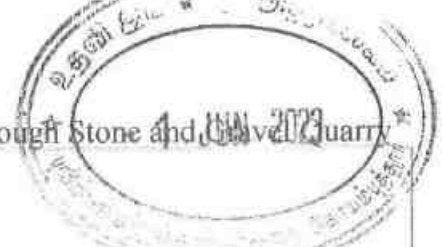
a) Details of the area with location map:

The lease applied area is located about 14km Southeast of Coimbatore, 14km Southwest of Sulur and 3km Northeast side of Chettipalayam Village.



Location Map of the Lease Applied area

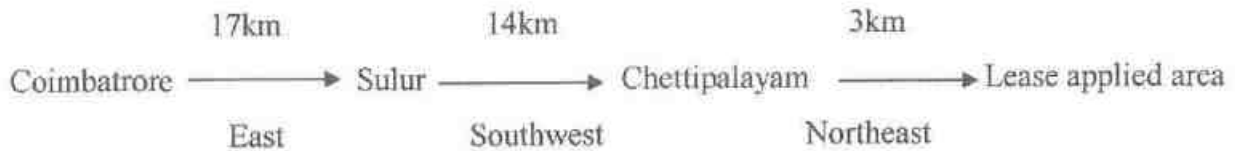




3.0 LOCATION

a) Details of the area with location map:

The lease applied area is located about 14km Southeast of Coimbatore, 14km Southwest of Sulur and 3km Northeast side of Chettipalayam Village.



Location Map of the Lease Applied area

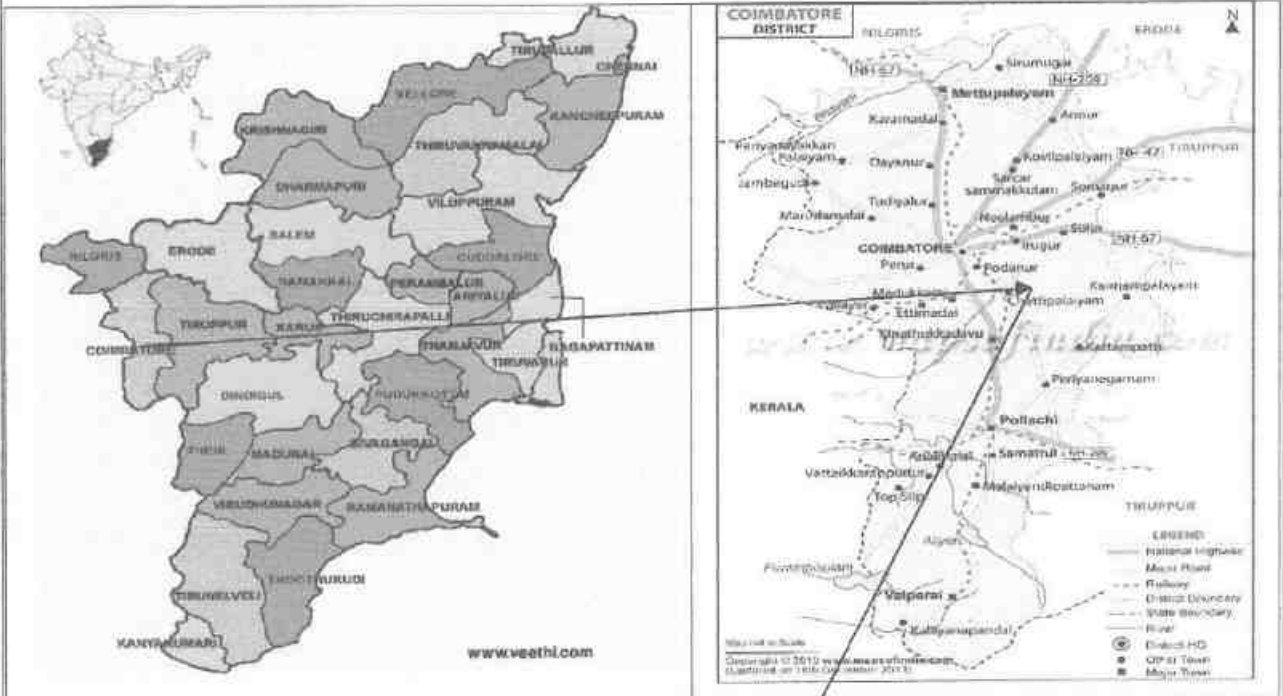


Table - 4

District	Taluk	Village	S.F. No.	Area in Ha.	Patta No.
Coimbatore	Sulur	Pachapalayam	291/1A	2.43.5	296
Total Extent				2.43.5	

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. Registered in the name of the Thiru. R.Palaniappan vide Patta No.296. The applicant has obtained consent from the pattadars for the period of five years from the date of execution of lease. 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°54'56.99"N to 10°55'03.75"N** and Longitude between: **77°03'54.96"E to 77°04'00.37"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 Southern side of the area which is connects to the village road located on the Southeastern 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 3km on the Southwestern side of the area.

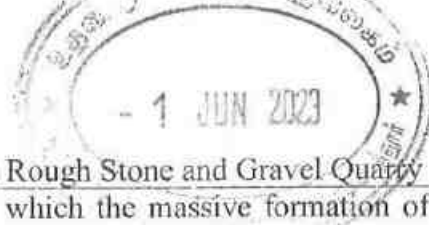
PART - A**4.0 GEOLOGY AND MINERAL RESERVES****4.1 Brief description of the Topography and general Geology of the area (with plans):**

The lease applied area is flat terrain. The area has gentle sloping towards Southwestern side and altitude of the area is 424m above from Mean sea level. The area is covered by 1m 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 1,213mm.

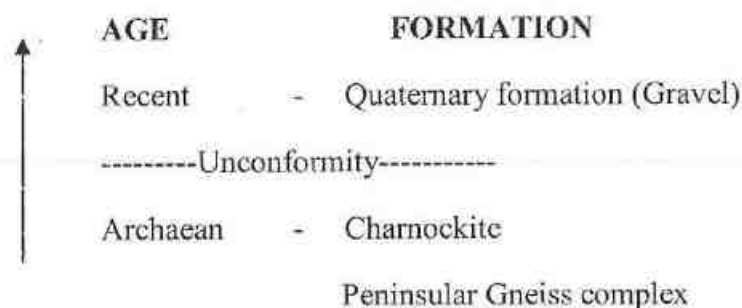
Topographical View of Pachapalayam Rough Stone Quarry lease applied area





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 $N30^{\circ}E - S30^{\circ}W$ 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 three sections have been drawn, one section is drawn Length wise as (X-Y) and another two cross sections is 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 Rough Stone (Charnockite) deposit has been prepared in the scale of 1:1000 (please refer the Geological plan and sections Plate No- III). As the sale of Rough Stone are in terms of cubic metres (Volume) only and not in terms of tonnage.

**Geological Resources (Plate No. III):**

The Geological Resources of Rough Stone and Gravel are calculated up to a maximum depth of 46m [1m Gravel + 45m 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 – 5

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Geological Resources of Rough Stone (m ³)	Gravel (m ³)
XY-AB	i	3	24	1		72
	ii	4	25	5	500	
	iii	5	38	5	950	
	iv	19	40	2	1520	
	iv	19	53	3	3021	
	v	38	68	5	12920	
	vi	140	128	5	89600	
	vii	140	128	5	89600	
	viii	140	128	5	89600	
	ix	140	128	5	89600	
x	140	128	5	89600		
Total					466911	72
Gravel Dump			1655 Sq.m	4		6620
XY-CD	i	30	71	1		2130
	ii	54	160	5	43200	
	iii	55	160	5	44000	
	iv	56	160	5	44800	
	v	57	160	5	45600	
	vi	57	160	5	45600	
	vii	57	160	5	45600	
	viii	57	160	5	45600	
	ix	57	160	5	45600	
	x	57	160	5	45600	
Total					405600	8750
Grand Total					872511	8822

The Available Geological Resources Gravel and Existing dump of Gravel : 8,822m³

The Available Geological Resources of Rough Stone : 8,72,511m³

**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 Reserves of Rough Stone (m ³)	Gravel (m ³)
XY-AB	v	18	8	5	720	-
	vi	109	56	5	30520	-
	vii	104	46	5	23920	-
	viii	99	36	5	17820	-
	ix	94	26	5	12220	-
	x	89	16	5	7120	-
Total					92320	
Gravel Dump			1655 Sq.m	4	-	6620
XY-CD	i	22	52	1	-	1144
	ii	44	138	5	30360	-
	iii	41	128	5	26240	-
	iv	37	118	5	21830	-
	v	33	108	5	17820	-
	vi	28	98	5	13720	-
	vii	23	88	5	10120	-
	viii	18	78	5	7020	-
	ix	13	68	5	4420	-
	x	8	58	5	2320	-
Total					133850	7764
Grand Total					226170	7764

Total Mineable Recoverable Reserves of Rough stone @ 100% : 2,26,170m³

Total Mineable Reserves of Gravel and Existing gravel dump : 7,764m³

The mineable reserves have been computed as 2,26,170m³ of Rough stone at the rate of 100% recovery and 7,764m³ of Gravel upto a depth of 46m (1m Gravel + 45m Rough Stone) below from the general ground level for a period of five years.

5.0 MINING**5.1. Method of mining (opencast / underground):**

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is not less than the bench height.

However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106(2) (b) is available with Director General of Mines Safety. If the applicant/lessee intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. In such a scenario if there is any drastic change in the Resources and Reserves a modified plan will be submitted to the concerned authority for necessary relaxation, clearance and permission. This relaxation will be applied and obtained after the execution of lease/Commencement of quarry operation.

**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 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 - 7

YEARWISE RESERVES							
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserves of Rough Stone (m ³)	Gravel (m ³)
I	Gravel Dump			1655 Sq.m	4	-	6620
	XY-CD	ii	23	138	5	15870	-
		iii	20	128	5	12800	-
		iv	16	118	5	9440	-
		v	12	108	5	6480	-
	XY-AB	v	18	8	5	720	-
Total						45310	6620
II	XY-CD	i	22	52	1	-	1144
		ii	21	138	5	14490	-
		iii	21	128	5	13440	-
		iv	21	118	5	12390	-
		v	21	108	5	11340	-
Total						51660	1144
III	XY-AB	vi	109	56	5	30520	-
	XY-CD	vi	28	98	5	13720	-
Total						44240	-
IV	XY-AB	vii	104	46	5	23920	-
	XY-CD	vii	23	88	5	10120	-
		viii	18	78	5	7020	-
Total						41060	-
V	XY-AB	viii	99	36	5	17820	-
		ix	94	26	5	12220	-
		x	89	16	5	7120	-
	XY-CD	ix	13	68	5	4420	-
		x	8	58	5	2320	-
Total						43900	-
Grand Total						226170	7764

Total proposed Reserves of Rough stone @ 100% : 2,26,170m³

Total proposed Reserves of Gravel & Existing gravel dump : 7,764m³

The Recoverable reserves have been computed as 2,26,170m³ of Rough stone at the rate of 100% recovery and 7,764m³ of Gravel upto a depth of 46m (1m Gravel + 45m Rough Stone) below ground level for a period of five years.

The applicant ensures the total quantity proposed in the benches will not exceed during the quarrying operation. Besides the Rough Stone locked up in benches will be exploited after obtaining necessary permission from the office of Director General of Mine Safety, Chennai region by submitting relevant documents, appropriate safety plans and its Mitigation measures.



Mining Plan and PQCP

Pachapalayam Rough Stone and Gravel Quarry

One lorry load	=	6m (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in this five years plan period	=	2,26,170m ³
Hence total Lorry loads per day	=	2,26,170m ³ /6m ³
	=	37,695 Lorry loads
	=	37,695/5 years
	=	7,539/300 days
Rough Stone	=	25 – 26 Lorry loads per day
Total quantity of gravel to be removed	=	7,764m ³
Hence total Lorry loads per day	=	7,764m ³ /6m ³
	=	1,294 Lorry loads
	=	1,294/2 years
	=	647/300 days
Gravel load per day	=	2 Lorry load 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	7	30-35	1.2m to 2.0m	Compressed air
2	Compressor	2	-	400 psi	Diesel Drive

II. EXCAVATION & LOADING EQUIPMENT:

S.No.	Type	Nos	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	2	300	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S.No.	Type	Nos	Capacity	Motive Power
1	Tippers	3	20 tonnes	Diesel Drive



5.6. Disposal of Overburden/Waste:

The overburden in the form of Gravel formation, the Gravel will be directly loaded into tippers for the filling and levelling of low lying areas. The excavated Rough stone (100%) will be directly loaded into tippers to the needy customers. There is no Waste anticipated during this plan period hence, disposal of overburden/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)
186	142	46m 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).



6.0 BLASTING

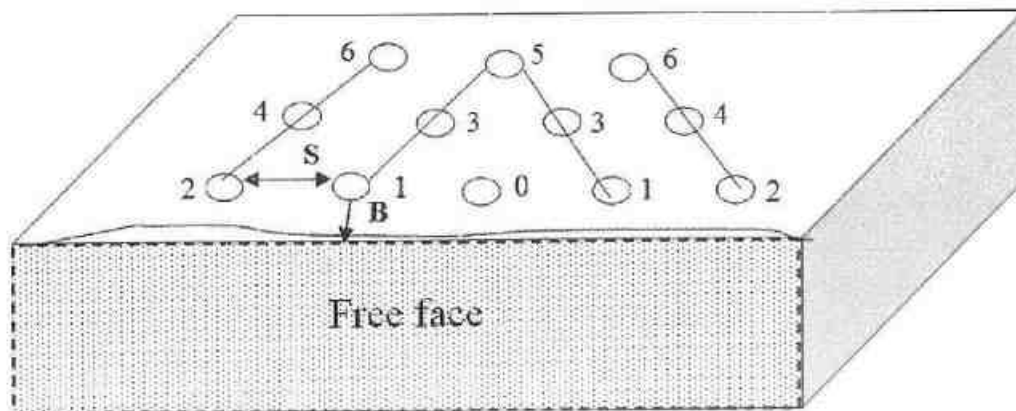
6.1 Blasting pattern:

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	:	25 millisecond 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	=	126 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	= 126 Holes
Yield	= 378 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 63 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 – 10

Type	Distance & Direction	Location
Bore Well	490m Southern side	10°54'42.09"N 77° 04'03.62"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 rainwater 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 300m radius of the area.

8.5 Road (NH, SH):

The Nearest National Highway (NH - 544) Salem – Palakad road is situated about 6km on the Northwestern side of the lease applied area.

The State Highway (SH-163) Othakalmandapam – Palladam Road is about 2km 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 60m radius of the lease applied area.

**SALIENT FEATURES**

Table – II

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	Cart Track passing on the North, Northwest and eastern side of the lease applied area, hence 10m safety distance maintained.																						
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>Orattukuppai and</td> <td rowspan="3">Cart Track</td> <td>10m</td> </tr> <tr> <td>East</td> <td>Kallapalayam village</td> <td>10m</td> </tr> <tr> <td>South</td> <td>292</td> <td>10m</td> </tr> <tr> <td></td> <td>291/D1 & 291/D2</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>West</td> <td>291/1B1A</td> <td>Patta land</td> <td>7.5m</td> </tr> </tbody> </table> (Refer Plate No. II).	Direction	S.F.No.	Classification	Safety Distance	North	Orattukuppai and	Cart Track	10m	East	Kallapalayam village	10m	South	292	10m		291/D1 & 291/D2	Patta land	7.5m	West	291/1B1A	Patta land	7.5m
Direction	S.F.No.	Classification	Safety Distance																						
North	Orattukuppai and	Cart Track	10m																						
East	Kallapalayam village		10m																						
South	292		10m																						
	291/D1 & 291/D2	Patta land	7.5m																						
West	291/1B1A	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 – Orattupalayam and Kallapalayam Village</p> <p>East – Kallapalayam Village</p> <p>South – S.F.Nos. 292, 291/D1 and 291/D2</p> <p>West – S.F.Nos. 291/1B1A</p> <p>(Refer Plate No. II).</p>																						
7.	Reserve forest / protected area / ECO sensitive area	60m	There is no reserved forest located within the radius of 60m 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.																						

- 1 JUN 2023

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 : 14

Excavator Operator : 2

Tippers Driver : 3

c. Ordinary Employee

Helper : 3

Cleaner & Co-Operator : 6

Security : 1

Total : 31

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 3km on the Southwestern side of the lease applied area.

b) Sanitary Facilities:

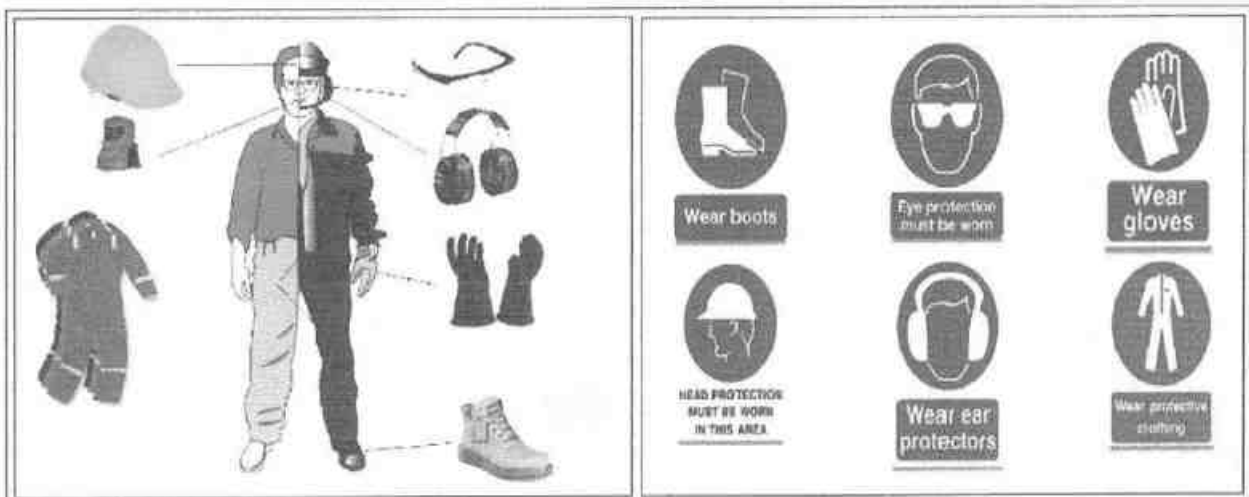
Hygienic modern Sanitary Facilities already constructed in the safety area as semi permanent structure and it will be maintained periodically.

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 Coimbatore located at a distance of 14km on the Northwestern 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	1.64.50	2.07.50
Infrastructure	0.01.00	0.01.00
Roads	0.01.00	0.02.00
Green Belt	Nil	0.32.40
	0.16.55	Nil
Unutilized Area	0.60.45	0.00.60
Grand Total	2.43.50	2.43.50






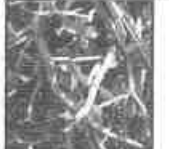
10.2 Water Regime:

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 – 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 leuillanti</i>	Crow	
6.	<i>Agrion sp & Petalura sp</i>	Dragon fly	

10.4 Climatic Conditions:

The area receives rainfall of about 1,213mm/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	2km – SE	2,300
2.	Karacheri	5km – SW	1,800
3.	Edayapalayam	4km – East	2,300
4.	Kallapalayam	4km – NE	3,100

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Coimbatore located at a distance of 14km on the Northwestern 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 46m [1m Gravel + 45m 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.1,86,000/-**.



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	72	80%	648	Neem, Pongamia pinnata, Casuarina, etc.,	58
II	72	80%	648		58
III	72	80%	648		58
IV	72	80%	648		58
V	72	80%	648		58

Nearly 3,240 sq.m area is proposed to use under Greenbelt by planting 360 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. 36,000/-** 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 2.43.5haX Rs.19,87,000/-= Rs.48,38,345/- i.e., Rs.48,39,000/- (source: https://tntreginet.gov.in/portal/)	Rs. 48,39,000/-
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.24,00,000/-
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.1,86,000/-
iv) Labourers shed	Labour sheds already constructed as semi permanent structure. The cost is around	Rs. 1,50,000/-
v) Sanitary facility	Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around	Rs. 80,000/-
vi) Others items	First aid room & accessories	Rs. 60,000/-
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. 60,000/-
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	Rs.80,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	Rs.1,00,000/-
xi) Garland drain	Construction of Garland drain with check dam to prevent surface run-off rain water in to the quarry pit, the construction cost is around	Rs. 1,74,000/-
xii) Greenbelt etc.	Greenbelt development and maintenance will be carried out in the boundary barriers the cost would be around	Rs.36,000/-
	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.82,85,000/-



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	Rs. 76,000/-
Cost	
Total EMP Cost for the five years period is Rs.3,80,000/- .	
Description	Amount (Rs.)
A. Operational Cost	82,85,000
B. EMP Cost	3,80,000
Total Project Cost (A+ B)	86,65,000
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.1,74,000/- .	1,74,000
Total Cost	88,39,000
The Total cost would be around Eighty eight lakh and thirty nine thousand only.	

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 2.43.5 Hectares of patta land in S.F.No. 291/1A of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for **Thiru. V.Gopalakrishnan**, S/o. R.Velusamy, residing at No.2/20, Kongu Illam, Old Post office Street, Kangayampalayam, Sulur Taluk, Coimbatore District, Tamil Nadu State – 641 401.

11.2 Present Land use pattern:Land Use Table – 17

Description	Present area (Ha)
Quarrying Pit	1.64.50
Infrastructure	0.01.00
Roads	0.01.00
Green Belt	Nil
Dump	0.16.55
Unutilized Area	0.60.45
Grand Total	2.43.50

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) is available with Director General of Mines Safety. If the applicant/lessee intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. In such a scenario if there is any drastic change in the Resources and Reserves a modified plan will be submitted to the concerned authority for necessary relaxation, clearance and permission. This relaxation will be applied and obtained after the execution of lease/Commencement of quarry operation.

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 by 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 2.07.50 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	1.64.50	2.07.50
Infrastructure	0.01.00	0.01.00
Roads	0.01.00	0.02.00
Green Belt	Nil	0.32.40
Dump	0.16.55	Nil
Unutilized Area	0.60.45	0.00.60
Grand Total	2.43.50	2.43.50

The Greenbelt Development will be formed in around the quarried out top benches, approach 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 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:**

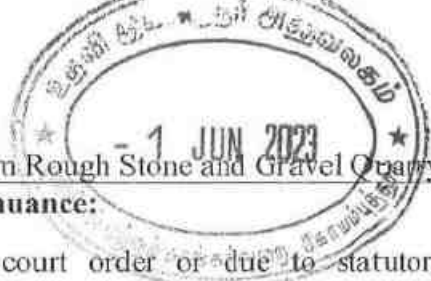
Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- 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 5.0 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:

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:

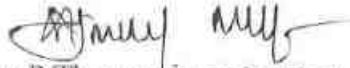
Land Use Table – 19

ACTIVITY		YEAR					RATE	AMOUNT (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	72	72	72	72	72	@100 Rs Per sapling	36,000
	Cost	7200	7200	7200	7200	7200		
Plantation in the quarried out top benches, approach & Panchayat road	Nos.	40	40	40	40	40	@300 Rs Per Meter	20,000
	Cost	4,000	4,000	4,000	4,000	4,000		
Wire Fencing (In Mtrs) 620		1,86,000					@300 Rs Per Meter	1,86,000
Garland drain (In Mtrs) 580		1,74,000					@300 Rs Per Meter	1,74,000
TOTAL								4,16,000

12 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

This Mining plan for Rough Stone (Charnockite) is under Rules 41 & 42 of 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: 22.12.2022

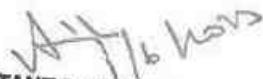
DONATE RED

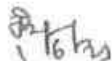
SPREAD GREEN

SAVE BLUE

This Mining Plan is Approved
subject to the conditions / stipulation
& indicated in the Mining Plan Approval
Letter No: 797/Mines/2022 dt 16/12/22
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: 3503/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


16/12/22



ந.க.எண்.797/கனிமம்/2022

குறிப்பாணை

நாள்: 16.12.2022

பொருள்: கனிமங்களும் குவாரிகளும் - கோயம்புத்தூர் மாவட்டம் - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - பச்சாபாளையம் கிராமம் - புல எண்.291/1A-ல் மொத்தம் 2.43.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள், மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு.V.கோபாலகிருஷ்ணன் என்பவருக்கு - குவாரி குத்தகை அனுமதி வழங்குவது - தொடர்பாக.

- பார்வை:
1. திரு.V.கோபாலகிருஷ்ணன், த.பெ.R.வேலுசாமி, 2/20, கொங்கு இல்லம், பழைய போஸ்ட் ஆபீஸ் வீதி, காங்கயம்பாளையம், சூலூர் வட்டம், கோயம்புத்தூர் மாவட்டம் என்பவரது விண்ணப்பம் நாள்: 12.07.2022.
 2. இவ்வலுவலக கடிதம் இதே எண். நாள்: 12.07.2022.
 3. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு அவர்களின் கடித ந.க.எண்.4625/2022/அ2 நாள்: 02.11.2022.
 4. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் தணிக்கை அறிக்கை நாள்: 09.11.2022.
 5. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை கடிதம் எண். 1870/எம்.எம்-1/2020 நாள்: 12.08.2020.

பார்வை 1-ல் கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், 2/20, கொங்கு இல்லம், பழைய போஸ்ட் ஆபீஸ் வீதி, காங்கயம்பாளையம் என்ற முகவரியில் வசிக்கும் திரு.R.வேலுசாமி என்பவரின் மகன் திரு.V.கோபாலகிருஷ்ணன் என்பவர் கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்.291/1A-ல் மொத்தம் 2.43.5 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, 2/20, கொங்கு இல்லம், பழைய போஸ்ட் ஆபீஸ் வீதி, காங்கயம்பாளையம் என்ற முகவரியில் வசிக்கும் திரு.R.வேலுசாமி என்பவரின் மகன் திரு.V.கோபாலகிருஷ்ணன் என்பவருக்கு கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்.291/1A-ல் மொத்தம் 2.43.5



ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க சில நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளார்கள்.

அனுமதி கோரும் புல எண் 291/1A ஆனது பட்டா எண்.296-ன் படி திரு.பழனியப்பன் என்பவர் பெயரில் தனிப்பட்டவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. மேற்படி பட்டாதாரர் திரு. பழனியப்பன் என்பவர் தனக்கு பாத்தியப்பட்ட புலத்தில் திரு.V.கோபாலகிருஷ்ணன் என்பவருக்கு அரசு அனுமதி அளிக்கும் நாளிலிருந்து 5 ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க தனக்கு எவ்வித ஆட்சேபணையும் இல்லை என சம்மத கடிதம் அளித்துள்ளார். 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, 2/20, கொங்கு இல்லம், பழைய போஸ்ட் ஆபிஸ் வீதி, காங்கயம்பாளையம் என்ற முகவரியில் வசிக்கும் திரு.R.வேலுசாமி என்பவரின் மகன் திரு.V.கோபாலகிருஷ்ணன் என்பவருக்கு கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்.291/1A-ல் மொத்தம் 2.43.5 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 கீழ்க்கண்ட 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 புலத்தின் வடக்கு, வடமேற்கு மற்றும் கிழக்கு பகுதிகளில் செல்லும் அரசு புறம்போக்கு வண்டிப்பாதைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
4. அனுமதி கோரும் புலத்தினை அரசு அங்கீகாரம் பெற்ற நிறுவனத்தினரால் DGPS (Differential Global Positioning



System)-ன் படி ஆய்வு செய்யப்பட்டு ஒவ்வொரு எல்லைத் துணர்களும் நடப்படவேண்டும்.

5. குழந்தை தொழிலாளர்களை வேலைக்கு அமர்த்தல் குறித்து

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. V.கோபாலகிருஷ்ணன்,
த.பெ.ர.வேலுசாமி,
2/20, கொங்கு இல்லம்,
பழைய போஸ்ட் ஆபீஸ் வீதி,
காங்கயம்பாளையம்,
சூலூர் வட்டம்,
கோயம்புத்தூர் மாவட்டம்.

16/12/22

16/12/22



செல்லிடம்: சேகரம் பகுதி

செல்லிடம்: பல்லிலம்

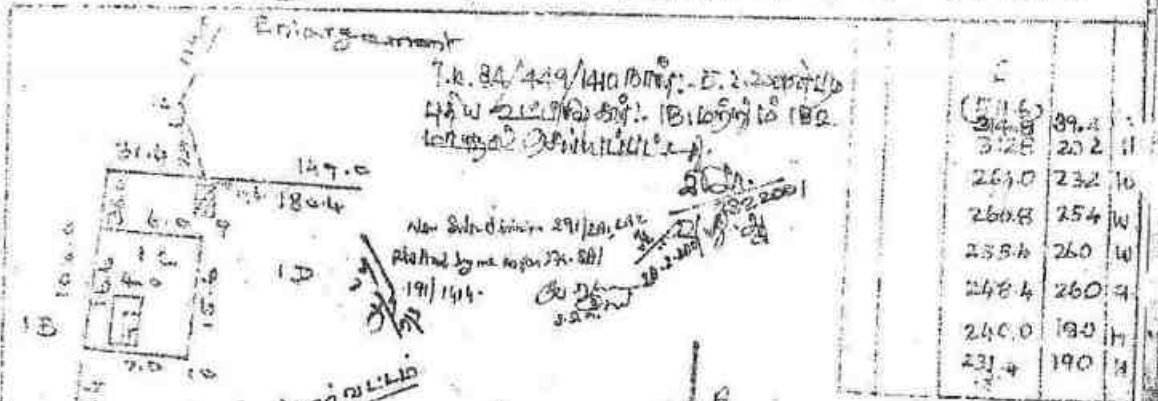
புறமளவு: 291

சுற்று: 1

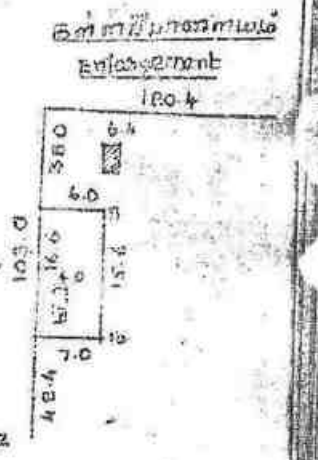
பெயர்: ப. ச. சே. ப. ப. சே. ப.

மேலா: செங்கல்

மேலா: 25.5



(511.6)	89.2
31.25	20.2
264.0	232
260.8	254
255.6	260
248.4	260
240.0	190
231.4	190



142.0	37.0
71.2	96.2
E	
(208.8)	
D 19.4	84.4
	32.0
	22.0
C	
(261.3)	
	137.4
	23.0
B	
(196.4)	
	54.6
A	

521.8	241.8	13	-x-	
211.2	37.0	6	30.4	116.0
186.4	7.2	1		74.6
177.8	9.2	2		286
161.4	15.4	12		424
A				59.4
(521.8)				376
451.6	50	7		41.0
19.0	227.0			F
				(249.0)
				-x-

V Jayaram
சிராம பிரவாக இயல்வல
43, பச்சாளானையம்,
கலூர் வட்டம்

அளவு: 1:5000

LEASE APPLIED AREA



மருமலர்: கோயமுத்தூர்
வட்டம்: கல்வாரி
அளவம்: 43 பீசாண்டளையம்

4வது பகுதி 29

க.நினை - 42,
கி.நினை - 11/11/2022



சுமார் 0.5 ஏக்கர்
V. Jayaram
18.10.2022
கிராம நிர்வாக அலுவலர்
43, பீசாண்டளையம்,
கல்வாரி வட்டம்

LEASE APPLIED AREA



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : துலூர்

வருவாய் கிராமம் : பச்சாபாளையம்

பட்டா எண் : 296

உரிமையாளர்கள் பெயர்

1. ரங்கள் மகன் பழனியப்பன்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
291	1A	2 - 43.50	4.93	--	--	--	--	----- 27-09-2014
		2 - 43.50	4.93					

குறிப்பு 2 :

	1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் https://eservices.tn.gov.in என்ற இணைய தளத்தில் 12/10/025/00296/40567 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
	2. இத் தகவல்கள் 12-05-2022 அன்று 01:15:25 PM நேரத்தில் அச்சடிக்கப்பட்டது.
	3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

பெரிய வார்டில்

சேனா

வார்டில்

சேனர்

வட்டம் AS. High Camp

தலைவர் முகாம் மட்டுவாரி முகாம்

மலப்புறு எழுது அட்டை கார்டு

பெரிய வார்டில் பெரிய வார்டில்	சேனா	வார்டில்	முன் பட்டி					பின்னர் பட்டி							
			சேனர்	சேனர்	சேனர்	சேனர்	சேனர்	சேனர்	சேனர்	சேனர்	சேனர்				
201	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11

சேனர் முகாம் மட்டுவாரி முகாம் மலப்புறு எழுது அட்டை கார்டு

சேனர் முகாம் மட்டுவாரி முகாம் மலப்புறு எழுது அட்டை கார்டு

சேனர் முகாம் மட்டுவாரி முகாம் மலப்புறு எழுது அட்டை கார்டு

சேனர் முகாம் மட்டுவாரி முகாம் மலப்புறு எழுது அட்டை கார்டு



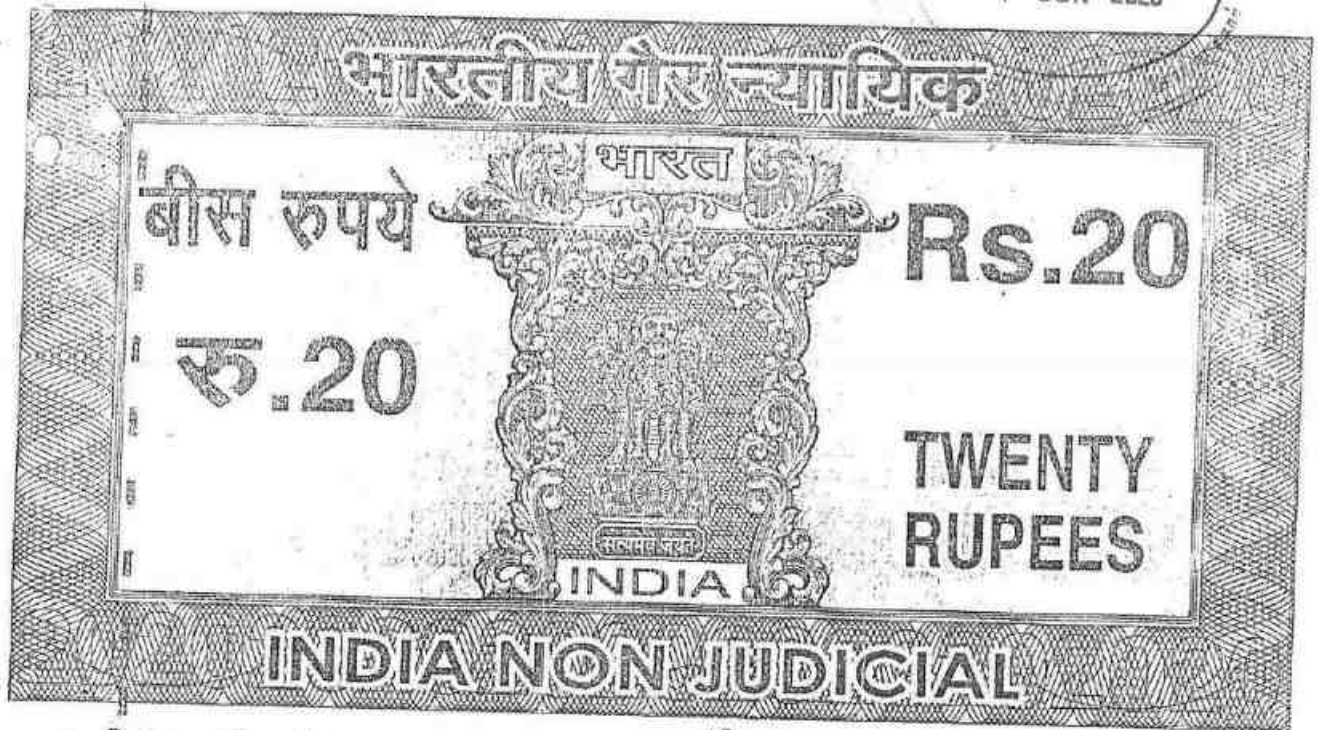
District : Colmbatore

Taluk : SULUR

Village : PACHAPALAYAM

சீர்தரணம் Survey Number	பகுதி Part	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point	புள்ளி Point			
6A	290-6P	P	வ	புள்ளி	1	8-3	5	2	0	0	250	0	05	463-செயல்பு கவுண்டர்									
				புள்ளி	1	8-3	5	2	0	1	75.00	3	50	1171-சிலா டிஸ்பன்சரி நிரலாக இயக்குகரால். வி ஆற்றல்கள் மற்றும் 6 நபர்(கள்)									
6B	290-6P	P	வ	புள்ளி	1	8-3	5	2	0	0	29.00	0	56	715-புள்ளிசாமி	MANTHI.								
6C	290-6P	P	வ	புள்ளி	1	8-3	5	2	0	0	16.00	0	32	593-செயல்பு கவுண்டர்									
6D	290-6P	P	வ	புள்ளி	1	8-3	5	2	0	0	33.00	0	66	721-மயில்சாமி									
6E	290-6P	P	வ	புள்ளி	1	8-3	5	2	0	0	43.00	0	86	602-குமாரசாமி									
6F	290-6P	P	வ	புள்ளி	1	8-3	5	2	0	0	18.50	0	37	721-மயில்சாமி									
6G	290-6P	P	வ	புள்ளி	1	8-3	5	2	0	0	16.00	0	32	593-செயல்பு கவுண்டர்									
6H	290-6P	P	வ	புள்ளி	1	8-3	5	2	0	0	9.50	0	19	715-புள்ளிசாமி									
6I	290-6P	P	வ	புள்ளி	1	8-3	5	2	0	0	2.50	0	06	729-செயல்பு கவுண்டர் மற்றும் 3 நபர்(கள்)									
6J	290-6P	P	வ	புள்ளி	1	8-3	5	2	0	0	5.50	0	11	721-மயில்சாமி									
7	-P	வ	வ	புள்ளி	1	8-3	5	2	0	0	14.00	0	26	763-தங்கவேல் மற்றும் 1 நபர்(கள்)	கட்டுக்கிணறு								
Total For Survey Number- 290										6	75.0	13	56										
1A	291-1P		வ	புள்ளி	1	8-3	5	2	0	0	43.50	4	93	296-புள்ளியப்பர்									
1B:A	291-1BP	P	வ	புள்ளி	0	8-3	5	2	0	0	91.00	1	92	706-மணிய மடுந்திள்ளை									
1B:B	291-1BP	P	வ	புள்ளி	1	8-3	5	2	0	3	65.00	7	19	689-பாஸ்கிரேண்டர்									
1B:2	291-1BP	P	வ	புள்ளி	1	8-3	5	2	0	0	22.00	0	44	1173-தங்கசாமி									
1C	-1P		வ	புள்ளி	1	8-3	5	2	0	0	1.00	0	06	726-வள்ளியம்மாள் மற்றும் 7 நபர்(கள்)	கட்டுக்கிணறு								
1D1	291-1DP	P	வ	புள்ளி	1	8-3	5	2	0	1	7.50	2	15	444-தங்கசாமி									
1D2	291-1DP	P	வ	புள்ளி	1	8-3	5	2	0	1	14.00	2	26	819-செயுசாமி									
2A	-2P		வ	புள்ளி	1	8-3	5	2	0	0	53.50	1	08	251-சிலா டிஸ்பன்சரி நிரலாக இயக்குகரால் எஸ்.வி.ஆற்றல்கள் மற்றும் 4 நபர்(கள்)									
2A'	-2P		வ	புள்ளி	1	8-3	5	2	0	0	74.00	1	49	413-நடராஜன்									
2B	-2P		வ	புள்ளி	1	8-3	5	2	0	1	9.50	2	21	413-நடராஜன்									
2C	-2P		வ	புள்ளி	1	8-3	5	2	0	0	45.50	0	91	1025-செ.நடராஜன்									
2D	-2P		வ	புள்ளி	1	8-3	5	2	0	0	3.00	0	06	768-தங்கமயன் மற்றும் 10 நபர்(கள்)	கட்டு வண்டிப்பாதை								
Total For Survey Number- 291										12	29.5	24	62										
1B	-1P		வ	புள்ளி	1	8-3	5	2	0	1	99.00	4	00	164-அதன் நிரலாக இயக்குகரால் குமாரசாமி									
1C	-1P		வ	புள்ளி	1	8-3	5	2	0	0	99.00	1	98	164-அதன் நிரலாக இயக்குகரால் குமாரசாமி									
1D	-1P		வ	புள்ளி	1	8-3	5	2	0	1	21.00	2	42	205-மணிய மடுந்திள்ளை									
1E	-1P		வ	புள்ளி	1	8-3	5	2	0	0	4.00	0	08	385-தங்கசாமி கவுண்டர்									
2B	-2P		வ	புள்ளி	1	8-3	5	2	0	1	60.50	3	19	1004-சி.சி.பி.யே.சி.யே.சி. நி.பி.புள்ளி கவுண்டர், உரிமையாளர்	கட்டு வண்டி								
3A	-3P		வ	புள்ளி	1	8-3	5	2	0	1	91.50	3	81	385-தங்கசாமி கவுண்டர்									
3B	-3P		வ	புள்ளி	1	8-3	5	2	0	0	24.50	0	45	205-மணிய மடுந்திள்ளை									
3C	-3P		வ	புள்ளி	1	8-3	5	2	0	0	76.00	1	52	205-மணிய மடுந்திள்ளை									

ANNEXURE VII
- 1 JUN 2023



தமிழ்நாடு தமிழ்நாடு TAMIL NADU P. Meenakshi 01AC 708765

29.6.2022 R. Palaniappan
Che

B. MEENAKSHI
STAMP VENDOR
DISTRICT REGISTRAR OFFICE CAMPUS,
(PARTY SHED)
COIMBATORE, TAMIL NADU,
R. Dis.No. 11799 / B1 / 2016



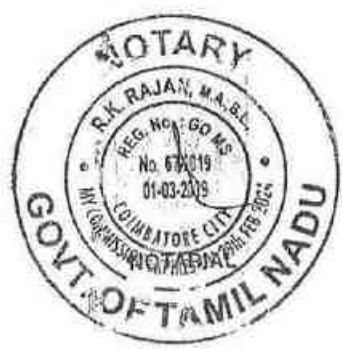
சம்மதக் கடிதம்

கோயம்புத்தூர் மாவட்டம், சிங்கநல்லூர், 68, பட்டத்தரசியம்மன் கோவில் வீதி என்ற மூலகவரியில் வசிக்கும் திரு. ரங்கசாமி அவர்களின் மகன் திரு. R. பழனியப்பன் ஆகிய நான் இருவரும் எழுதிக்கொடுக்கும் உறுதி மொழிப்பத்திரம் என்னவென்றால்,

கோயம்புத்தூர் மாவட்டம், கூலூர் வட்டம், பச்சாபாளையம் கிராமம், பட்டா எண் 296-ன் படி புல எண் 291/1Aல் மொத்தம் 2.43.5 ஹெக்டேர் பரப்பு பூமியானது எனக்குத் தனியாகப் பாத்தியப்பட்டது. மேற்படி காலையில் சாதாரணக்கல் மற்றும் கிராவல் மண் வெட்டி எடுக்க அரசாங்கத்தால் குத்தகை ஒப்பந்தப்பத்திரம் நிறைவேற்றப்படும் நாளிலிருந்து ஐந்து ஆண்டுகளுக்கு சாதாரணக்கல் மற்றும் கிராவல் மண் வெட்டி எடுக்க மனுதாரரான திரு. V. கோபாலகிருஷ்ணன் என்பவருக்கு குத்தகை உரிமம் வழங்க எவ்வித ஆட்சேபமும் இல்லை என்பதை இச்சம்மதக் கடிதத்தின் மூலம் தெரிவித்துக் கொள்கிறேன்.

இப்படிக்கு

R. Palaniappan



R.K. RAJAN, M.A., B.L.
ADVOCATE & NOTARY PUBLIC
Govt of Tamil Nadu GO. H.S. No. 674019
14, J.V.R. Complex, Coimbatore
Main Street, Coimbatore - 641 001
Cell : 80472 26464, 7567

उपयुकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT OF INDIA

GOPALAKRISHNAN V
VELUSAMY

02/08/1968
 Permanent Account Number
AORPG6455L


 Signature





இலவசம் அளிக்கப்படுகிறது
 இலவசம் அளிக்கப்படுகிறது
 இலவசம் அளிக்கப்படுகிறது

If this card is lost, someone who finds it should inform
 Police Station - immediately.
 Income Tax PAN Services Unit, NSUI
 1st Floor, Times Tower
 Nambala Mills Compound,
 S. O. Mary, Coimbatore, Madurai - 641011.
 Tel: 91-22-24994681, Fax: 01-22-24994682
 e-mail: ilavasa@nsui.co.in

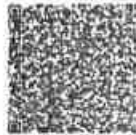
ANNEXURE VIII





இந்திய அரசாங்கம்
Government of India
 நகராட்சித்துறை கார்டு
GOPALKRISHNAN VELUSAMY

 பிறப்பு நாள் DOB 25/08/1965
 பாலினம்: Male

6810 8112 0661



ஆதாரம் - சாதாரண மனிதனின் அதிகாரம்


Unique Identification Authority of India
 முகவரி: 30, கேள்யம்
 30, கேள்யம்
 கங்கையம்மலை, ஆரம்-05
 கங்கையம்மலை, கங்கையம்மலை
 கோயம்புத்தூர், தமிழ் நாடு, 641401

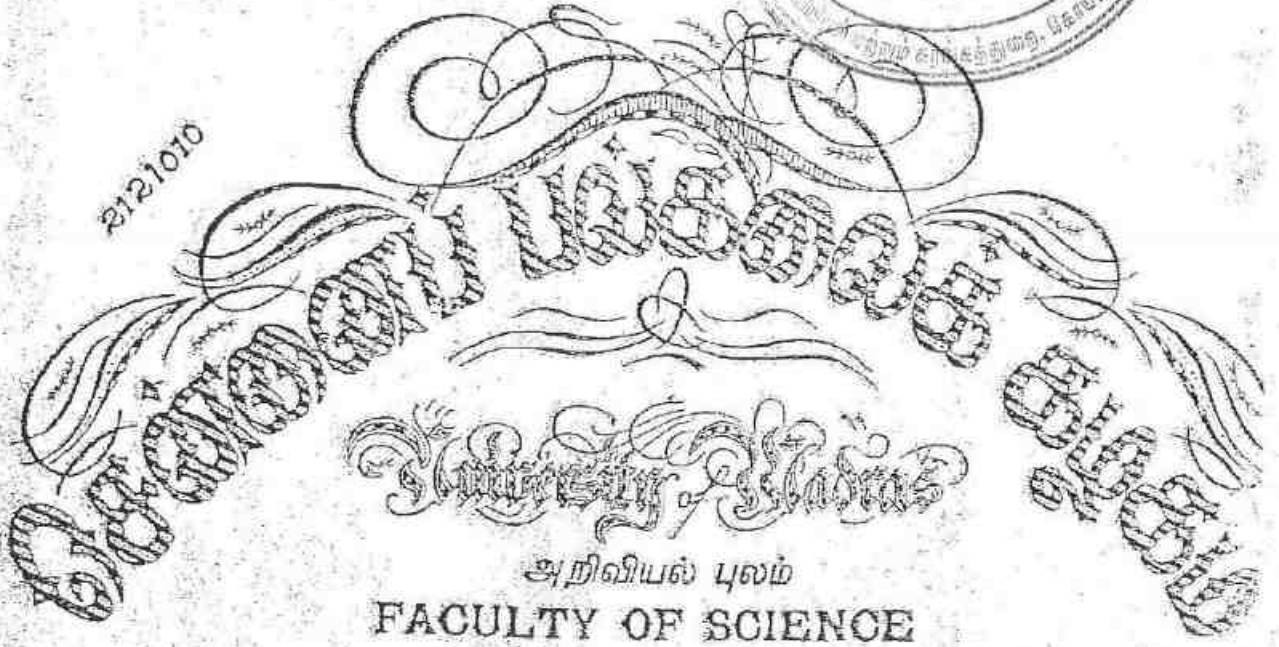
Address: 30, Velusamy
 30, THONGULLAM OLD
 POST OFFICE STREET
 Kangeyamalayam,
 Kangeyamalayam
 Coimbatore, Tamil Nadu,
 641401

6810 8112 0661





2121010



சென்னைப் பல்கலைக் கழகப் பேரவை 1994 ஆம் ஆண்டு... ஏப்ரல்... மாதம் நடந்த... க்கிமலியல்... தோலில்... ஸப், தங்குநாடு... என்பவர்... டிதர்... வகுப்பில்... தோச்சி இயற்றார் என்று தக்க தோர்வாளர்கள் சான்றறிக்கை அறிவியல் நிறைஞர் என்னும் பட்டத்தை அவருக்குப் பல்கலைக் கழக இலச்சினையின் வழங்குகிறது.

The Senate of the UNIVERSITY OF MADRAS hereby makes known that... P. Thangaraju... has been admitted to the Degree of Master of Science, he/she 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.

செயலாங்கு, Chennai

சென்னை, Madras

86 A

பதிவாளர்

P.T. Thangaraju

சுணை தலைவர்




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 / Over man'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.

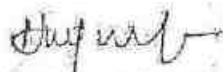
TRENMALI LIME STONE MINES

Agent (Mines)
(Signature with date and official Seal)
[T.VENKATARAJAGOPALAN]

Mines Agent:

P.O. : ARUKANGULAM

District : TIRUNELVELI

State : TAMIL NADU

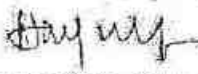

(Signature of Candidate)

(State name of Mineral) : LIMESTONE

S.No	Particulars of practical Experience (a)	Place of Experience (b)	Period of practical experience (c)		Total Experience (e)		
			From	To	Yr.	Month	Day
01.	As a Trainee in Drilling Operation.	Semi Mechanised Opencast working	02.05.1994	18.07.1995	01	02	14
02.	As a Trainee in Blasting Operation.		16.07.1995	10.12.1996	01	05	25
03.	Exploration		11.12.1996	31.01.1998	01	03	20
04.	Surveying		01.02.1998	25.06.1998	00	04	25
05.	Sampling Quality control and		26.06.1998	20.07.1999	01	00	24
06.	Supervision in HEMM Operation.		21.07.1999	30.12.1999	00	05	10
GRAND TOTAL					05	07	28
(Five Years Seven Months Twenty Eight Days Only)							

AVERAGE MONTHLY OUTPUT (D) / AVERAGE DAILY EMPLOYMENT (e) DURING THE ABOVE PERIOD IS GIVEN BELOW :

In below ground working	In open - cast workings	In all
Nil	35	35
Nil		


Signature of Candidate

Sr. THEMMALAI LIME STONE MINES

Signature of Manager with (Date of Sign) [T.VENKATARAJAGOPALAN]

Name of the Mine :

Instructions :-

01. State clearly the nature of duties
02. State whether on surface, in open cast workings or below ground
03. State specifically the period spent by the applicant in different mining operations, or surveying operations, as the case may be. If the employment has not been such as to involve continuous attendance of the applicant at the mine, it must be stated how many days a week he was employed at the mine, whether underground or above ground and in what capacity.
04. Delete if the mine is a Metalliferous mine.
05. Delete if the mine is a Coal mine.

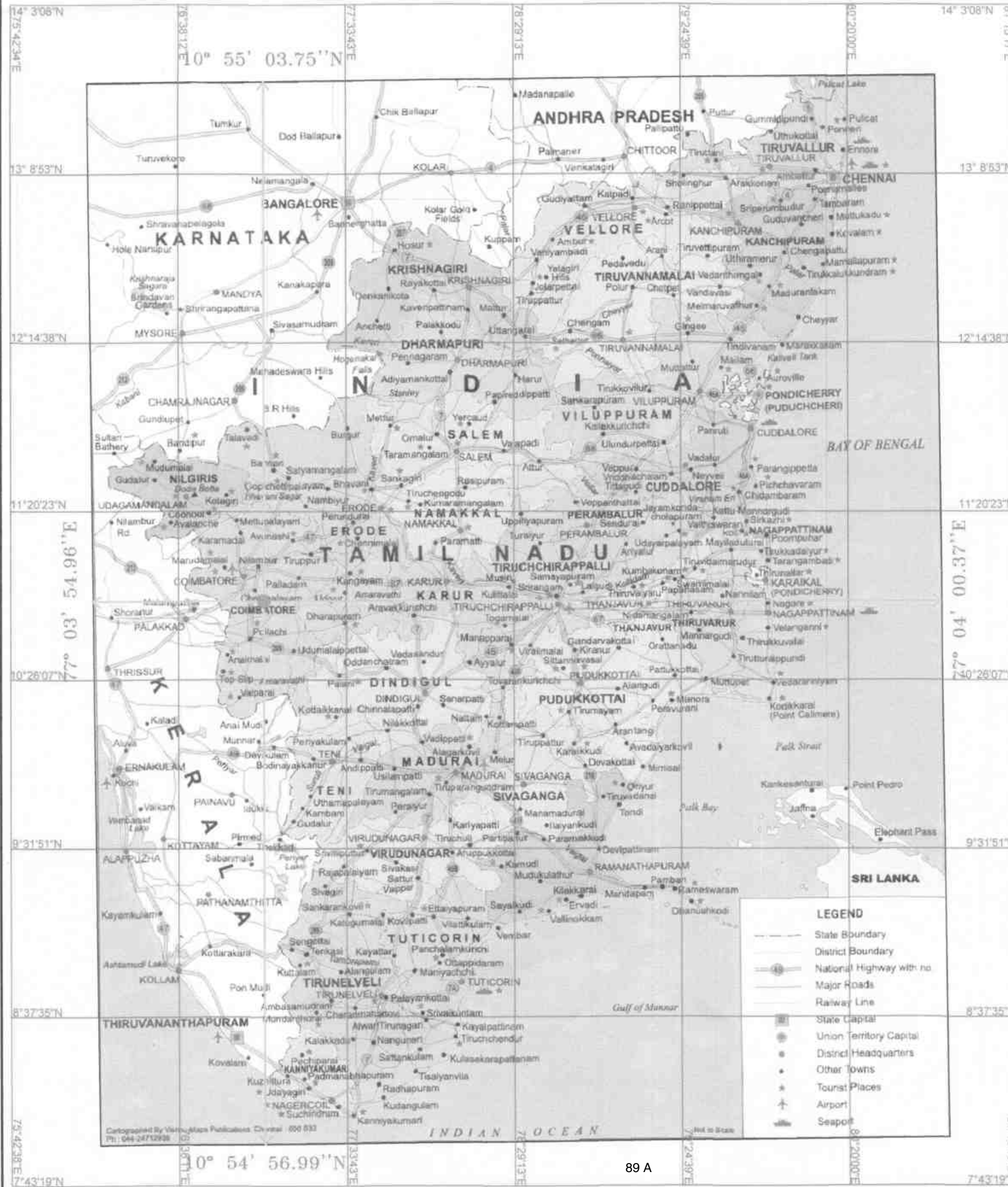


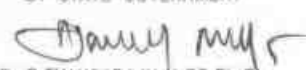
PLATE NO: I
 DATE OF SURVEY : 19.12.2022

APPLICANT:
 THIRU.V.GOPALAKRISHNAN,
 S/O.R.VELUSAMY,
 2/20.KONGU ILLAM,
 OLD POST OFFICE STREET,
 KANGAYAMPALAYAM ,SULUR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF QUARRY LEASE APPLIED AREA:
 S.F.NO : 291/1A,
 EXTENT : 2.43.5 Ha.
 VILLAGE : PACHAPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

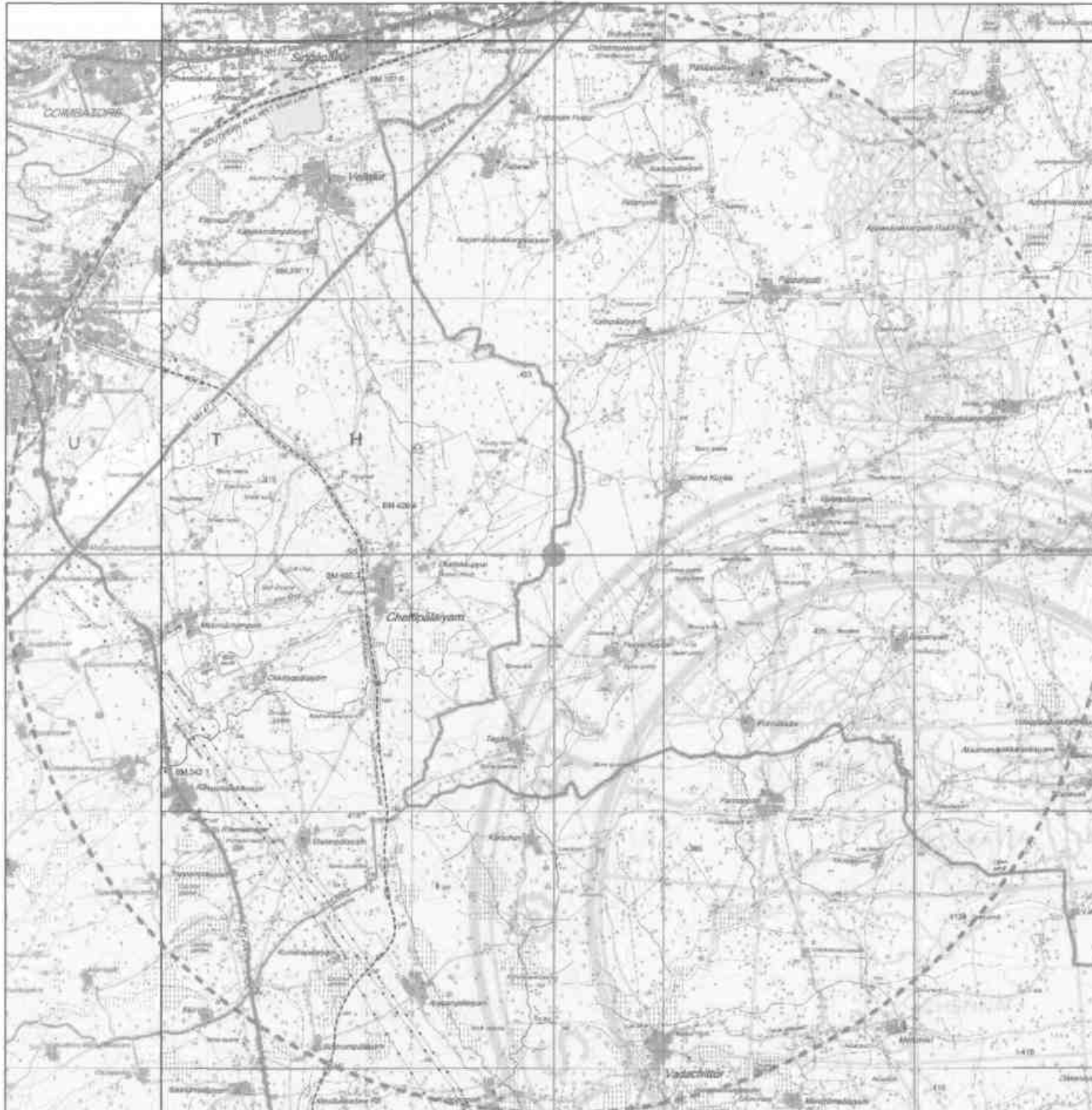
INDEX
 Q. L.A. AREA : ●
 TOPO SHEET NO. : 58 F/01
 LATITUDE : 10° 54' 56.99"N to 10° 55' 03.75"N
 LONGITUDE : 77° 03' 54.96"E to 77° 04' 00.37"E

LOCATION PLAN
 SCALE 1 : 24,00,000

PREPARED BY:
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 Dr.P.THANGARAJU, M.SC, Ph.D.,
 QUALIFIED PERSON



11° 00' 29.12"N



76° 58' 25.70"E

77° 09' 29.59"E

10° 49' 31.61"N TOPO SHEET NO. : 58 F/01

LATITUDE : 10° 54' 56.99"N to 10° 55' 03.75"N

LONGITUDE : 77° 03' 54.96"E to 77° 04' 00.37"E

10KM RADIUS : 

Q.L.APPLIED AREA : 
90 A

PLATE NO:I-A

DATE OF SURVEY : 19.12.2022

APPLICANT:

THIRU.V.GOPALAKRISHNAN
S/O.R.VELUSAMY,
2/20,KONGU ILLAM,
OLD POST OFFICE STREET,
KANGEYAMPALAYAM, SULUR TALUK,
COIMBATORE DISTRICT.



LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.NO : 291/1A,
EXTENT : 2.43.5 Ha.
VILLAGE : PACHAPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

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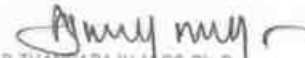
CONVENTIONAL SYMBOLS	
Express highway with toll with bridge with drainage	
Road, metalled according to insurance	
Road, double cartage way according to insurance	
Unmetalled road, cart track, rock track with post, flag post	
Streams with lock in bed, unbridged Canal	
Dam, masonry or rock-lined, earthen, Weir	
River, dry with water channel, with sand & rocks, tidal sea	
Submerged rocks, Shoal, Sand, Reefs	
Wells, open, unlined, Tube well, Spring, Tanks, permanent, dry	
Embankments, road or rail, bank, drainage ground	
Railways, level gauge, double single with station, water crossing	
Railways, other gauges, double single with station, water, etc.	
Mineral lease, limestone, G.R., Cutting with tunnel	
Contours with sub-contours, Holly slopes, G.R.	
Sanctuary (Wild) (Forest) (Government) (Semi-protected)	
Towns or villages, inhabited, deserted, Fort	
Public permanent, temporary, Tower, Anapath	
Temples, Churches, Mosques, Joghis, Tanks, Dams	
Lighthouses, Lightships, Buoys, Lighted, unlighted, Anchorage	
Mine, Ore, oil fields, Dams, Sunk	
Palms, palms, other, Florists, Conifer, Bamboo, Other trees	
Area, submersed, wooded, barewood, tree	
Boundary, international	
Boundary, submersed, uncontracted	
Height, triangulation station, point, appearance	
Band-mark, geodetic, ordinary, level	
Fort office, Telegraph office, Overhead line	
Red house, Revenue, Burghoise, Civil house, Police station	
Camping ground, Forest reserved, protected	
Reserved, reserve, administrative, booth, or tank	
Hospital, Dispensary, Veterinary, Hospital, Dispensary	
Religious, Hindu, Muslim, Christian, etc.	
River, the, with piers, surveyed, with piers, surveyed	

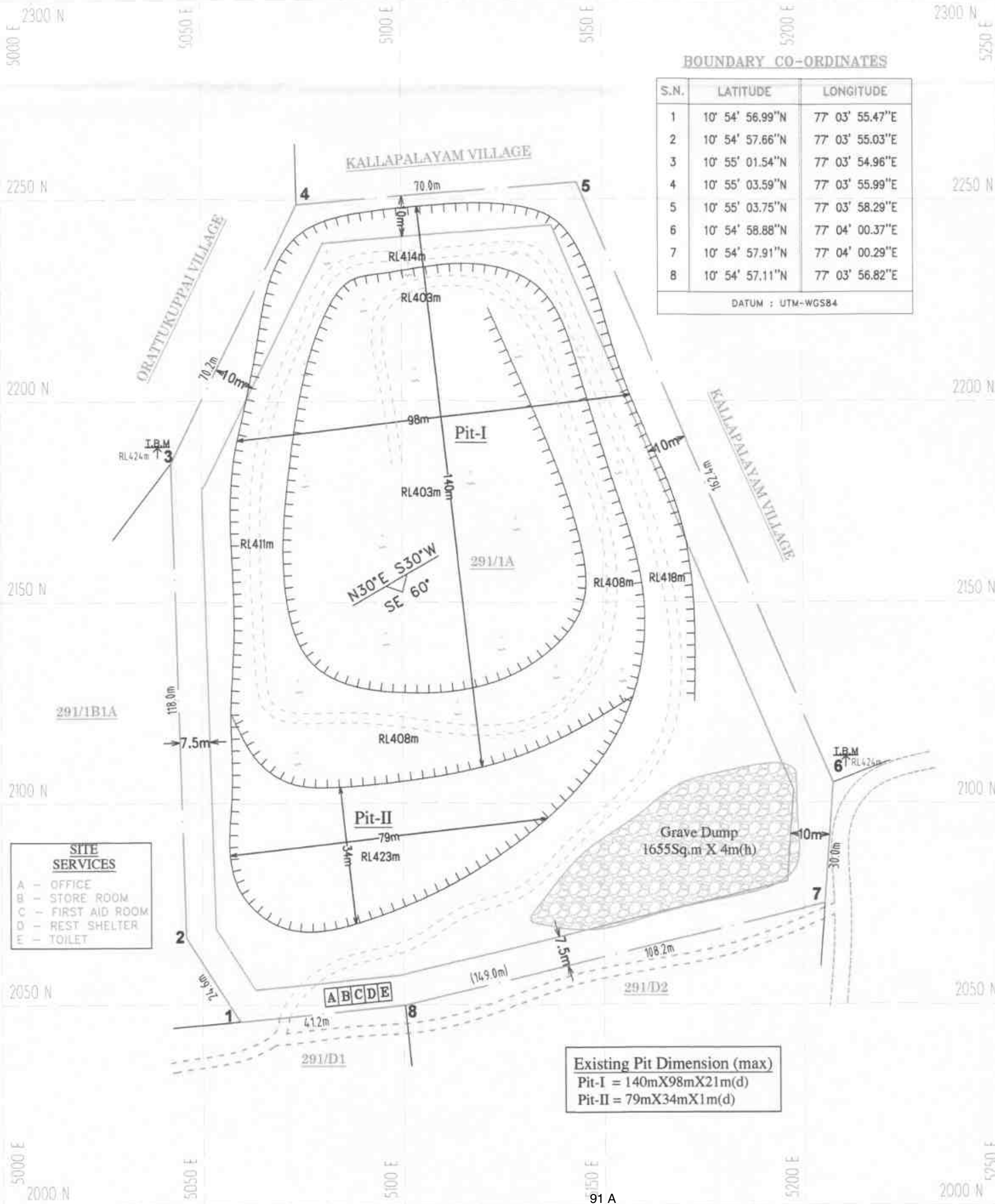
TOPO SKETCH OF QUARRY
LEASE APPLIED AREA FOR
10Km RADIUS

SCALE- 1:100000

PREPARED BY :

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PLATE IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT


Dr. P. THANGARAJU, M.Sc., Ph.D.,
QUALIFIED PERSON



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 54' 56.99"N	77° 03' 55.47"E
2	10° 54' 57.66"N	77° 03' 55.03"E
3	10° 55' 01.54"N	77° 03' 54.96"E
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5	10° 55' 03.75"N	77° 03' 58.29"E
6	10° 54' 58.88"N	77° 04' 00.37"E
7	10° 54' 57.91"N	77° 04' 00.29"E
8	10° 54' 57.11"N	77° 03' 56.82"E

DATUM : UTM-WGS84

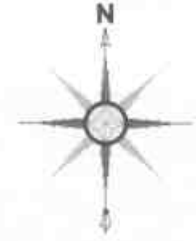


PLATE NO-II
 DATE OF SURVEY: 19.12.2022
 APPLICANT: THIRU. GOPALAKRISHNAN,
 S/O. R. VEESAMY,
 2/20, KONGU ILLAM, JUN 2023
 OLD POST OFFICE STREET,
 KANGEMPALAYAM, SULUR TALUK,
 COIMBATORE DISTRICT

LOCATION OF QUARRY LEASE APPLIED AREA:
 S.F.NO : 291/1A,
 EXTENT : 2.43.5 Ha.
 VILLAGE : PACHAPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

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APPROACH ROAD	
CONTOUR	
QUARRY PIT	
QUARRY ROAD	
ROUGH STONE	
GRAVEL	
STRIKE AND DIP	
GRAVEL DUMP	

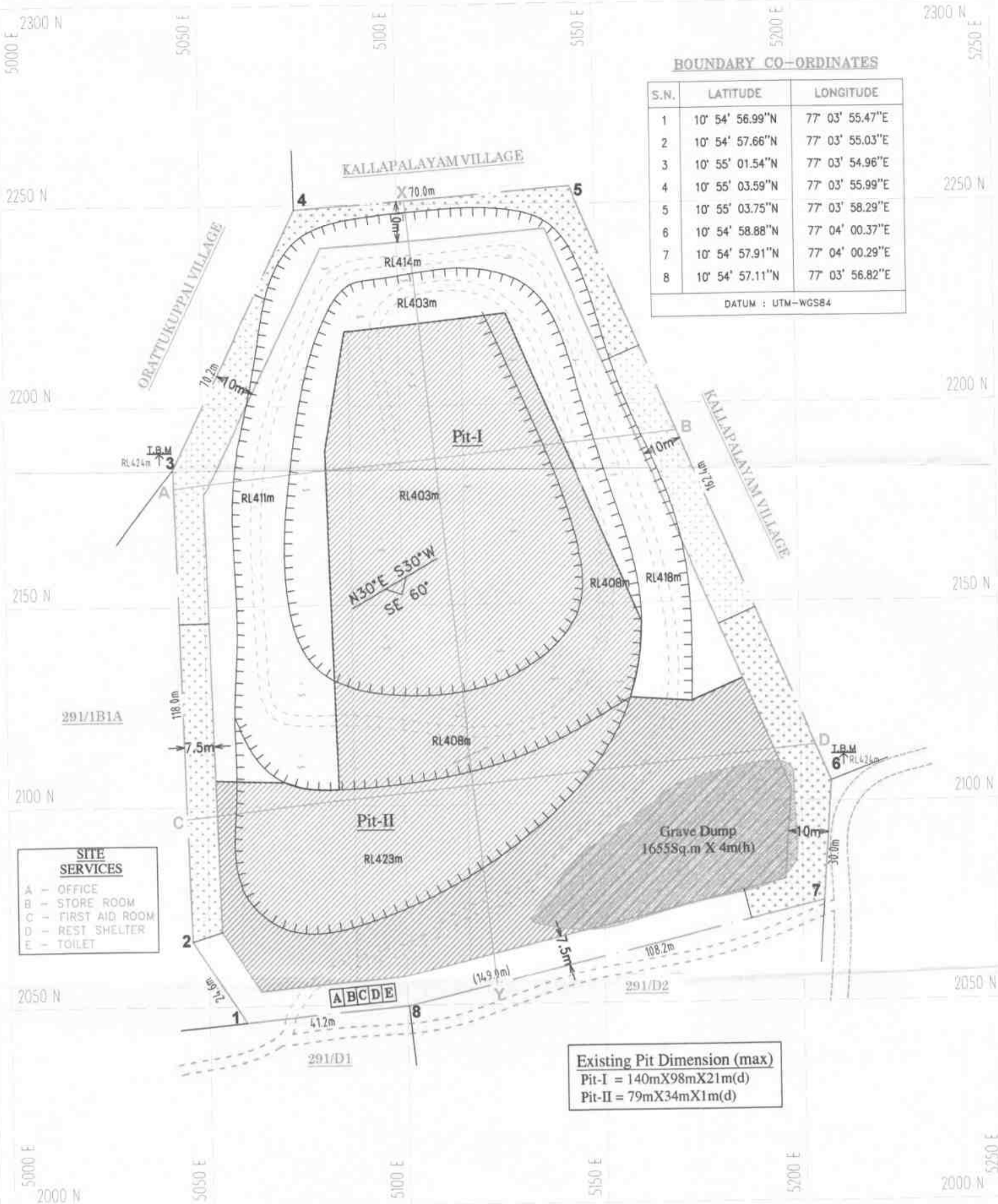
QUARRY LEASE AND SURFACE PLAN
 SCALE 1 : 1000

PREPARED BY :
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 Dr. P. THANGARAJ, M. SC, Ph. D.,
 QUALIFIED PERSON

Existing Pit Dimension (max)
 Pit-I = 140mX98mX21m(d)
 Pit-II = 79mX34mX1m(d)

- SITE SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET

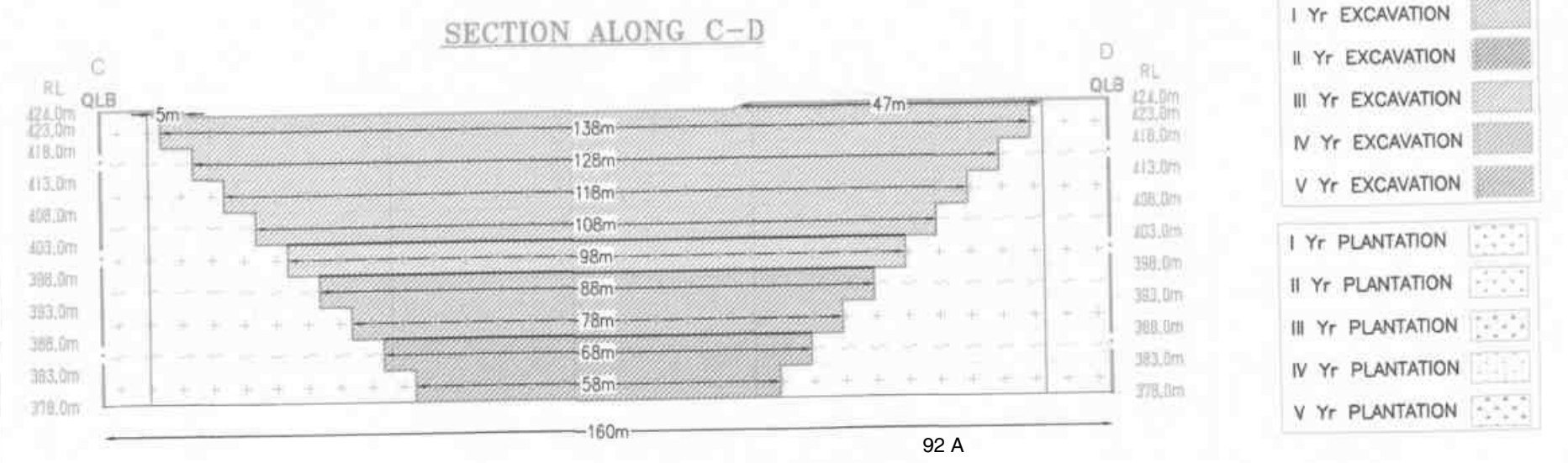
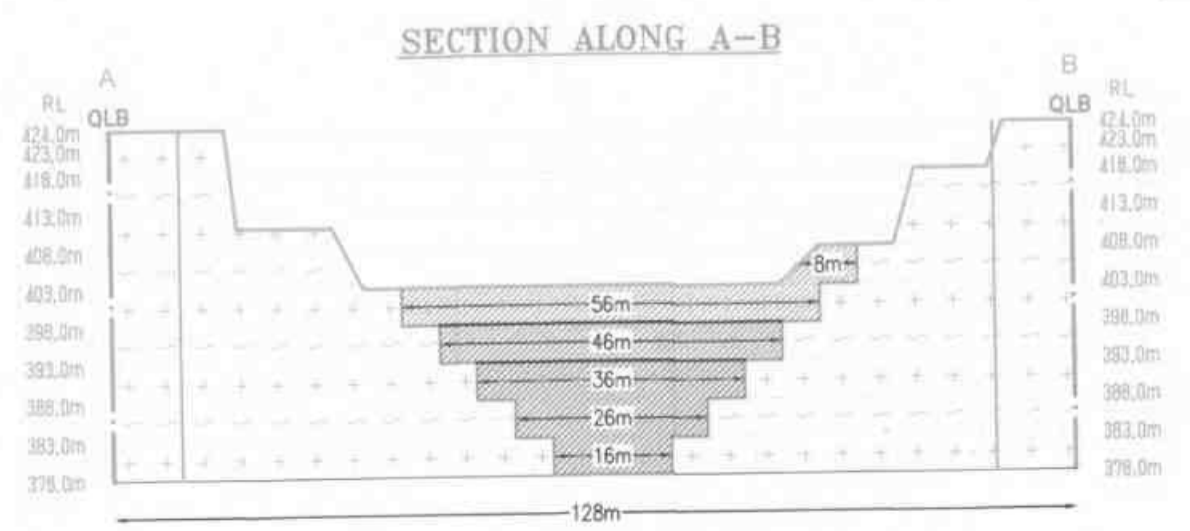
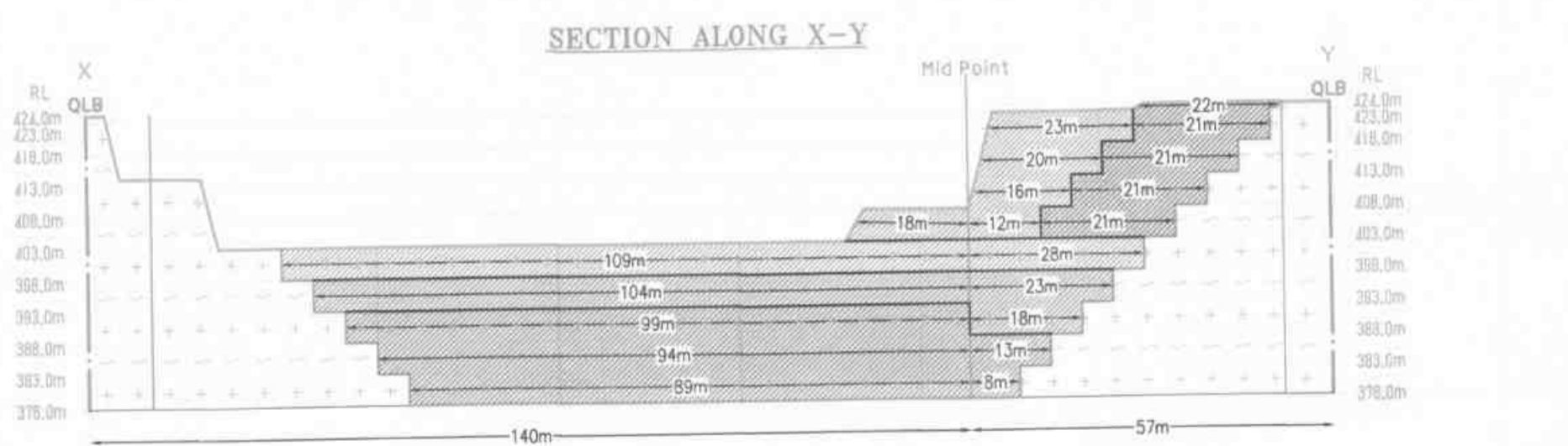


- SITE SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET

Existing Pit Dimension (max)
 Pit-I = 140mX98mX21m(d)
 Pit-II = 79mX34mX1m(d)

PLATE NO-III
 DATE OF SURVEY : 19.12.2022
APPLICANT:
 THIRU.V.GOPALAKRISHNAN,
 S/O.R.VELUSAMY,
 2/20.KONGU ILLAM,
 OLD POST OFFICE STREET,
 KANGELYMPALAYAM ,SULUR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF QUARRY
LEASE APPLIED AREA:
 S.F.NO : 291/1A,
 EXTENT : 2.43.5 Ha.
 VILLAGE : PACHAPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.



PRESENT & POST LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	1.64.50	2.07.50
INFRASTRUCTURE	0.01.00	0.01.00
ROADS	0.01.00	0.02.00
GREEN BELT	NIL	0.32.40
DUMP	0.16.55	NIL
UN-UTILIZED AREA	0.60.45	0.00.60
GRAND TOTAL	2.43.50	2.43.50

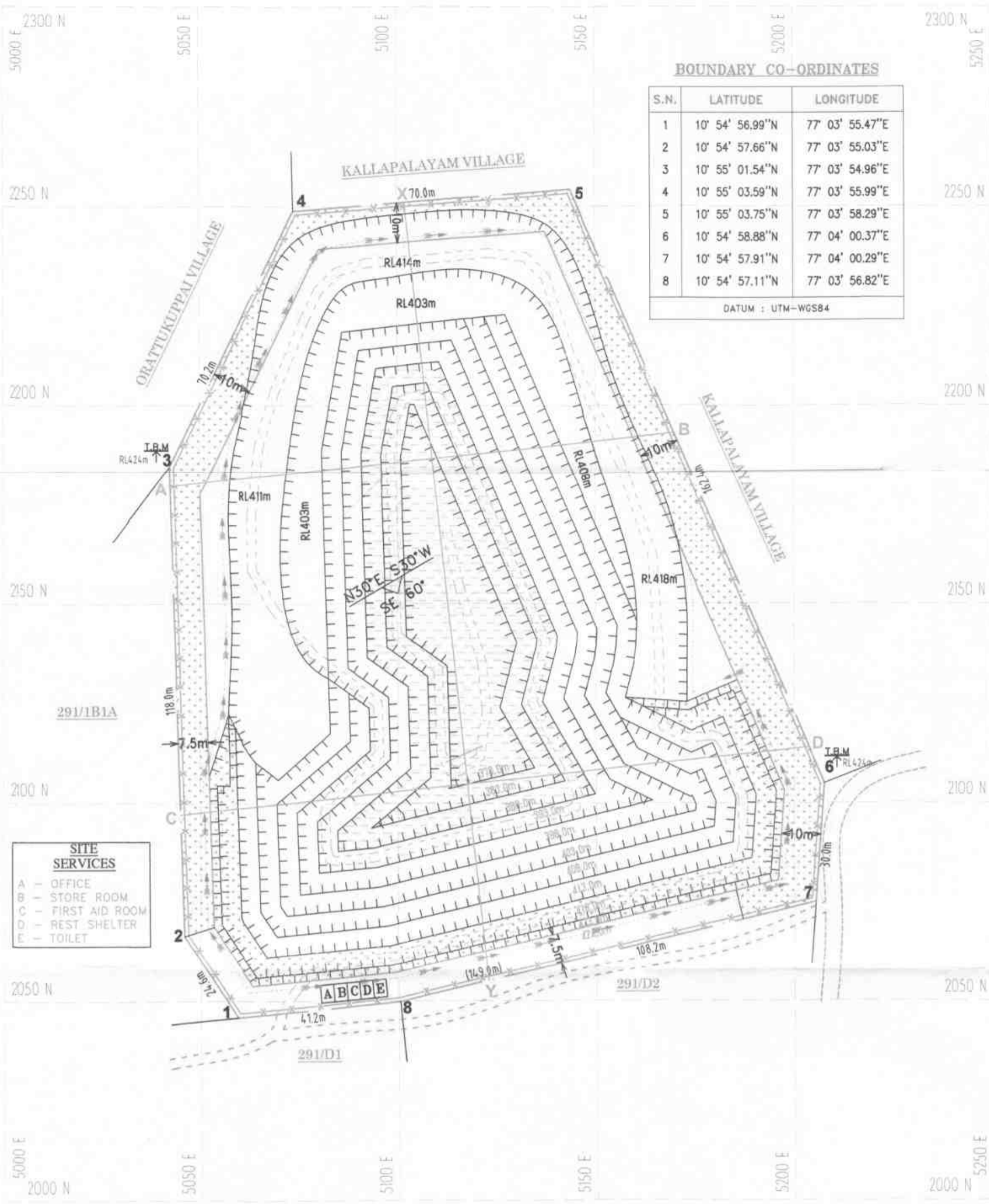
- I Yr EXCAVATION
- II Yr EXCAVATION
- III Yr EXCAVATION
- IV Yr EXCAVATION
- V Yr EXCAVATION
- I Yr PLANTATION
- II Yr PLANTATION
- III Yr PLANTATION
- IV Yr PLANTATION
- V Yr PLANTATION

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- CONTOUR
- QUARRY PIT
- QUARRY ROAD
- ROUGH STONE
- GRAVEL
- STRIKE AND DIP
- GRAVEL DUMP

TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTION
 SCALE 1 : 1000
 SECTION HOR 1 : 1000, VER 1 : 1000

PREPARED BY:
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 Dr.P.THANGARAJU, M.Sc., Ph.D.,
 QUALIFIED PERSON



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 54' 56.99"N	77° 03' 55.47"E
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DATUM : UTM-WGS84



- SITE SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET

PLATE NO-IV
 DATE OF SURVEY : 19.12.2022

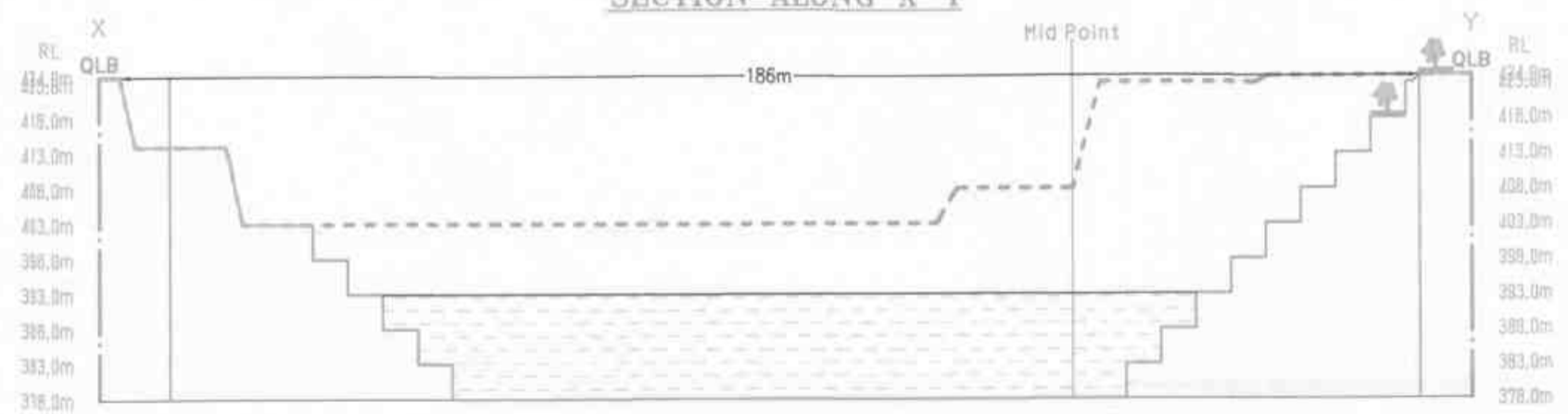
APPLICANT:
 THIRU.V.GOPALAKRISHNAN,
 S/O.R.VELUSAMY,
 2/20,KONGU ILLAM,
 OLD POST OFFICE STREET,
 KANGAYAMPALAYAM ,SULUR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF QUARRY
LEASE APPLIED AREA:
 S.F.NO : 291/1A,
 EXTENT : 2.43.5 Ha.
 VILLAGE : PACHAPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

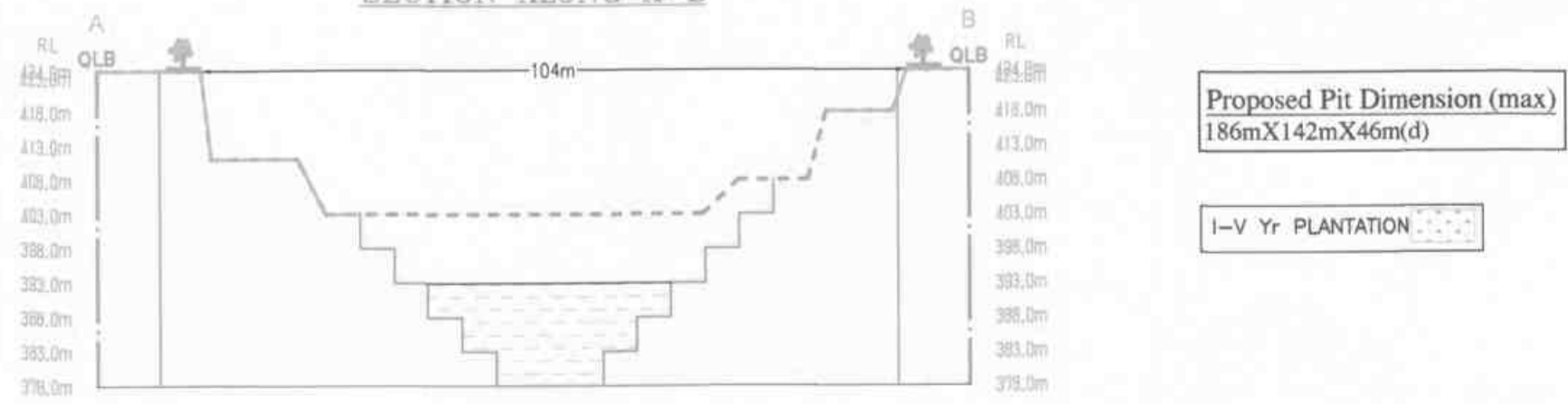
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TREES	
SOIL LAYER	
FENCING	
PROPOSED GARLAND DRAIN	
REHABILITATED LANDFORM	
PROPOSED WATER STORAGE	

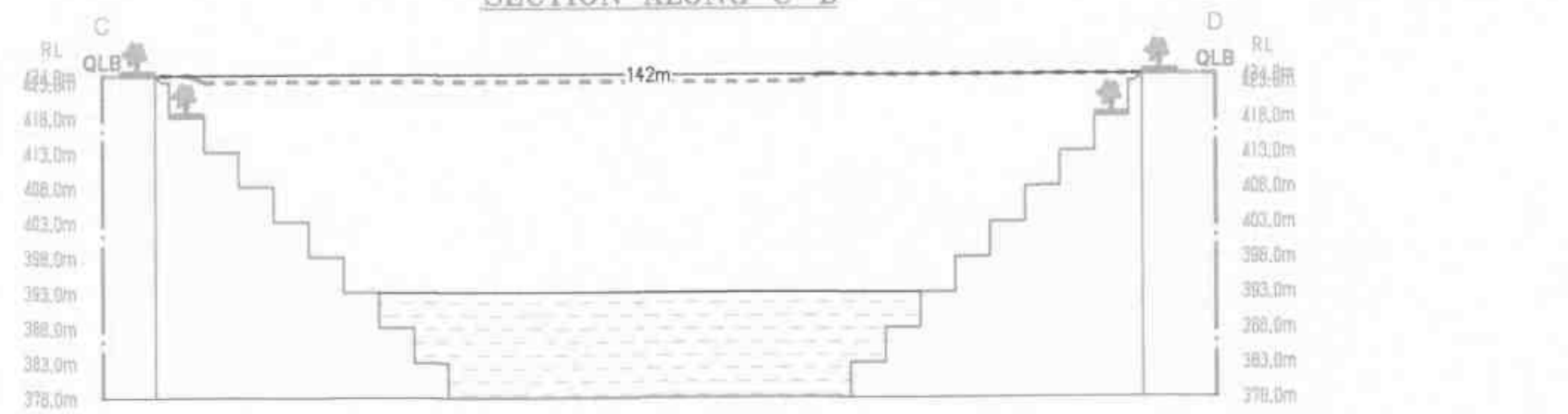
SECTION ALONG X-Y



SECTION ALONG A-B



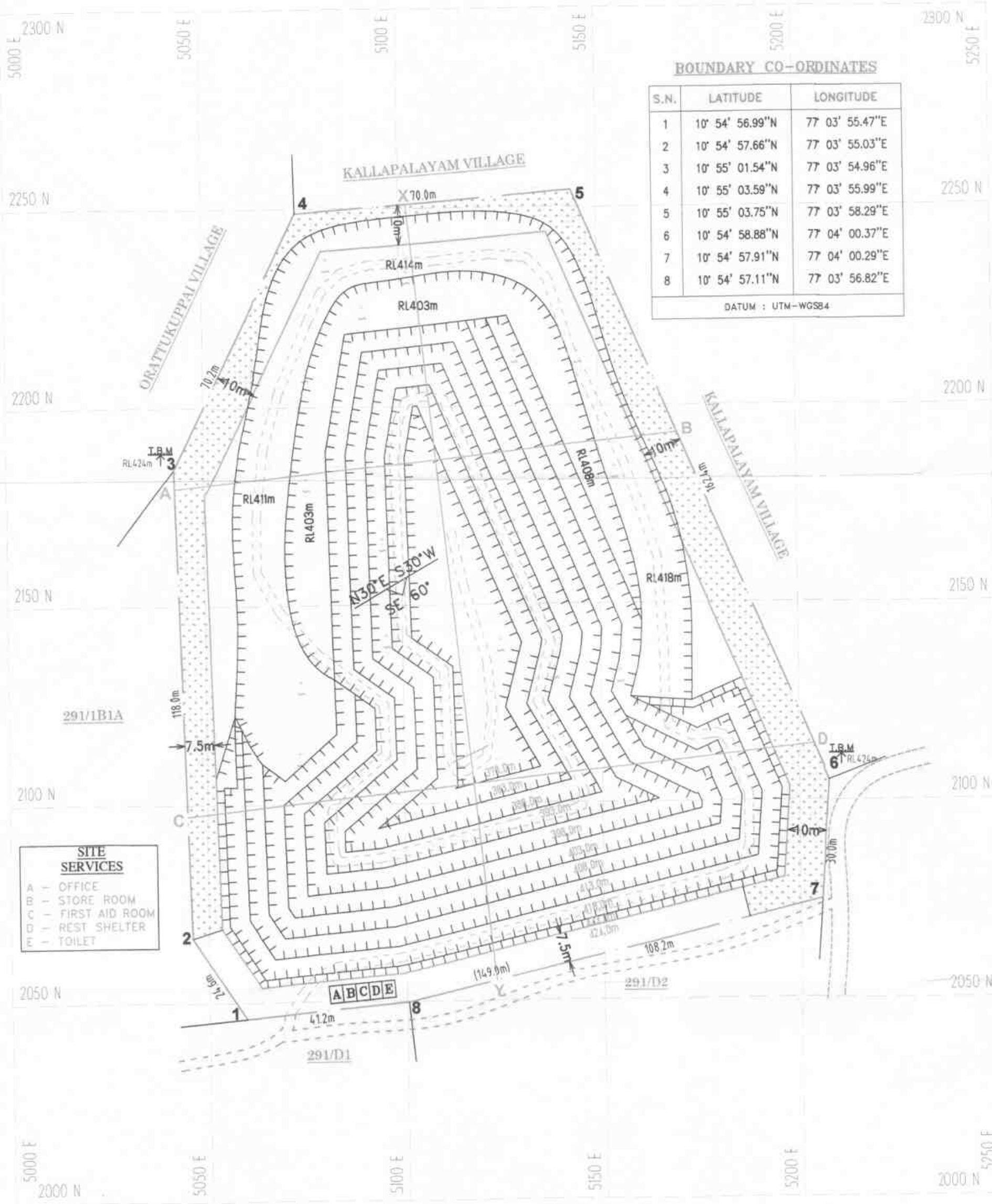
SECTION ALONG C-D



PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS
 SCALE 1 : 1000
 SECTION HOR 1 : 1000, VER 1: 1000

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DR.P.THANGARAJU, M.Sc., P.L.D.,
 QUALIFIED PERSON



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 54' 56.99"N	77 03' 55.47"E
2	10° 54' 57.66"N	77 03' 55.03"E
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DATUM : UTM-WGS84



- SITE SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET

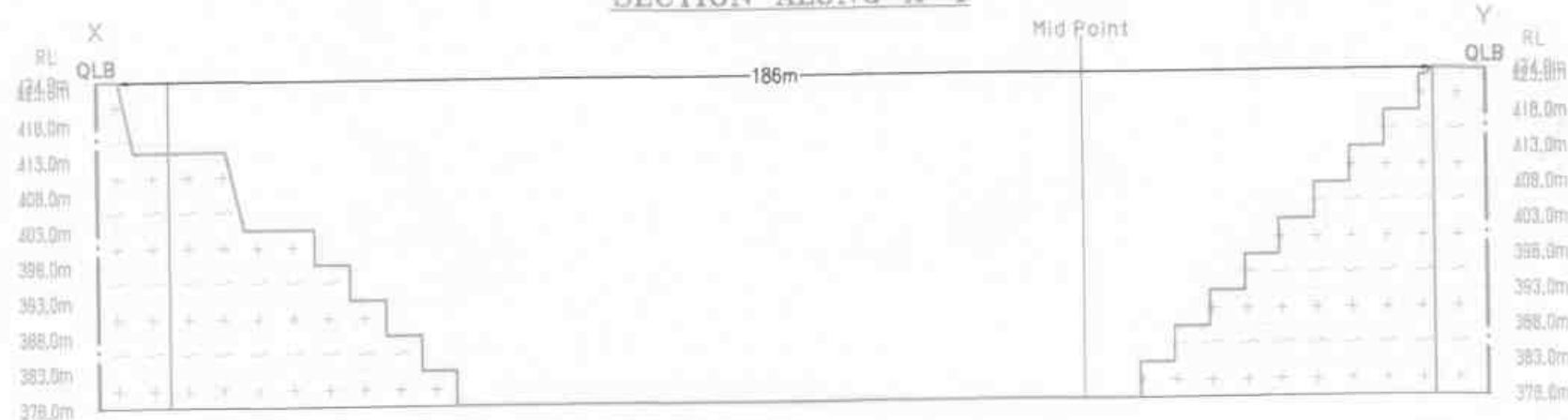
PLATE NO-V
 DATE OF SURVEY : 19.12.2022
APPLICANT:
 THIRU.V.GOPALAKRISHNAN,
 S/O.R.VELUSAMY,
 2/20,KONGU ILLAM,
 OLD POST OFFICE STREET,
 KANGAYAMPALAYAM ,SULUR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF QUARRY
LEASE APPLIED AREA:
 S.F.NO : 291/1A,
 EXTENT : 2.43.5 Ha.
 VILLAGE : PACHAPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

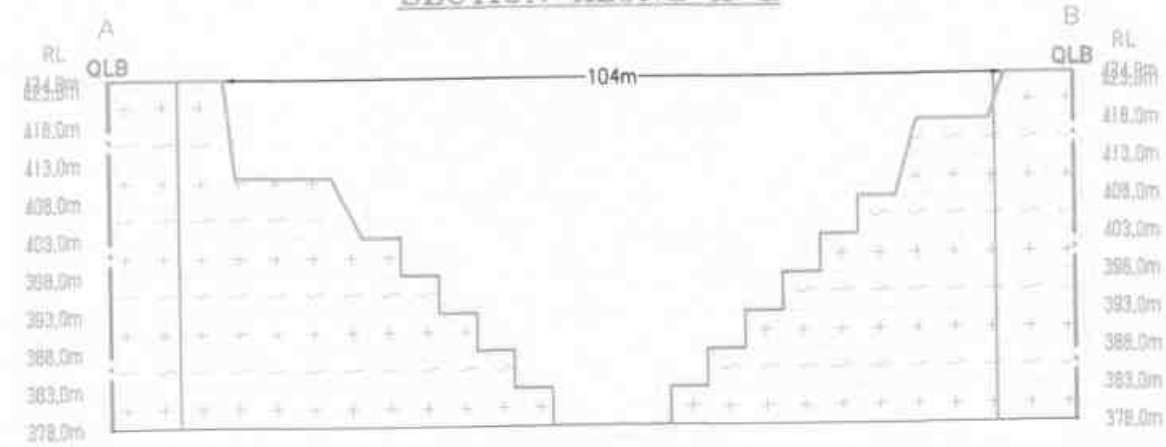
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7.5m & 10m SAFETY DISTANCE	
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ROUGH STONE	
GRAVEL	
STRIKE AND DIP	

SECTION ALONG X-Y

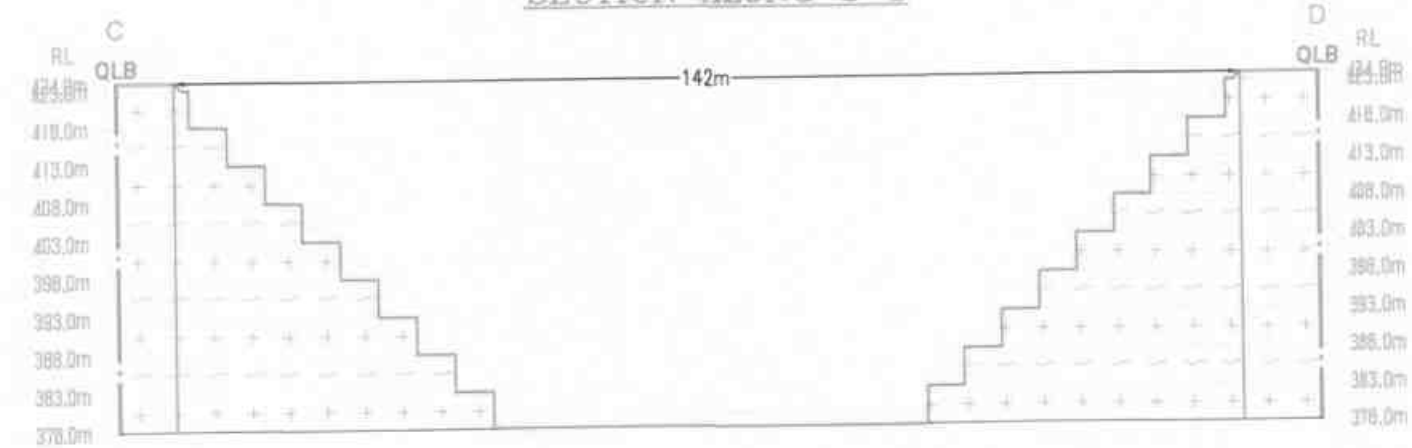


SECTION ALONG A-B



Ultimate Pit Dimension (max)
186mX142mX46m(d)

SECTION ALONG C-D



1- Yr PLANTATION

CONCEPTUAL PLAN & SECTIONS
 SCALE 1 : 1000
 SECTION HOR 1 : 1000, VER 1: 1000

PREPARED BY:
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
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 BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
 AUTHENTICATED
 BY STATE GOVERNMENT

Dr. P. Thangaraju
 Dr. P. THANGARAJU, M.Sc., Ph.D.,
 QUALIFIED PERSON



1Km Radius

500m Radius

Q.L.Applied Area

TOPO SHEET NO. : 58 F/01

LATITUDE : 10° 54' 56.99"N to 10° 55' 03.75"N

LONGITUDE : 77° 03' 54.96"E to 77° 04' 00.37"E

APPLICANT:

THIRU.V.GOPALAKRISHNAN,
S/O.R.VELUSAMY,
2/20,KONGU ILLAM,
OLD POST OFFICE STREET,
KANGEYAMPALAYAM ,SULUR TALUK,
COIMBATORE DISTRICT.

LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.NO : 291/1A,
EXTENT : 2.43.5 Ha.
VILLAGE : PACHAPALAYAM,
TALUK : SULUR,
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STATE : TAMILNADU.

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TREES	
AGRICULTURAL LAND	
PIT	
WIND DIRECTION	
CRUSHER PLANT	
EARTHEN ROAD	

ENVIRONMENTAL AND

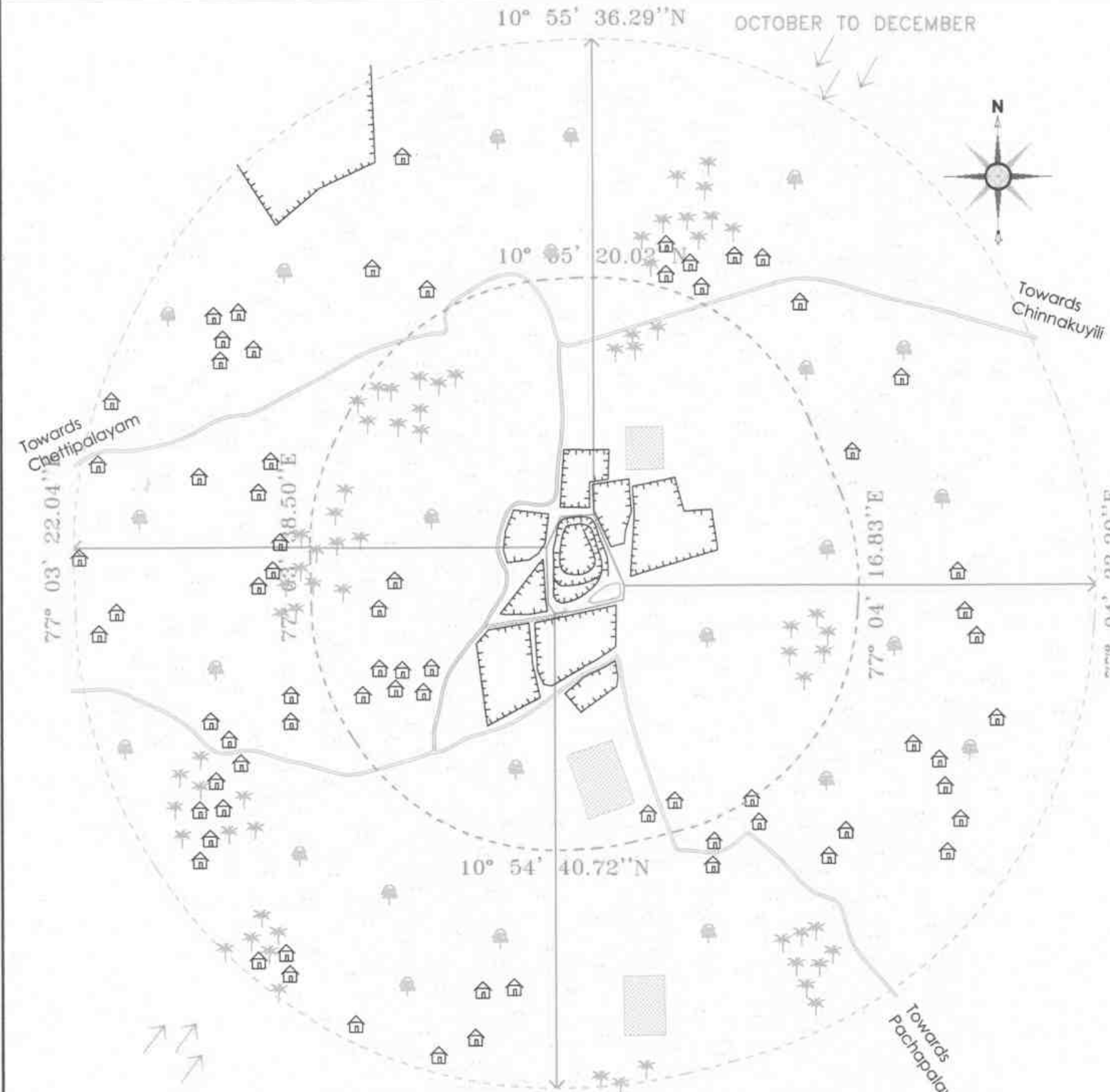
LANDUSE PLAN FOR 1KM RADIUS

SCALE- 1:10,000

PREPARED BY:

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AUTHENTICATED
BY STATE GOVERNMENT

Dr.P.THANGARAJU, M.Sc, Ph.D.,
QUALIFIED PERSON



JULY TO SEPTEMBER

LANDUSE PATTERN

DESCRIPTION	PERCENTAGE	INDEX
ROADS	(10%)	
HABITATION	(15%)	
TREES	(20%)	
AGRICULTURAL LAND	(40%)	
PIT\CRUSHER PLANT	(15%)	

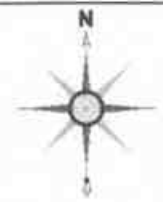
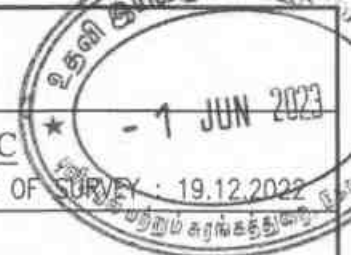


PLATE NO:I-C

DATE OF SURVEY : 19.12.2022

APPLICANT:

THIRU.V.GOPALAKRISHNAN,
S/O.R.VELUSAMY,
2/20,KONGU ILLAM,
OLD POST OFFICE STREET,
KANGAYAMPALAYAM ,SULUR TALUK,
COIMBATORE DISTRICT.

**LOCATION OF QUARRY
LEASE APPLIED AREA:**

S.F.NO : 291/1A,
EXTENT : 2.43.5 Ha.
VILLAGE : PACHAPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.



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Q.L.APPLIED AREA	
SH-163	
MAJOR ROAD	
VILLAGE ROAD	
APPROACH 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 LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT

Dr. P. Thangaraju
Dr.P.THANGARAJU, M.SC, Ph.D.,
QUALIFIED PERSON

Hydrogeological Report For

Hydrogeological Report for Pachapalayam

Rough Stone and Gravel Quarry

1. INTRODUCTION

Name of the applicant : **Thiru. V.Gopalakrishnan,**
Address : S/o. R.Velusamy,
No.2/20, Kongu Illam,
Old Post Office Street, Kangayampalayam,
Sulur Taluk, Coimbatore District- 641 401
State: Tamil Nadu.
Mobile: +91 98422 39937

DETAILS OF THE AREA-

Land Classification : Patta land
Survey No : 291/1A
Extent : 2.43.5Ha
Village : Pachapalayam
Taluk : Sulur,
District : Coimbatore

The Client requires detailed information on ground water occurrences at proposed project site of Rough Stone and Gravel quarry. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose, all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements. The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

2. SCOPE OF THE WORKS –

The scope of works includes:

- ❖ Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- ❖ To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- ❖ To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- ❖ To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

3. BACKGROUND INFORMATION

Geographical information of the study area-

The investigated site falls in the Toposheet No: **58 – F/01**, Latitude between: **10°54'56.99"N to 10°55'03.75"N** and Longitude between **77°03'54.96"E to 77°04'00.37"E** on WGS datum-1984.

GEOMORPHOLOGY

Coimbatore district forms part of the upland plateau region of Tamil Nadu with many hill ranges, hillocks and undulating topography with a gentle slope towards east except for the hilly terrain in the west. The undulating topography with innumerable depressions, are used as tanks for storage of rainwater for agriculture.

The prominent geomorphic units in the district are 1) Structural hills, 2) Ridges, 3) Inselbergs, 4) Bazada, 5) Valley fill, 6) Pediment, 7) Shallow Pediments and 8) Deep Pediments.

The Nilgiris on the northwest and Anamalai on the south are the important ranges, which attain a height of over 2513m above mean sea level (MSL) and the highest elevation in the valleys adjoining the hills is 600 M above MSL. The 'PalghatGap', which is an east-west trending mountain pass, is an important physiographic feature is located in the western part of the district.

Soils

The soils of Coimbatore district can be broadly classified into 6 major soils types viz, Red calcareous Soil, Black Soil, Red non-calcareous, Alluvial and Colluvial Soil, Brown Soil, and Forest Soil. About sixty per cent of the district is covered by red soils, of which red calcareous soil is predominant. They occupy most parts of Palladam, Coimbatore, Mettupalayam and Udumalpettaluks. Medium to deep red calcareous soils is found mainly in Pollachi and Udumalpet taluks. Parts of Palladam, Avinashi and Udumalpet taluks are occupied by red non-calcareous soils.

The highlands in Coimbatore, Palladam and Avinashitaluks are mostly occupied by the black soils, which are dark gray to grayish brown in color.

The Alluvial soils are found in small patches along the Noyil River mainly in the upper reaches. The Colluvial soils are found mainly in Chinnathadagam and Chitrachavadi sub-basins and as scattered patches at the foothills of the Anaimalai. The Forest soils are confined to the reserve forest area and have a surface layer of organic matter.

Rainfall and Climate

The district receives the rain under the influence of both southwest and northeast monsoons. The northeast monsoon chiefly contributes to the rainfall in the district and summer rains are negligible.

Rainfall data from six stations over the period 1901-2000 were utilized and a perusal of the analysis shows that the normal annual rainfall over the district varies from about 550mm to 900mm. It is the minimum around Suler (550 mm) in the eastern part of the district. It gradually increases towards south and attains a maximum around Anamalai hills.

The district enjoys a tropical climate. The weather is pleasant during the period from November to January. Mornings in general are more humid than the afternoons, with the humidity exceeding 78% on an average. In the period June to November the afternoon humidity exceeds 66% on an average. In the rest of the year the afternoons are drier, the summer afternoons being the driest. The period from April to June is generally hot and dry. The temperature recorded varies from 11.7°C to 42.6°C.

GEOLOGY

Regional Geology of Coimbatore District-

The district is occupied by 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 fissile hornblende gneisses (Peninsular gneiss –

younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsitge – kyanitequartzites, ferruginous quartzite (Satyamangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the district especially around Mettupalayam, Avinashi 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 Punjapuliyampatti Granites respectively. The quaternary alluvium is seen in the West and Northwestern areas of Udumalaipettai and 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. In the Udumalaipettaitaluk area, it overlies the kankar deposit.

It is revealed the Coimbatore district is occupied by the rocks of Sathiyamangalam, Peninsular gneissic complex-I and Charnockite group of Archaean age, Peninsular Gneissic Complex-II of Archaean to Palaeoproterozoic age, Basic intrusive of Mesoproterozoic age, Younger intrusive of Neoproterozoic age and recent alluvium.

The Peninsular gneissic complex-I comprising hornblende biotite gneiss and granite area the major rock types exposed. Hornblende biotite granite is medium to coarse grained and mesocratic and considered to be retrograded product of product of Charnockite – Pyroxene granulite. It is medium grained, White to pale pink colored with disseminations of limonitised magnetite. The white colored granite appears to be older and the pink colored cuts across the white colored granite. The younger phase of coarse-grained granite occur as thin stringers and lesser in the southern part. The peripheral part of granite close to the gneiss is granitic in nature.

STRATIGRAPHY SUCCESSION

Lithology	Group	Super Group	Age
Gypseous clay			Holocene
Granite	Acid intrusives		Neoproterozoic
Dolerite /basic dyke	Basic intrusives		Mesoproterozoic
Quartzofeldspathic Gneiss Garnet.		Peninsular Gneissic complex- II	Archaean to Palaeoproterozoic
Hornblende biotite gneiss			
Charnockite		Southern Granulite Complex	
Grey HornblendBiotite gneiss		Peninsular Gneissiccomplex- I	
Gabbro			

Amphibolite	Sitampundi Mettupalayam Complex		Archaean
Magnetite Quartzite			
Talc – Termolite – Actinolite Schist	Sathiyamanagalam Group		

4. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A, expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

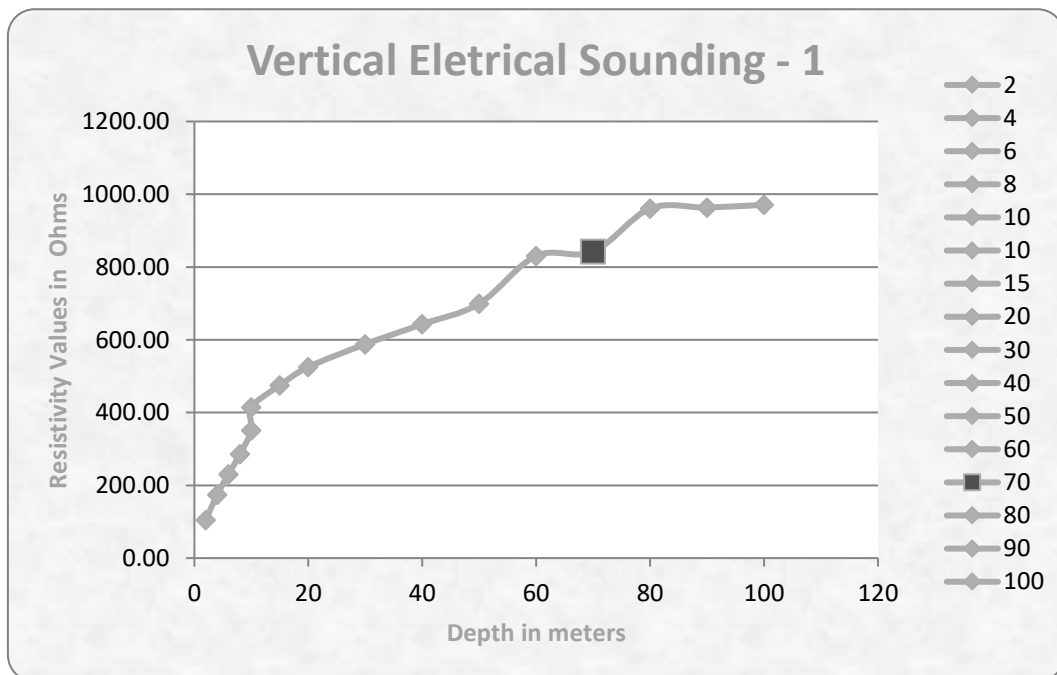
$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

Vertical Electrical Sounding (VES)

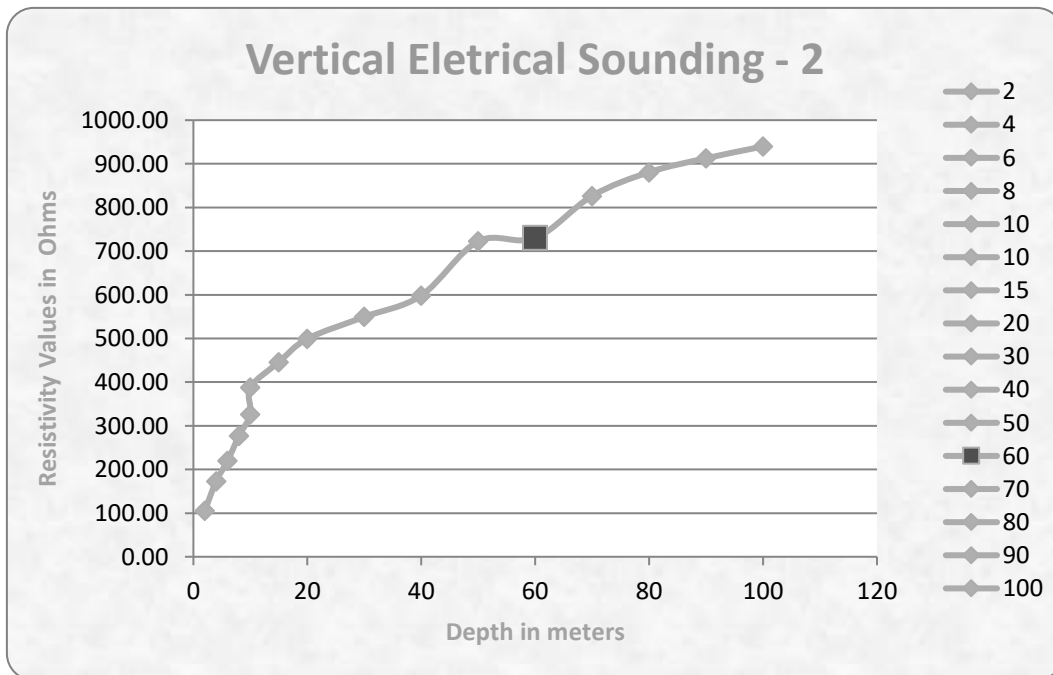
When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

Vertical Electrical Sounding Data's and Graphs

STATION-1					
GPS Coordinates - 10°54'56.99"N 77°03'55.47"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.69	22.26	104.84
2	4	1	23.50	7.40	174.27
3	6	1	54.93	4.20	230.79
4	8	1	98.92	2.89	285.85
5	10	1	155.45	2.26	351.32
6	10	5	23.55	17.60	414.48
7	15	5	62.80	7.56	474.77
8	20	5	117.75	4.46	525.17
9	30	5	274.73	2.14	587.97
10	40	5	494.55	1.30	642.92
11	50	5	777.15	0.90	699.44
12	60	5	1122.51	0.74	830.69
13	70	5	1530.75	0.55	841.91
14	80	5	2001.75	0.48	960.84
15	90	5	2535.52	0.38	963.51
16	100	5	3132.15	0.31	970.97

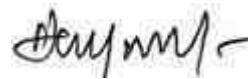


STATION-2					
GPS Coordinates - 10°54'57.91"N 77°04'00.29"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.46	105.79
2	4	1	23.55	7.36	173.33
3	6	1	54.95	4.00	219.80
4	8	1	98.91	2.80	276.95
5	10	1	155.45	2.10	326.45
6	10	5	23.55	16.46	387.63
7	15	5	62.80	7.10	445.88
8	20	5	117.75	4.24	499.26
9	30	5	274.75	2.00	549.50
10	40	5	494.55	1.21	598.41
11	50	5	777.15	0.93	722.75
12	60	5	1122.55	0.65	729.66
13	70	5	1530.75	0.54	826.61
14	80	5	2001.75	0.44	880.77
15	90	5	2535.55	0.36	912.80
16	100	5	3132.15	0.30	939.65



5. Conclusion –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 80m to 75m where minor fractures are observed and shallow aquifers are expected above 70m-65m BGL. The ultimate pit limit as per the approved mining plan depth is 46m below ground level which will have no impact on the Ground Water.



Dr. P. Thangaraju, M.Sc., Ph.D.,

Govt. Approved Hydro Geologist

M/s. Geo Exploration and Mining Solutions,

Regd. Office: No. 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004, Tamil Nadu

Mobile: +91 - 94433 56539

E-Mail: infogeoexploration@gmail.com



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: 10/10/2023

Place: Sulur.

To,

V.Gopalakrishnan,
S/o R.Velusamy,
No.2/20, kongu illam,
Old post office street,
Kangayampalayam,
Sulur (taluk),
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.

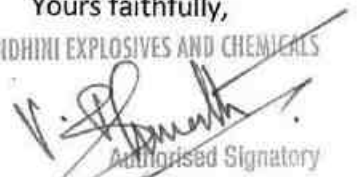
We are having eight Explosive Vans for transporting detonators and class 2 explosives separately from our
magazine to work Sites and we have well Experienced and licensed blasters and shot fires for safety blasting
works for the last five years without any untoward incidents.

We are willing to undertake blasting work on contract basis at your site S.F No: 291/1A 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.

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

अनुज्ञप्ति सं. (Licence No.) : E/SC/TN/22/654(E85920)

वार्षिक फीस रुपए (Annual Fee Rs): 9200/-

I. Licence is hereby granted to

M/s.Selva Nandhini Explosives and Chemicals (अधिभोगी / Occupier : V Bhurath), 7/382, Nandhini Illam, Bharathi Nagar, Kadampady, Kangamynpalayam Post, Town/Village - Sullur, District-COIMBATORE, State-Tamil Nadu, Pincode - 641401



को अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्रास्थिति | Status of licensee : Partnership Firm

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमान्य है।
Licence is valid only for the following purpose.

4. अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है।
Licence is valid for the following kinds and quantity of explosives: -- (क) (a)

possess for use of Nitrate Mixture, Safety Fuse, Electric and/or Ordinary Detonators, Detonating Fuse, - के उपयोग के लिए

क्र. सं. 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	5000 Kg.
2.	Safety Fuse	6, 1	0	5490 Mtrs
3.	Electric and/or Ordinary Detonators	6, 3	0	44000 Nos.
4.	Detonating Fuse	6, 2	0	10000 Mtrs

(ख) किसी एक कैलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञप्ति के लिए)

(b) Quantity of explosives to be purchased in a calendar month [applicable for licensee under article 3(b) and (c)]:

23 times as above.

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्ति 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) 02/08/2023

6. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:

Survey No. 491/2, ग्राम (Town/Village) : Sirukinar village, Sangarandapalayam VJa

पुलिस थाना (Police Station) : Uthiyur

जिला (District)

TIRUPUR

राज्य (State)

Tamil Nadu

पिनकोड (Pincode)

638706

दूरभाष (Phone)

9578323233

ई-मेल (E-Mail)

फैक्स (Fax)

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं।
The licensed premises consist of following facilities.

One Explosives room, lobby and a detonator room

8. अनुज्ञप्ति समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपायचदों 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.

- 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.
- अनुज्ञप्ति प्राधिकारी द्वारारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तें और अतिरिक्त शर्तें।
Conditions and Additional Conditions of this licence signed by the licensing authority.
- दूरी प्रारूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञप्ति तारीख 31 मार्च 2021 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2021.

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञप्ति की शर्तों का अधिकमण करने या यदि अनुज्ञप्ति परिसर योजना भा उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिरोद्ध की जा सकती है, जहां 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

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 15/03/2018
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 05/10/2021
- Change in Authorized Signatory/Occupier/Partners/Directors dated : 02/08/2023
- Amendment in Drawings/Facilities/Premises dated : 02/08/2023
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 02/08/2023

नवीनीकरण के पृष्ठांकन के लिए स्थान
Space for Endorsement of Renewal

नवीकरण 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

Sd/-

J. Chief Controller of Explosives, South Circle, Chennai

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडिक अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

Note :- This is system generated document does not require physical signature. Applicant may take printout for

6972/22

4625/2022

அனுப்பநர்

திருமதி.மு.சுசுணா,
வட்டாட்சியர்,
சூலூர்.

பெறுநர்

வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் (தெற்கு).

ந.க.4296/2022/அ7

நாள்:19.10.2022

அய்யா.,

பொருள்: கனிமங்கள் மற்றும் சுரங்கங்கள் - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - பச்சாபாளையம் கிராமம் - புல எண்:291/1A நெ.காலையில் பு.ஹெக் 2.43.5 பரப்பளவுள்ள பட்டா பூமியில் - திரு.வ.கோபாலகிருஷ்ணன் த/பெ.வேலுசாமி என்பவர் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் புதுப்பிக்கக் கோரியது - அறிக்கை அனுப்புதல் - தொடர்பாக.

1. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் (தெற்கு) அவர்களின் கடிதம் ந.க.46250/2022/அ2 நாள்:20.07.2022
2. பச்சாபாளையம் கிராம நிருவாக அலுவலர் அறிக்கை, நாள்:18.10.2022
3. செலக்கரிச்சல் வருவாய் ஆய்வாளர் அறிக்கை, நாள்:19.10.2022

பார்வை (1)-ல் காணும் கடிதத்தில் கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்:291/1A நெ.காலையில் பு.ஹெக் 2.43.5 பரப்பளவுள்ள பட்டா பூமியில் திரு.ஏ.கோபாலகிருஷ்ணன் த/பெ.வேலுசாமி த.பெ.ராமசாமிகவுண்டர் என்பவர் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் புதுப்பிக்கக் கோரியது தொடர்பாக மேற்படி பிரஸ்தாப புலத்தை தணிக்கை செய்து எனதறிக்கையினை கிழ்கண்டவாறு சமர்ப்பித்துக்கொள்கிறேன்.

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்:291/1A நெ.காலையில் பு.ஹெக் 2.43.5 விஸ்தீரணமுள்ள பூமியானது சூலூர் சார்பதிவாளர் அலுவலக கிரைய ஆவண எண்:294/1983 நாள்:24.12.1983-இன்படியும், பட்டா எண்:296-ன்படியும் திரு.பழனிப்பன் த/பெ.ரங்கன் என்பவருக்கும் பாத்தியப்பட்டுள்ளது. மேற்படி காலையில் குவாரி அமைக்க திரு.பழனிப்பன் என்பவர் திரு.வ.கோபாலகிருஷ்ணன் என்பவருக்கு சம்மதக் கடிதம் எழுதிக்கொடுத்துள்ளார். மேற்படி காலையில் ஏற்கெனவே

R.C.No:418/Mines/2015 நாள்:07.10.2017-ன்படி கல்குவாரி அமைக்க உரிமம் வழங்கப்பட்டுள்ளது. மனுதாரர் புல எண்:291/1A நெ.காலையில் பு.ஹெக் 2.43.5 விஸ்தீரணமுள்ள பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் புதுப்பிக்கக் கோரியுள்ளார்.

மேற்படி குவாரி அமையவுள்ள இடத்திற்கு வடபுறத்தில் கள்ளப்பாளையம் கிராமத்தைச் சேர்ந்த தமிழ்நாடு குவாரியும், தென்புறத்தை ஒட்டி வேல்முருகன் கல்குவாரியும், மேல்புறத்தை ஒட்டி மகேந்திரன் கல்குவாரியும், கிழப்புறத்தில் புலத்தை ஒட்டி ராக்கியாகவுண்டருக்கு பாத்தியப்பட்ட குவாரியும்(கைவிடப்பட்டவை) அமைந்துள்ளது.

1. மேற்படி பூமியில் அரசு புறம்போக்கு நிலம் ஏதும் இல்லை.
2. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் நத்தம் குடியிருப்பு பகுதிகளோ, அங்கரிக்கப்பட்ட வீட்டுமனைகளோ ஏதுமில்லை.
3. மேற்படி பூமியானது நகர்ப்புற நில உச்சவரம்பு சட்டம் 1978-ன் கீழ் கவரப்படவில்லை.
4. மேற்படி பூமியானது நில சீர்த்திருத்த சட்டம் 1961-ன் கீழ் கவரப்படவில்லை.
5. மேற்படி பூமியில் கோவில், மசூதி, தேவாலயம் போன்ற மத வழிபாட்டுத்தளங்கள், புராதானச் சின்னங்களோ அல்லது விலையுயர்ந்த மரங்களோ ஏதும் இல்லை.
6. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் தேசிய மற்றும் மாநில நெடுஞ்சாலைகள் ஏதும் செல்லவில்லை.
7. மேற்படி பூமியில் 50 மீட்டர் சுற்றளவில் குறைமின்னழுத்தக்கம்பிகள், உயர் மின்னழுத்தக்கம்பிகள் ஏதும் செல்வதில்லை.

எனவே மனுதாரர் திரு.ஏ.கோபாலகிருஷ்ணன் த/பெ.வேலுசாமி என்பவருக்கு குலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்:291/1A நெ.காலையில் பு.ஹெக் 2.43.5 பரப்பளவுள்ள பட்டா பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் புதுப்பித்து வழங்க பரிந்துரை செய்து உரிய ஆவணங்களை இத்துடன் இணைத்து அனுப்பியுள்ளேன் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு: தொடர்புடைய ஆவணங்கள்

தங்கள் உண்மையுள்ள

19/10/2017
வட்டாட்சியர்

குலூர்.

19/10/2017

புலத்தணிக்கை குறிப்பு

நாள்: 18.10.2022

கிராமம்: பச்சாபாளையம்

புல எண்: 291/1A


உடனிருந்த அலுவலர்கள்: செலக்கரிச்சல் நில வருவாய் ஆய்வாளர்,
பச்சாபாளையம் கிராம நிர்வாக அலுவலர்
மற்றும் கிராம உதவியாளர்

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்:291/1A நெ.காலையில் பு.ஹெக் 2.43.5 பரப்பளவுள்ள பட்டா பூமியில் திரு.ஏ.கோபாலகிருஷ்ணன் த/பெ.வேலுசாமி த.பெ.ராமசாமிகவுண்டர் என்பவர் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் புதுப்பிக்கக் கோரி மனு அளித்தது தொடர்பாக பிரஸ்தாப புலம் 18.10.2022 அன்று என்னால் தணிக்கை செய்யப்பட்டது.

மேற்படி குவாரி அமையவுள்ள இடத்திற்கு வடபுறத்தில் கள்ளப்பாளையம் கிராமத்தைச் சேர்ந்த தமிழ்நாடு குவாரியும், தென்புறத்தை ஒட்டி வேல்முருகன் கல்குவாரியும், மேல்புறத்தை ஒட்டி மகேந்திரன் கல்குவாரியும், கிழபுறத்தில் புலத்தை ஒட்டி ராக்கியாகவுண்டருக்கு பாத்தியப்பட்ட குவாரியும்(கைவிடப்பட்டவை) அமைந்துள்ளது,

1. மேற்படி பூமியில் அரசு புறம்போக்கு நிலம் ஏதும் இல்லை.
2. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் நத்தம் குடியிருப்பு பகுதிகளோ, அங்கரிக்கப்பட்ட வீட்டுமனைகளோ ஏதுமில்லை.
3. மேற்படி பூமியானது நகர்ப்புற நில உச்சவரம்பு சட்டம் 1978-ன் கீழ் கவரப்படவில்லை.
4. மேற்படி பூமியானது நில சீர்த்திருத்த சட்டம் 1961-ன் கீழ் கவரப்படவில்லை.
5. மேற்படி பூமியில் கோவில், மசூதி, தேவாலயம் போன்ற மத வழிபாட்டுத்தளங்கள், புராதானச் சின்னங்களோ அல்லது விலையுயர்ந்த மரங்களோ ஏதும் இல்லை.
6. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் தேசிய மற்றும் மாநில நெடுஞ்சாலைகள் ஏதும் செல்லவில்லை.
7. மேற்படி பூமியில் 50 மீட்டர் சுற்றளவில் குறைமின்னழுத்தக்கம்பிகள், உயர் மின்னழுத்தக்கம்பிகள் ஏதும் செல்வதில்லை.

எனவே மனுதாரர் திரு.ஏ.கோபாலகிருஷ்ணன் த/பெ.வேலுசாமி த.பெ.ராமசாமிகவுண்டர் என்பவருக்கு குலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்:291/1A நெ.காலையில் பு.ஹெக் 2.43.5 பரப்பளவுள்ள பட்டா பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் புதுப்பித்து வழங்க முன்மொழிவுகள் தயார் செய்யவும்.


வட்டாட்சியர்
குலூர்

ந.க.எண் :4625/2022/அ2,

நாள் :20.07.2022

குறிப்பாணை

பொருள் : கனிமங்களும் சுரங்கங்களும் - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - பச்சாபாளையம் கிராமம் - புல எண்கள். 291/1A-ல் 2.43.5 ஹெக்டேர் பரப்புள்ள பட்டாபூமி - திரு.V.கோபாலகிருஷ்ணன் த/பெ.வேலுசாமி என்பவர் சாதாரக் கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோருதல் - தொடர்பாக.



- பார்வை : 3. திரு.V.கோபாலகிருஷ்ணன் த/பெ.வேலுசாமி 2/20, கொங்கு இல்லம், பழைய போஸ்ட் ஆபிஸ் வீதி, காங்கயம்பாளையம், சூலூர் வட்டம், கோயம்புத்தூர் என்பவர் விண்ணப்பம் நாள்:12.07.2022.
4. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர். ந.க.எண்.797/கனிமம்/2022, நாள்:12.07.2022.

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், பச்சாபாளையம் கிராமம், புல எண்.291/1A-ல் 2.43.5 ஹெக்டேர் பரப்புள்ள பட்டா பூமியில், கிராவல் கிராவல் குவாரி குத்தகை உரிமம் கோரி திரு.V.கோபாலகிருஷ்ணன் த/பெ.வேலுசாமி என்பவர் பார்வை 1-இல் காணும் விண்ணப்பம் செய்துள்ளார். விண்ணப்பத்தில் குறிப்பிட்டுள்ள புலத்தைத் தணிக்கை செய்து சாதாரக் கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் வழங்கும் பொருட்டு கீழ்க்கண்ட விவரங்களுடன் பரிந்துரை அறிக்கையை அனுப்பி வைக்குமாறு பார்வை 2-இல் காணும் கடிதத்தில் கேட்டுக் கொள்ளப்பட்டுள்ளது.

1. மனு செய்துள்ள புலங்கள் மனுதாரருக்கு பாத்தியப்பட்டுள்ளதா அல்லது சம்பந்தப்பட்ட பட்டாதாரர்களிடம் சம்மதம் பெற்றுள்ளாரா என்ற விவரம்.
2. விண்ணப்பம் செய்துள்ள பகுதியை புலவரைப்படத்தில் தெளிவாக அளவுகளுடன் அடையாளமிட்டு, அதை சுற்றியுள்ள புலங்களின் விவரத்துடன் வட்டாட்சியரின் ஒப்புதலுடன் அனுப்பப்பட வேண்டும்.
3. சாதாரக் கற்கள் மற்றும் கிராவல் கிராவல் குவாரி குத்தகை உரிமம் கோரியுள்ள புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள் /வீட்டுமனைபிரிவுகள் /குடியிருப்புகள் /கிராம நத்தம் இருப்பின் அதன் விவரமானது குறிப்பிடப்பட வேண்டும்.
4. சாதாரக் கற்கள் மற்றும் கிராவல் கிராவல் குவாரி குத்தகை உரிமம் கோரியுள்ள புலத்திலிருந்து 50 மீட்டர் சுற்றளவில் உயர் மின்னழுத்த கம்பங்கள் அல்லது தாழ் மின்னழுத்த கம்பங்கள் மற்றும் ஓடைப் பகுதிகள் இருப்பின் அதன் விவரமானது குறிப்பிடப்பட வேண்டும்.

5. மனுதாரர் குத்தகை உரிமம் கோரியுள்ள புலத்தில் குத்தகை உரிமம் வழங்க அபி
அறிவிப்பு செய்து பொதுமக்கள் ஆட்சேபனை ஏதேனும் இருப்பின் அதன் விவரம்.


. இந்நேர்வில், புலத்தணிக்கை மற்றும் விசாரணை செய்து, மேற்காண்
விவரங்களுடன் விரிவான அறிக்கை அனுப்பி வைக்குமாறு குலூர் வட்டாட்சியர் கேட்டுக்
கொள்ளப்படுகிறார்.

(ஓம்).வை.இளங்கோ.
வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் தெற்கு.

பெறுநர்:
வட்டாட்சியர்,
குலூர்.

//உண்மை நகல்/ஆணைப்படி//


தலைமை உதவியாளர்


20.07.2022

பணி நிறைவு செய்யப்படுகிறது

Handwritten signature/initials on the left margin.

கோவை மாவட்டம் துயர் வட்டம்
காங்கிரெயம் பாணையம் கிராமம் கது எண் 2/20
உதாரணி கிவ்வம் பரையு போஸ்ட் ஆபீஸ் வீதி துயர்
கோவை எனது முகவரியில் வசதிக்கு வரும்
திரு. V. கோபாலகிருஷ்ணன் த/ப வேலுச்சேரி
என்பவர் ^{பச்சுபாணையம்} கிராமத்தில் க.ச எண் 291/1A
உரு. கிராமியல் 4. ஏறு 2.43.5 -ல் கல்கவரி
உரிமத்தை 4 ஆயக்க ஊராத்த மஜவன் கீழ் உரிமரினை
கொண்டு 4வது தனித்தனிக் குடி கீழ்க்கண்டவர்க்கு
அந்தக் குடி சமர்ப்பிக்கப்படுகிறது

கோவை மாவட்டம் துயர் வட்டம்
பச்சுபாணையம் கிராமம் 4வ எண் 291/1A உரு. கிராமியல்
4. ஏறு 2.43.5 உள் தீர்மானம் குடியானது துயர்
சமர்ப்பிக்கும் அடிப்படையில் கிராமியல் எண் 294/1983
உண் 24.12.1983 படியும் பட்ட எண் 296 - படியும்
~~கிராமியல்~~ மகன் படிவியப்பலுக்கு பந்தியப்பட்டு
கொண்ட படிவியப்பலுக்கு பந்தியப்பட்டு குடியான கல்கவரி
அமைக்க மஜவன் V. கோபாலகிருஷ்ணனுக்கு சமர்ப்பி
கூடிய எழுத்துக்கொடுத்திருக்கிறது. கொடிய படிவிய
உரிமரினை R.C No 418/Mines/2015 dt 07.10.2017
படி கல்கவரி குடிதனை உரிமம் உட்கர்ப்பப்படும்மது
கொடிய படிவிய உட்கர்ப்ப கல்கவரியில் கிராமியல்
கொண்டு தமக்குள்ளே கல்கவரியில்
கொடிய படிவிய குடிதனை உரிமம், 4வது தனித்தனிக்
கொடிய படிவிய 4வது தனித்தனிக் குடியானது மகன்கிருஷ்ணனியல்
கிராமியல் 4வது தனித்தனிக் குடியானது மகன்கிருஷ்ணனியல்
பந்தியப்பட்டு குடியானது (கல்கவரியில்) அமைத்திருக்கிறது

1. சென்ட்ரல் துறியில் அரசு 4ம் பருவம் குடும்ப நலம் திட்டம் தீர்மானம்
2. சென்ட்ரல் துறியிலிருந்து 300 லட்சம் சிற்றுமலை நடுத்தம் குடியிருப்புகளை அங்கீகரிக்கப்பட்ட திட்டம் லாண்டிங்குகளை திட்டம் தீர்மானம்
3. சென்ட்ரல் துறியைத் தனித்த உச்சவரம்பு சட்டத்தின் 1978-ல் கையாடப்படவில்லை
4. சென்ட்ரல் துறியைத் தீவிர தீர்த்துத்த சட்டம் 1961-ல் தீர்மானிக்கப்பட்டது
5. சென்ட்ரல் துறியில் கைமலர், மசூதி, தேவாலயம் மற்றும் மது விற்பனையிடங்கள் திட்டம் தீர்மானம்
6. 4-வது திட்டம், உணவுப்பொருள் மற்றும் மனிதநேர் கமிட்டிகள் திட்டம் தீர்மானம்
7. சென்ட்ரல் துறியிலிருந்து 300 லட்சம் சிற்றுமலை தேசிய மற்றும் மாநில குடிநீர் கைமலர் திட்டம் தீர்மானம்

எனவே சென்ட்ரல் மந்திரி கைமலர் கவசுமலர் உரிமத்தை அரசு உத்தரவிடும் 4-வது திட்டம் உத்தரவிடும் என பரிந்துரை செய்து அந்தை தீர்மானிக்கப்படுகிறது

V. Jayaram
 கிராம நிர்வாக அலுவலர்
 43, பச்சாபாளையம்,
 சூலூர் வட்டம்
 18.10.2022

குடிநீர்
 உட்கட்டிய அலுவலர்
 சூலூர்.

2. மேற்படி மூலியலாக்ரந்த் 300 லட்சம் சிற்றளவை
நக்தம் குடியரசும்பகனா அங்கீகரிக்கப்பட ஆட்டு
பணவலுடங்கனா ப்ரதம் கிணை.

3. மேற்படி மூலியலாக்ரந்த் நக்தம் உச்சவரம்பு சட்டநிசி
1978-ல் கரம்பலகிணை.

4. மேற்படி மூலியலாக்ரந்த் நவ சீர்திருநீர சட்டம் 1961-ல்
சீர்த் கரம்பலகிணை.

5. மேற்படி மூலியலி மேலி, லக்தி, தேவாளயம் லக்ரம்
லக்ரவழியலட்டுதலம் ப்ரதம் கிணை.

6. ஹகரகாசி சினகம், அணலயலாக்ரந்த் லக்ரம் மின்கரகம்பகதம்
ப்ரதம் கிணை.

7. மேற்படி மூலியலாக்ரந்த் 300 லட்சம் சிற்றளவை சீர்திர
லக்ரம் லாக்ரல ரகடுக்சாணலகம் ப்ரதம் கிணை.

பகாபல மேற்படி லகரகரந்ர காளில கங்கவாளி
உலிக்ரகா அரகா அகிககல்கலய ஹகம்பக்த் அலக்தகலகம் பகா
பகிக்ரகர பக்த் அகிககலக சகம்பககப்படுகலக.

பெயர்:-

அபலலகிணை


சுதாரி அலலம்.

M. Pragasam
வருவாய் அலயலாளர்
பெலக்சிகிசலக உள் அலலம்,
சுதாரி அலலம்.

புனர்நிர்மாணப்பணிகள்:

தொழில்துறை துறையில், திருச்சி மாவட்டம்,
 புதிதூர் மாவட்டம் துறையில் கட்டிடப்பணிகள் துறையில்
 க.ச.எண்- 291/1A - 2.43.5 ஏக்கர் பரப்பு கொண்ட பகுதி
 புதிதூர் மாவட்டம் துறையில் அமைந்துள்ள துறைமுகப் பகுதி
 புதிதூர் மாவட்டம் துறையில் அமைந்துள்ள துறைமுகப் பகுதி
 புதிதூர் மாவட்டம் துறையில் அமைந்துள்ள துறைமுகப் பகுதி

தொழில்துறை துறையில், புதிதூர் மாவட்டம்
 துறையில் க.ச.எண் - 291/1A - 2.43.5 ஏக்கர்
 பரப்பில் உள்ள பகுதி பகுதி - 296-ஆம்
 துறைமுகப் பகுதியில், தொழில்துறை துறைமுகப் பகுதி - 291/1A-ல்
 உள்ள 2.43.5 ஏக்கர் பரப்பு உள்ள துறைமுகப் பகுதி
 பகுதி - 291/1A-ல் உள்ள பகுதியில் உள்ள பகுதியில்
 தொழில்துறை துறைமுகப் பகுதியில் உள்ள பகுதியில்
 தொழில்துறை துறைமுகப் பகுதியில் உள்ள பகுதியில்
 தொழில்துறை துறைமுகப் பகுதியில் உள்ள பகுதியில்
 தொழில்துறை துறைமுகப் பகுதியில் உள்ள பகுதியில்
 தொழில்துறை துறைமுகப் பகுதியில் உள்ள பகுதியில்
 தொழில்துறை துறைமுகப் பகுதியில் உள்ள பகுதியில்


 616272
 திருச்சி மாவட்டம் துறைமுகப் பகுதி
 துறைமுகப் பகுதி

**TOPOGRAPHICAL VIEW OF PACHAPALAYAM ROGH STONE AND GRAVEL
QUARRY LEASE APPLIED AREA**



Name of the Applicant : V.Gopalakrishnan
S/o. R.Velusamy,
Address : No.2/20, Kongu Illam, Old Post office Street,
Kangayampalayam, Sulur Taluk,
Coimbatore District,
Tamil Nadu State – 641 401.

Location:

S.F.No. : 291/1A
Extent : 2.43.5 Ha
Village : Pachapalayam
Taluk : Sulur
District : Coimbatore

Signature of the Applicant

V.Gopalakrishnan

J. Asely Prince
16/10/2022
கிராம நிர்வாக அலுவலர்
25 பச்சாபாளையம்
(Village Administrative Officer)
சுலூர் வட்டம்.
Attestation



File No: 10786

Government of India

Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), TAMIL NADU)



Dated 31/05/2024



To,

Rajkumar
TAMILNADU BLUE METAL
1678, Trichy Road, Ramanathapuram, Coimbatore District, Coimbatore , COIMBATORE, TAMIL
NADU, 641045
nepcoff@gmail.com

Subject: Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding.

Sir/Madam,

This is in reference to your application for Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding in respect of project Tvl. Tamilnadu Blue Metals, Rough Stone and Gravel Quarry, Extent: 1.91.0ha S.F.Nos. 263/1A(P) and 264/1(P) of Kallapalayam Village, Sulur Taluk, Coimbatore District., submitted to SEIAA vide proposal number SIA/TN/MIN/466957/2024 dated 02/05/2024.

Ref: 1. Online Proposal No. SIA/TN/MIN/466957/2024, dated: 22.03.2024
2. Your application submitted for Terms of Reference dated: 01.04.2024

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24B0108TN5672058N
(ii) File No.	10786
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals Tvl. Tamilnadu Blue Metals, Rough Stone and Gravel Quarry, Extent: 1.91.0ha S.F.Nos. 263/1A(P) and 264/1(P) of Kallapalayam Village, Sulur Taluk, Coimbatore District.,
(vii) Name of Project	TAMILNADU BLUE METAL
(viii) Name of Company/Organization	COIMBATORE, TAMIL NADU
(ix) Location of Project (District, State)	SEIAA
(x) Issuing Authority	no
(xii) Applicability of General Conditions	

3. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were submitted to the SEIAA for an appraisal by the State Environment Impact Assessment Authority(SEIAA) under the provision of EIA notification 2006 and its subsequent amendments.
4. The above-mentioned proposal has been considered by State Environment Impact Assessment Authority(SEIAA) in the meeting held on 24/05/2024. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B,)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
5. The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations recommended the proposal for grant of Terms of Reference under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (1).
6. The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the State Environment Impact Assessment Authority(SEIAA) Appraisal Committee hereby decided to grant Terms of Reference for instant proposal of M/s.Tvl. Tamilnadu Blue Metals, Rajkumar under the provisions of EIA Notification, 2006 and as amended thereof.
7. The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.
8. The Terms of Reference to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.
9. This issues with the approval of the Competent Authority.
10. The TORs with public hearing prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

Copy To

1. The Additional Chief Secretary to Government, Environment, Climate Change and 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 - 110 032.
3. The Chairperson, 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 - 110 003.
6. The District Collector, Coimbatore District.
7. Stock File.

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seac Conditions - Site Specific

S. No	Terms of Reference
1.1	<ol style="list-style-type: none"> 1. The project proponent shall submit a Certified Compliance Report obtained from IRO of MoEF & CC, Chennai for the EC granted earlier by the SEIAA-TN. 2. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries nearby provided as per the approved mining plan. 3. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc. 4. The PP shall propose the mitigation measures for the protection of structures exists within 500 m distance radially from the mine lease against the blast-induced ground & air vibrations, air & water pollution, haul road maintenance, ground water management.

2. Seac Standard Conditions

S. No	Terms of Reference
2.1	<ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. 2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site. 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc. 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry. 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report. 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

S. No	Terms of Reference
	<p>of the working is extended beyond 30 m below ground level.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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,</p> <p>13. 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>14. Quantity of minerals mined out.</p> <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. <p>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).</p> <p>16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.</p> <p>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.</p> <p>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.</p>

S. No	Terms of Reference
	<p>Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.</p> <p>23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>28. Impact on local transport infrastructure due to the Project should be indicated.</p> <p>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.</p> <p>30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.</p> <p>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.</p> <p>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.</p> <p>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</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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</p>

S. No	Terms of Reference
	<p>be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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</p> <p>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.</p>

3. Seiaa Specific Conditions:

S. No	Terms of Reference
3.1	<p>The Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) for the quantity of 1,51,295 m³ of Rough stone & 10,064 m³ of Gravel up to the ultimate depth of 27m below ground level and the annual peak production should not exceed 30,810 m³ of Rough stone & 6868 m³ of Gravel, 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</p>

4. Seiaa Standard Conditions:

S. No	Terms of Reference
4.1	<p>Cluster Management Committee</p> <ol style="list-style-type: none"> 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. 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.

S. No	Terms of Reference
	<p>9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.</p> <p>10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.</p> <p>11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.</p> <p>Impact study of mining</p> <p>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</p> <ol style="list-style-type: none"> Soil health & soil biological, physical land chemical features . Climate change leading to Droughts, Floods etc. Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people. Possibilities of water contamination and impact on aquatic ecosystem health. Agriculture, Forestry & Traditional practices. Hydrothermal/Geothermal effect due to destruction in the Environment. Bio-geochemical processes and its foot prints including environmental stress. Sediment geochemistry in the surface streams. <p>Agriculture & Agro-Biodiversity</p> <p>13. Impact on surrounding agricultural fields around the proposed mining Area.</p> <p>14. Impact on soil flora & vegetation around the project site.</p> <p>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.</p> <p>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.</p> <p>17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.</p> <p>18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.</p> <p>Forests</p> <p>19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.</p> <p>20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.</p> <p>21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.</p> <p>22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.</p> <p>Water Environment</p> <p>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.</p> <p>24. Erosion Control measures.</p> <p>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.</p> <p>26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.</p> <p>27. The project proponent shall study and furnish the details on potential fragmentation impact on</p>

S. No	Terms of Reference
	<p>natural environment, by the activities.</p> <p>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.</p> <p>29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.</p> <p>30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.</p> <p>Energy</p> <p>31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.</p> <p>Climate Change</p> <p>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.</p> <p>33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.</p> <p>Mine Closure Plan</p> <p>34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.</p> <p>EMP</p> <p>35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.</p> <p>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.</p> <p>Risk Assessment</p> <p>37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.</p> <p>Disaster Management Plan</p> <p>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.</p> <p>Others</p> <p>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.</p> <p>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.</p> <p>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.</p>

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	An EIA-EMP Report shall be prepared for peak capacity (.....MTPA)operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.
1.2	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of mineral production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
1.3	Propoer KML file with pin drop and coordinate of mine at 500-1000 m interval be provided
1.4	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also
1.5	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.
1.6	A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.
1.7	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river need eloboration in form of lengthe, quantity and quality of water to be diverted
1.8	(Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.
1.9	Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.
1.10	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.

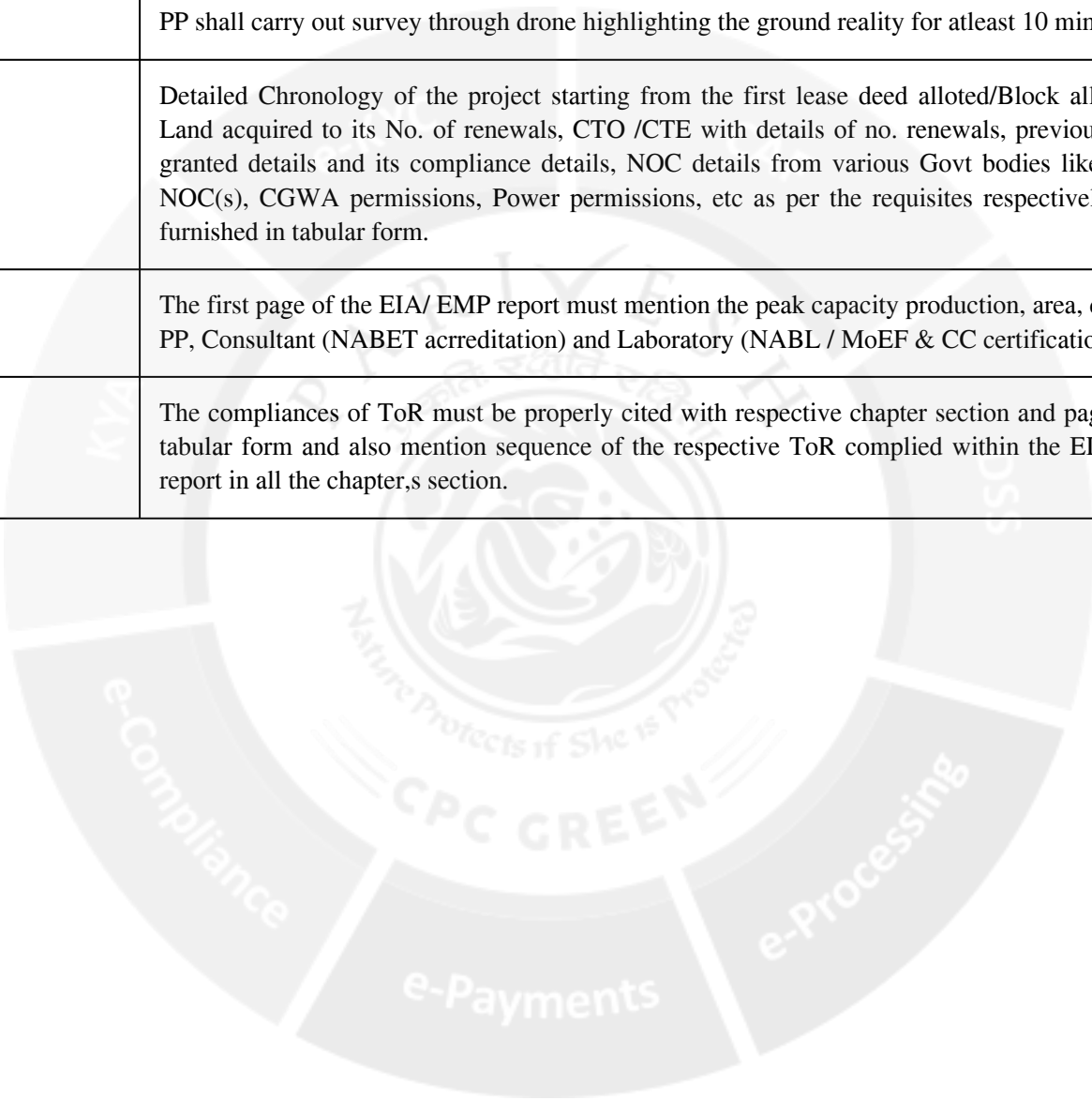
S. No	Terms of Reference																																																						
1.11	<p>A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.</p>																																																						
1.12	<p>Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights</p> <table border="1"> <thead> <tr> <th>S.N</th> <th>ML/Project use</th> <th>Land Area Surface Rights(ha)</th> <th>Area under Surface Rights(ha)</th> <th>Area Under Mining Rights(ha)</th> <th>Area under Both (ha)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Agricultural land</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Forest Land</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Grazing Land</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>Settlements</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>Others (specify)</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>S.N.</th> <th>Details</th> <th>Area (ha)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Buildings</td> <td></td> </tr> <tr> <td>2</td> <td>Infrastructure</td> <td></td> </tr> <tr> <td>3</td> <td>Roads</td> <td></td> </tr> <tr> <td>4</td> <td>Others (specify)</td> <td></td> </tr> <tr> <td></td> <td>Total</td> <td></td> </tr> </tbody> </table>	S.N	ML/Project use	Land Area Surface Rights(ha)	Area under Surface Rights(ha)	Area Under Mining Rights(ha)	Area under Both (ha)	1	Agricultural land					2	Forest Land					3	Grazing Land					4	Settlements					5	Others (specify)					S.N.	Details	Area (ha)	1	Buildings		2	Infrastructure		3	Roads		4	Others (specify)			Total	
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2	Infrastructure																																																						
3	Roads																																																						
4	Others (specify)																																																						
	Total																																																						
1.13	<p>Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.</p>																																																						
1.14	<p>One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SOx, NOx and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided. The detail of NABL/ MoEF&CC certification of the respective laboratory and NABET accreditation of the consultant to be provided.</p>																																																						
1.15	<p>Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting</p>																																																						

S. No	Terms of Reference
	sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.
1.16	For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area. In case of expansion, the displayed data of CAAQMS and its comparison with the monitoring data to be provided
1.17	A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.
1.18	The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.
1.19	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.
1.20	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.
1.21	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted
1.22	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.

S. No	Terms of Reference
1.24	Detailed water balance should be provided. The break up of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.
1.25	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs
1.26	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored
1.27	PP to evaluate the green house emission gases from the mine operation and corresponding carbon absorption plan.
1.28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.
1.29	Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.
1.30	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.
1.31	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.
1.32	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.
1.33	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.
1.34	Adequate greenbelt nearby areas, stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.

S. No	Terms of Reference																																																
1.36	Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.																																																
1.37	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.																																																
1.38	Corporate Environment Responsibility:																																																
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.																																																
1.40	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.																																																
1.41	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.																																																
1.42	d) To have proper checks and balances, the company should have a well laid down 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.																																																
1.43	e) Environment Managment Cell and its responsibilities to be clearly spleel out in EIA/ EMP report																																																
1.44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.																																																
1.45	Status of any litigations/ court cases filed/pending on the project should be provided.																																																
1.46	PP shall submit clarification from DFO that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.																																																
1.47	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.																																																
1.48	<p>Details on the Forest Clearance should be given as per the format given:</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;">Total ML Total</td> <td style="width: 15%;"></td> <td style="width: 15%;">Date</td> <td style="width: 15%;">Extent</td> <td style="width: 15%;">ofBalance</td> <td style="width: 15%;">area</td> <td style="width: 15%;">forStatus of appl For</td> </tr> <tr> <td></td> <td>Project Area Forest</td> <td></td> <td>of FC</td> <td>Forest</td> <td>which FC is yet to</td> <td>be diversion</td> <td>of forest</td> </tr> <tr> <td></td> <td>(ha)</td> <td>land (ha)</td> <td></td> <td>Land</td> <td>obtained</td> <td>land</td> <td></td> </tr> <tr> <td></td> <td></td> <td>If more than one</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>provide details of</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>each FC</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		Total ML Total		Date	Extent	ofBalance	area	forStatus of appl For		Project Area Forest		of FC	Forest	which FC is yet to	be diversion	of forest		(ha)	land (ha)		Land	obtained	land				If more than one								provide details of								each FC					
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		provide details of																																															
		each FC																																															

S. No	Terms of Reference
1.49	In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report
1.50	Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.
1.51	PP shall carry out survey through drone highlighting the ground reality for atleast 10 minutes
1.52	Detailed Chronology of the project starting from the first lease deed allotted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form.
1.53	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF & CC certification)
1.54	The compliances of ToR must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapter,s section.



Signature Not Verified

Digitally Signed by : A R Rahul Nadh IAS
Member Secretary, SEIAA

Date: 31/05/2024

From
V.Sasikumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
M/s. Tamilnadu Blue Metals
1678, Trichy Road,
Ramanathapuram,
Coimbatore - 641 045.

Rc.No.198/Mines/2022 Dated: 28.11.2023

Sir,

Sub: Mines & Minerals - Minor Mineral - Coimbatore District - Sulur Taluk - Kallappalayam Village - Survey Nos. 263/1A(P) (1.31.0 hectares) and 264/1(P) (0.60.0 hectares) - over an extent of 1.91.0 hectares of patta land - Application preferred by M/s. Tamilnadu Blue Metals for quarrying Rough stone and gravel- Precise area communicated - Details of quarries situated within 500 meter radial distance - Requested - furnished - reg.

- Ref. 1. Quarry lease application dated 01.03.2022 & 16.10.2023 preferred by M/s. Tamilnadu Blue Metals, Coimbatore.
2. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.198/Mines/2022, Dated: 25.10.2023.
3. Mining Plan submitted by M/s.Tamilnadu Blue Metals dated:24.11.2023.

I invite kind attention to the reference cited, wherein M/s.Tamilnadu Blue Metals have been issued precise area for the grant of Rough Stone and gravel quarry lease over an extent of 1.91.00 hectares of patta land in Survey Nos. 263/1A (P) 1.31.0 hectares and 264/1(P) 0.60.0 heactares of Kallappalayam Village, Sulur Taluk, Coimbatore District.

In the reference 2nd cited of M/s.Tamilnadu Blue Metals have 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.	M/s.Ultra Readymix Concrete (P) Ltd.,	Orattukuppai 320(P) 332/2A (P)	3.07.4	22.12.2018 To 21.12.2023	
2.	M/s. Ultra Sahara Sand (P) Ltd.,	Orattukuppai 188(P), 190/1	2.37.0	14.12.2022 To 13.12.2027	
3.	M/s. Ultra Sahara Sand (P) Ltd.,	Orattukuppai 191(P), 198(P)	2.50.0	14.12.2022 To 13.12.2027	

ii) Expired Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1.	K. Balakrishnan	Pachapalayam 291/1B1B(P)	2.40.5	15.09.2017 to 14.09.2022	
2.	Thiru K.Natarajan	Pachapalayam 291/2A2 291/2B	1.83.5	02.06.2016 to 01.06.2021	
3.	M/s.Tamilnadu Blue Metals	Kallapalayam 263/2A	1.60.0 Hect	22.05.2011 to 21.05.2016	
4.	M/s.Tamilnadu Blue Metals	261/1B, 261/2,	6.09.0 Hect	14.03.2017 to 13.03.2022	

iii) Abandoned quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1.	Velusamy	Pachapalayam 291/2A2, 291/2B	1.83.5	07.03.2017 To 06.03.2020	
2.	V.Gopala krishnan	Pachapalayam 282/2A2	1.28.5	02.06.2014 to 01.06.2018	
3.	N.Boopathiraja	Pachapalayam 291/2A2, 291/2B	1.83.5	02.06.2016 to 01.06.2021	


iv) Proposed quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Remarks
1.	M/s.Tamilnadu Blue Metals	Kallappalayam 263/1A(P) 264/1(P)	1.91.0	Subject area Precise area communicated

2.	V.Gopalakrishnan	Pachapalayam 291/1A	2.43.5	Pending with SEIAA
3.	M/s.Ultra Sahara Sand	Orattukuppai 320(P)	6.36.0	Application Processed
4.	Thiru. D.Ramesh	Pachapalayam 291/1B1A	0.91.0	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.


 28/11/20


 28/11/20

From
V.Sasikumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
M/s. Tamilnadu Blue Metals
1678, Trichy Road,
Ramanathapuram,
Coimbatore - 641 045.

Rc.No. 198/Mines/2022 Dated: 28.11.2023

Sir,

Sub : Mines & Minerals - Minor Mineral - Coimbatore District - Coimbatore District - Sulur Taluk - Kallappalayam Village - Survey Nos. 263/1A(P) (1.31.0 hectares) and 264/1(P) (0.60.0 hectares) - over an extent of 1.91.0 hectares of patta land - Application preferred by M/s. Tamilnadu Blue Metals 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.198/Mines/2022, Dated: 25.10.2023
2. Mining Plan submitted by M/s. Tamilnadu Blue Metals dated: 24.11.2023

In the reference 2nd cited M/s. Tamilnadu Blue Metals have requested to furnish certain particulars regarding the precise area granted in Survey Nos. 263/1A(P) (1.31.0 hectares) and 264/1(P) (0.60.0 hectares)) over an extent of 1.91.0 hectares of patta land in Kallappalayam 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 Ex lessee	SF.No/ Extent	District Collector's proceedings No. & Date	Validity	Lease Period
1	M/s. Tamilnadu Blue Metals	261/1B, 261/2, 263/1A, 264/1 6.09.0 Hect	RC.No.374/ 2005/MM2 dated. 15.06.2005	5 years	24.07.2005 to 23.07.2010

2	M/s. Tamilnadu Blue Metals	261/1B, 261/2, 263/1A, 264/1 6.09.0 Hect	RC.No.662/ 2010/MM2 Dated 18.08.2010	5 years	18.08.2010 to 17.08.2015
3	M/s. Tamilnadu Blue Metals	263/2A 1.60.0 Hect	RC.No.120/ 2011/MM2 Dated 22.05.2011	5 years	22.05.2011 to 21.05.2016
4	M/s.Tamilnadu Blue Metals	261/1B, 261/2, 263/1A, 264/1 6.09.0 Hect	RC.No.717/ 2015/ Dated 14.03.2017	5 years	14.03.2017 to 13.03.2022

At the time of inspection, the quarry pit-1 with a dimension of 76 Meter (length) X 110 Meter (width) X 1 Meter depth, Pit-2 dimension of 80 Meter (length) X 41 Meter (width) X 22 Meter depth is noticed in the applied area.

(9/6)

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

28/11/20

6/11/20
28/11/20

From

V.Sasikumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To

M/s. Tamilnadu Blue Metals
1678, Trichy Road,
Ramanathapuram,
Coimbatore – 641 045.

Rc.No.198/Mines/2022 Dated: 28.11.2023

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Kallappalayam Village - Survey Nos. 263/1A(P) (1.31.0 hectares) and 264/1(P) (0.60.0 hectares) - over an extent of 1.91.0 hectares of patta land - Application preferred by M/s. Tamilnadu Blue Metals for quarrying Rough stone and gravel – Submission of mining plan for approval – approved – regarding.

- Ref: 1. Quarry lease application dated 01.03.2022 & 16.10.2023 preferred by M/s. Tamilnadu Blue Metals, Coimbatore.
2. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.198/Mines/2022, Dated: 25.10.2023.
3. Mining Plan submitted by M/s. Tamilnadu Blue Metals dated: 24.11.2023.

In response to the precise area communicated by the Assistant Director of Geology and Mining, Coimbatore the applicant M/s. Tamilnadu Blue Metals have submitted three copies of mining plan vide reference 3rd cited for the grant of rough stone and gravel quarry lease over an extent of 1.91.0 hectares of patta land in S.F.Nos.263/1A(P) (1.31.0 hectares) and 264/1(P) (0.60.0 hectares) of Kallappalayam Village, Sulur Taluk, Coimbatore District.

2. The mining plan submitted for the grant of Rough stone and gravel quarry lease over an extent of 1.91.0 hectares of patta land in S.F.Nos.263/1A(P) (1.31.0 hectares) and 264/1(P) (0.60.0 hectares) of Kallappalayam 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.198/Mines/2022, Dated: 15.10.2023 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) A safety distance of 150 meters should be provided for the wind mill situated on the north western side of applied area S.F.No.264/1.
 - d) A safety distance of 10 meters should be provided for the cart track passing on the western side of S.F.No.264/1.
 - e) 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.

- f) As per the orders of the Hon'ble Supreme Court of India in W.P.(C) No.144/2014 Dated 08.01.2020 soon after determination / expiry of the lease period, the damaged part of the lease hold area shall be made fit for cultivation of Plantations, Fauona, Flora etc.,
- g) Quarrying should be done in area seeking permission alonge 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 to The Commissioner of Geology and Mining, Chennai-32.



MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR KALLAPALAYAM ROUGH STONE AND GRAVEL QUARRY

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERAL
CONCESSION RULES, 1959)

Patta Land / Lease period = Five years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 1.91.0Ha
S.F.NOS. : 263/1A(P) and 264/1(P)
VILLAGE : KALLAPALAYAM
TALUK : SULUR
DISTRICT : COIMBATORE
STATE : TAMIL NADU

FOR

APPLICANT

Tvl. TAMILNADU BLUE METALS,
1678, Trichy Road, Ramanathapuram,
Coimbatore District.
Mobile No. 9841085555.

PREPARED BY

M. SANTHOSHKUMAR, M.Sc.,
Qualified Person
(Under Rule 15(I)(a) and (I)(b) of MCR, 2016)
Plot No:3, Kattuvattam,
Kothukara Samathi Via,
Kannakurichi, salem-636 008.
Cell: 97914 41745.
E-Mail: santoshgeo2004@gmail.com

ABBREVIATIONS

- EIA - Environmental Impact Assessment
- SEAC - State Expert Appraisal Committee
- SEIAA - State Level Environment Impact Assessment Authority
- MoEF&CC - Ministry of Environment, Forest and Climate changes
- MSL - Mean Sea Level
- CPCB - Central Pollution control board
- TNPCB - Tamil Nadu Pollution control board
- S.F.No. - Survey Field Number
- DMS - Director of Mines Safety
- DGMS - Director of General Mines Safety
- MMR - Metalliferous Mines Regulations
- MCR - Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules
- TNMMCR - Tamil Nadu Minor Mineral Concession Rules
- EMP - Environment Management Plan
- NGT - National Green Tribunal
- NONEL - Non Electric
- PPV - Peak Particle Velocity
- CRZ - Coastal Regulatory Zone
- HACA - Hill Area Conservation Authority
- QP - Qualified Person



Tvl. TAMILNADU BLUE METALS,
1678, Trichy Road,
Ramanathapuram,
Coimbatore District.
Mobile No. 9841085555



CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Kallapalayam Rough Stone and Gravel Quarry lease applied area over an extent of 1.91.0 hectares patta lands in S.F.Nos. 263/1A(P) and 264/1(P) of Kallapalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu State has been prepared by

M. SANTHOSHKUMAR, M.Sc.,
Qualified Person

We have entrusted the works to prepare the Mining Plan based upon the production requirements to me as per the Mines Acts, Rules, Regulations and Amendments as on date. We request to the Assistant Director, Department of Geology and Mining, Coimbatore District, Tamil Nadu State to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

M. SANTHOSHKUMAR, M.Sc.,
Plot No:3, Kattuvattam,
Kothukara Samathi Via,
Kannakurichi, salem-636 008.
Cell: 97914 41745

We hereby undertake that all the responsibilities of contents in the Mining Plan and if any corrections 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 us and binding on me in all respects. If there is any substantial change during operation I will carry out a Modified Mining plan and seek its approval from concerned Authorities.

Signature of the Applicant

For M/s. Tamilnadu Blue Metals
(For Tamilnadu Blue Metals
(Rajkumar)
Managing Signatory
(Managing Partner)

Place: Coimbatore

Date: 20.11.2023



Tvl. TAMILNADU BLUE METALS,
1678, Trichy Road,
Ramanathapuram,
Coimbatore District.
Mobile No. 9841085555

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Kallapalayam Rough Stone and Gravel Quarry lease applied area over an extent of 1.91.0 hectares patta lands in S.F.Nos. 263/1A(P) and 264/1(P) of Kallapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared in full consultation with me.

We have understood its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to quarry from time to time as per Tamil Nadu Minor Mineral Concession Rules, 1959.

Signature of the Applicant
For M/s. Tamilnadu Blue Metals

(For Tamilnadu Blue Metals)
(Rajkumar)
(Authorised Signatory
(Managing Partner)

Place: Coimbatore

Date: 20.12.2023



CERTIFICATE

Certified that I am, **M. SANTHOSHKUMAR**, M.Sc., residing at Plot No:3, Kattuvattam, Kothukara Samathi Via, Kannakurichi, salem District- 636 008, holding a Post Graduate Degree in Geology (M.Sc., Applied Geology) from Annamalai University, Chidambaram 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 preparing this Mining Plan and Progressive Quarry Closure Plan for Kallapalayam Rough Stone & Gravel Quarry over an extent of 1.91.0 hectares patta lands in S.F.Nos. 263/1A(P) and 264/1(P) of Kallapalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu State for **Tvl. Tamilnadu Blue Metals**, Office at No. 1678, Trichy Road, Ramanathapuram, 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 and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person

M. Santhosh Kumar
M. Santhoshkumar, M.Sc.,

Place: Salem

Date: 24.11.2023

M. SANTHOSHKUMAR, M.Sc.,
Plot No:3, Kattuvattam,
Kothukara Samathi Via,
Kannakurichi, salem-636 008.
Cell: 97914 41745



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 Kallapalayam Rough Stone and Gravel Quarry lease applied area over an extent of 1.91.0 hectares patta lands in S.F.Nos. 263/1A(P) and 264/1(P) of Kallapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Tvl. TAMILNADU BLUE METALS,
1678, Trichy Road,
Ramanathapuram,
Coimbatore District.
Mobile No. 9841085555.

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 State 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 us knowledge.

Signature of the Qualified Person

M. Santhosh
M. Santhoshkumar, M.Sc.,

Place: Salem

Date: 24.11.2023

M. SANTHOSHKUMAR, M.Sc.,
Plot No:3, Kattuvattam,
Kothukara Samathi Via,
Kannakurichi, salem-636 008.
Cell: 97914 41745



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 Kallapalayam Rough Stone and Gravel Quarry lease applied area over an extent of 1.91.0 hectares patta lands in S.F.Nos. 263/1A(P) and 264/1(P) of Kallapalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Tvl. TAMILNADU BLUE METALS,
1678, Trichy Road,
Ramanathapuram,
Coimbatore District.
Mobile No. 9841085555.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of Director of Mines Safety (DMS), No.5, II Street, Block-AA, Anna Nagar, Chennai-40, Tamil Nadu State 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

M. Santhosh Kumar
M. Santhoshkumar, M.Sc.,

Place: Salem

Date: 24.11.2023

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MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR KALLAPALAYAM ROUGH STONE AND GRAVEL.

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDMENT OF TAMIL NADU MINOR MINERAL
CONCESSION RULES, 1959)

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The applicant Tvl. **Tamilnadu Blue Metals**, Office at No. 1678, Trichy Road, Ramanathapuram, Coimbatore District, Tamil Nadu State has entrusted and given consent to preparation of Mining plan and Progressive Mine Closure Plan as per the provisions of Mines Act, Rules, Regulations and as amended till date.

The applicant has applied quarry lease for quarrying of Rough stone and Gravel for over an extent of 1.91.0 hectares patta lands in S.F.Nos. 263/1A(P) and 264/1(P) of Kallapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State for a period of five years under Rules 19 and 20 of Tamil Nadu Minor Mineral Concession Rules, 1959. The following are the statutory requirements with respect to Rough stone and Gravel quarry.

1. Tvl. Tamilnadu Blue Metals, 1678, Trichy Road, Ramanathapuram, Coimbatore District his application dated: 01.03.2022 and 25.10.2023
2. This letter of authority bearing the same No. Date:01.03.2022.
3. Revenue Division Officer, Coimbatore South letter No. 1288/2022/A2 dated: 19.04.2022.
4. Assistant Director, Department of Geology and Mining, Coimbatore, field inspection notice dated: 16.10.2023.
5. The Director, Department of Geology and Mining, Chennai, letter No. 1870/M.M-1/2020 dated: 12.08.2020.

The application was examined, Scrutinized, Inspected and processed by the Assistant Director, Department of Geology and Mining, Coimbatore and issued a Precise Area Communication letter vide letter **Rc. No. 198/ Mines /2022 dated: 25.10.2023** for preparation of Mining plan as per the Rule 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 within 90 days and getting approval from the Department of Geology and Mining, Coimbatore to obtain Environmental Clearance from the State Level Environment Impact Assessment Authority (SEIAA), Tamil Nadu, with the following conditions to provide:

General Conditions:

1. No hindrance shall be caused to the Public, adjacent patta lands while Rough stone and Gravel quarrying operations.
2. A safety distance of 7.5 meters should be provided to the adjacent patta lands while quarry operations.

Specific conditions as prescribed in the precise area communication letter:

1. A safety distance of 150m should be provided for the windmill in S.F.No.264/1 located on the northwest side of the lease applied area.
2. A safety distance of 10m should be provided for the cart track in S.F.No.264/1 located on the west side of the lease applied area.
3. The boundary pillars should be planted in accordance with DGPS (Differential Global Positioning System) survey by the government authorized agency.
4. As per the Hon'ble Supreme Court of India order dated 08.01.2020 in W.P. (C) No. 144/2014, after Ceasing quarry operation re-grassing the quarry area and any other area which may have been disturbed due to the quarrying activity and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.,
5. No Child labour should be engaged for Quarry works.

This Mining Plan along with Progressive Mine closure Plan is prepared in full consultation with **Tvl. Tamilnadu Blue Metals**, Office at No. 1678, Trichy Road, Ramanathapuram, Coimbatore District, Tamil Nadu State for Rough stone and Gravel quarry over an extent of 1.91.0 hectares patta lands in S.F.Nos. 263/1A(p) and 264/1 (p) of Kallapalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu State under Rules 19 and 20 of Tamil Nadu Minor Mineral Concession Rules, 1959 with obtained full consent as per the application and Production schedule in preparation of Mining plan as per the provisions of Mines Act, Rules, Regulations as on date.

The Mining plan has been prepared after carrying the field survey, collection of Primary & secondary data, environmental setting, geological features and tentatively estimated the Resources & Reserves, depth of mining as identified in the field with best our knowledge and experience. This mining plan is prepared by considering the Rule 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent Amendments.

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, it has been now decided that all mining projects of minor minerals including their renewal is require prior environmental clearance. As per amendment in EIA Notification 2006 vide S.O. 1886(E), Dated:20.04.2022 "All mining lease area in respect of minor mineral mining leases and \leq 250 ha mining lease area in respect of major mineral mining lease other than coal" would be treated as

category B and will be considered by the state notified by Ministry of Environment, Forest and Climate Change as prescribed procedure under EIA notification 2006. 7 8 NOV 2023

The field survey carried out by the Qualified Person and Team as on 22.11.2023.

Short Notes of Mining plan:

- a. Village Panchayat - Kallapalayam
- b. Panchayat Union - Sulthanpet
- c. Total extent of the lease applied area is 1.91.0Ha.
- d. Topography of the area - The area is exhibits plain topography.
- e. The Estimated Geological Resources are 4,37,000m³ of Rough stone and 17,912m³ of Gravel in the entire area.
- f. Tentative total Mineable Reserves are 1,51,295m³ of Rough stone and 10,064m³ of Gravel in the entire area.
- g. The proposed quantity of reserves/ (level of production) to be mined are 1,51,295m³ of Rough stone for five years 10,064m³ of Gravel for first two years in the entire area.
- h. Proposed Depth of mining = 27m below ground level.
- i. Lease Period = Five Years
- j. Mining Plan period = Five Years
- k. It is a fresh lease application but, the applied area has been considered quarrying operation earlier. The quarry lease was previously granted with two same spell, these spells are given table below: Refer Annexure No.II

Spells	Name of the Applicant	S.F.No. & Extent	District Collectors Proceedings No. & Dated	Lease Period
1	Tvl. Tamilnadu Blue Metals	261/1B, 261/2, 263/1A and 264/1 – 6.09.0ha	R.C.No.662/2010/MM1 Dated: 18.08.2010	18.08.2010-17.08.2015
2	Tvl. Tamilnadu Blue Metals	261/1B, 261/2, 263/1A and 264/1-6.09.0ha	R.C.No.717/Mines/2015 Dated: 14.03.2017	14.03.2017-13.03.2022

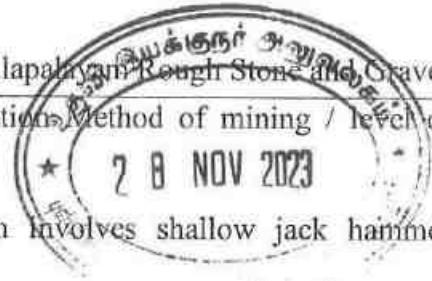
The lessee has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu vide Lr.No.SEIAA-TN/F.No.5418/1(a)/EC.No.3288/2016, Dated: 11.07.2016 (Refer Annexure No. II-A).

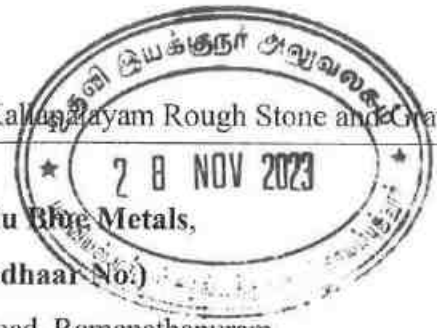
Existing pit dimension are given table below:

Table – 1

Pit ID	Length (m) (Max)	Width (m) (Max)	Depth(m) (Max)
Pit - I	76	110	1m below ground level
Pit - II	80	41	20m below ground level

- m. No trees will be uprooted due to this quarry operations. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting with NONEL initiation.
- n. Type of machineries proposed in the quarrying operation is given below.
Excavators attached with rock breaker and Bucket.
Shallow Jack hammer, Compressor (Diesel drive) (4 Jack Hammer capacity).
- o. No trees will be uprooted due to this quarry operation.
- p. The approach road from the main road to quarry will be constructed; the same will be maintained in good condition for the haulage of quarry materials and machineries.
- q. There is No Export of this Rough stone and Gravel.
- 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 and places of worships is marked and enclosed as Plate Nos. IA & IB.
- s. The lease applied area is about 1.91.0Ha bounded by seventeen corners; the corners are designated as 1-10 clock-wise from the Northeast 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 enclosed as Plate Nos. III, and IV.
- u. 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.*
- v. There is no waste anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- w. Around 26 employees are proposed to deploying the quarrying operation.
- x. Total Cost of the project is about **Rs. 1,34,38,000/-**.



**2.0 GENERAL INFORMATION**

2.1 a) Name of the Applicant : Tvl. Tamilnadu Blue Metals,

b) Address of the Applicant (With Phone No and Aadhaar No.)

Address : 1678, Trichy Road, Ramanathapuram,
Coimbatore District

State with PIN Code : Tamil Nadu

Mobile No : +9841085555

Aadhaar No : 3142 6279 9104 (Refer Annexure No. XI)

E-mail : rajkumarnepe@yahoo.com

c) Status of the Applicant (Individual / Company / Firm):

The applicant is a Partnership firm, Partnership deed executed on 12.01.2005 and duly registered on 11.01.2005. Mr. Ravi Prakash Khemka, Mr. Rajkumar and Mr. Thirupathi Kumar are the Managing Partner and Mr. Rajkumar is an authorized person for signing all the document on behalf of the firm (Refer Annexure No. IV).

2.2 a) Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough stone and Gravel.

b) Precise area communication letter details received from the Competent Authority of the Government:

The precise area communication letter was received from the Assistant Director, Department of Geology and Mining, Coimbatore District vide **Rc. No. 198/ Mines/2022 dated: 25.10.2023** (Refer Annexure No. I) and was given to us for the preparation of mining plan to meet out the applicant's production schedule.

c) Period of permission / lease to be granted:

Ten five as mentioned in Precise area Communication letter.

d) Name and address of the Qualified Person who preparing the Mining Plan:

Name : **M. Santhoshkumar, M.Sc.,**

Qualified Person (Under Rule 15(I)(a) and (I)(b) of MCR, 2016)

Address : Plot No:3, Kattuvattam

Kothukara Samathi Via

Kannakurichi, salem

State with PIN Code : Tamil Nadu – 636 008.

Mobile : +97914 41745

Email : santoshgeo2004@gmail.com

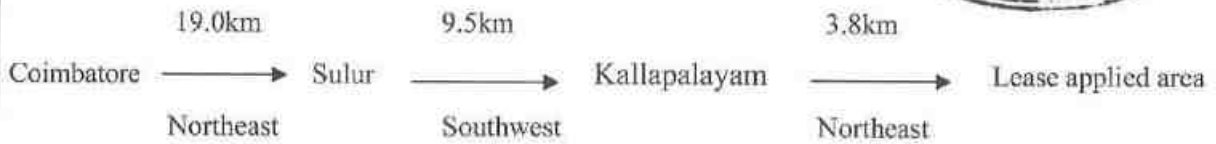
(Please Refer Annexure Nos. XII and XII-A).



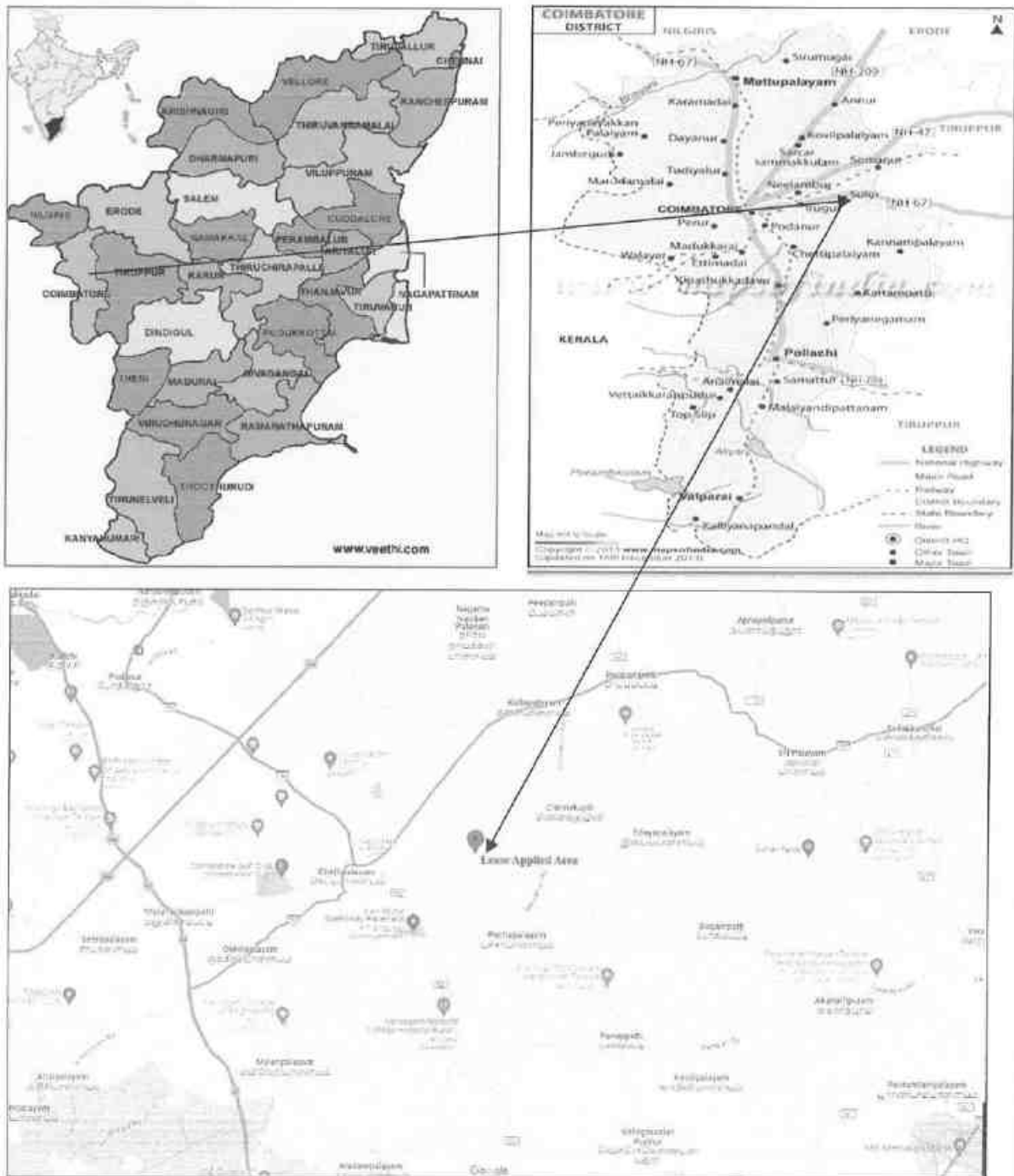
3.0 LOCATION

a) Details of the area with location map:

The lease applied area is located about 16.6km Southeast side of Coimbatore town, 13.2km Southwest side of Suler town and 3.8km Southwest of Kallapalayam Village.



Location Map of the Lease Applied area



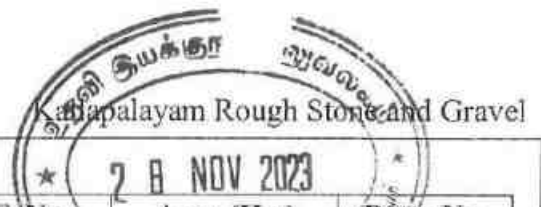


TABLE-1

District	Taluk	Village	S.F. No.	Area (Ha.)	Patta No.
Coimbatore	Sulur	Kallapalayam	263/1A(P)	1.31.0	641
			264/1(P)	0.60.0	642
Total Extent				1.91.0	

Source: As per the FMB and 'A' register record furnished by the applicant.

b) Classification of the area (Ryotwari/ Poramboke / others):

It is Patta lands, classified as Punsei (Barren land), which is not fit for cultivation.

c) Ownership / Occupancy of the applied area (surface right):

It is Patta lands, registered in the name of applicant (Tvl. Tamilnadu Blue Metals) vide patta Nos. 641 and 642 (Refer Annexure Nos. VI to VIII).

d) Toposheet No. with latitude and longitude:

The lease applied area falls in the Toposheet No: **58 I/16** Latitude between: **10°55'05.8546"N** to **10°55'11.5313"N** and Longitude between: **77°03'56.3316"E** to **77°04'02.1862"E** on WGS datum-1984. Please refer the Plate Nos. I to II as per the GSI Toposheet.

e) Existence of public road / Railway line, if any nearby and approximate distance:

The approach road is situated on the eastern side which connects the Panchayat Road at a distance of 180m on the Northern side from the lease applied area.

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 will be constructed and the same has been utilized for haulage and maintained during the entire lease period.

The Nearest Railway line is Tiruppu - Pollachi which is about 10km on the Northwest side of the area as per the GSI Toposheet and Google Map.

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 plain topography. The area has gentle sloping towards South side and altitude of the area is 455m 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 45m - 50m below from general ground profile which is observed from the nearby existing quarry pits. Average annual rainfall is about 1213mm.

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 Gneissic 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 within the lease applied area.

4.3 Estimation of Reserves:**a) Geological Resources 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 drawn along the strike direction as (X-Y) Length wise and other two cross sections are drawn perpendicular to strike as (A-B, C-D) Width wise to cover the maximum area considered for lease upto 27m depth.

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. No Exploration has been carried out.

Estimation of Geological Resources (Plate No. III):

The Geological Resources of Rough Stone and Gravel are calculated upto a depth of 27m [2m Gravel + 25m Rough stone] below ground level. The total **Geological Resources are calculated by sectional method and the resources are estimated after depleting the existing quarry pit.** The total geological resources are given below:

TABLE - 2

GEOLOGICAL RESOURCES						
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Rough Stone in (m ³)	Gravel (m ³)
XY-AB	i	76	60	1	-	4560
		76	174	1	-	13224
	ii	76	174	5	66120	-
	iii	76	174	5	66120	-
	iv	76	174	5	66120	-
	v	76	171	5	64980	-
	vi	76	171	5	64980	-
Total=					328320	17784
XY-CD	i	8	8	2	-	128
	ii	88	42	5	18480	-
	iii	88	45	5	19800	-
	iv	88	48	5	21120	-
	v	88	51	5	22440	-
	vi	88	61	5	26840	-
Total					108680	128
Grand Total					437000	17912

The Geological Resources of Gravel : 17,912m³

The Geological Resources of Rough Stone : 4,37,000m³

Geological Resources has been computed based on the physical investigation and filed survey data.

Estimation of Mineable Reserves:

The mineable reserves are calculated after leaving the safety distance and Bench loss.

TABLE - 3

MINEABLE RESERVES						
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Rough Stone in (m ³)	Gravel (m ³)
XY-AB	i	68	43	1	-	2924
		68	105	1	-	7140
	ii	66	102	5	33660	-
	iii	61	91	5	27755	-
	iv	56	80	5	22400	-
	v	51	70	5	17850	-
Total=					101665	10064

XY-CD	ii	80	33	5	11840	-
	iii	74	32	5	10350	-
	iv	69	30	5	-	-
	v	64	28	5	-	-
	vi	33	32	5	5280	-
Total=					49630	0
Grand Total=					151295	10064

Total Mineable Reserves of Gravel : 10,064m³

Total Mineable Recoverable Reserves of Rough stone @ 100% : 1,51,295m³

The mineable reserves have been computed as 1,51,295m³ of Rough stone at the rate of 100% recovery and 10,064m³ of Gravel for a period of five years upto a depth of 37m below ground level.

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) is available with Director General of Mines Safety. If the applicant/lessee intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. In such a scenario if there is any drastic change in the Resources and Reserves a modified plan will be submitted to the concerned authority for necessary relaxation, clearance and permission. The relaxation will be applied and obtained after the execution of lease deed / commencement of quarry operation.

5.2. Mode of working (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 shallow 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. After obtaining relaxation as per 106 2(b) of Metalliferous Mines Regulations, 1961 from the DMS, the realignment of benches will be carried out.

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, 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 and green belt development are shown in Plate No. III

Year wise Development and Production

TABLE - 5

YEARWISE RESERVES							
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Rough Stone in (m ³)	Gravel (m ³)
I	XY-AB	i	68	43	1	-	2924
			68	58	1	-	3944
		ii	66	53	5	17490	-
		iii	61	43	5	13115	-
		Total					30605
II	XY-AB	i	68	47	1	-	3196
		ii	66	49	5	16170	-
		iii	61	48	5	14640	-
		Total					30810
III	XY-CD	ii	80	33	5	13200	-
		iii	74	32	5	11840	-
		iv	69	15	5	5175	-
		Total					30215
IV	XY-CD	iv	69	15	5	5175	-
	XY-AB	iv	56	80	5	22400	-
		v	51	10	5	2550	-
	Total					30125	
V	XY-AB	v	51	60	5	15300	-
	XY-CD	v	64	28	5	8960	-
		vi	33	32	5	5280	-
	Total					29540	
Grand Total						151295	10064

The Recoverable reserves have been computed as 1,51,295m³ of Rough stone at 100% recovery for five years and 10,064m³ of Gravel for two years upto a depth of 27m 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 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	=	1,51,295m ³
Hence total Lorry loads per day	=	1,51,295m ³ /6m ³
	=	25216 Lorry loads
	=	25216/5 years
	=	5043/300 days
Rough Stone	=	17 Lorry loads per day
Total quantity to be removed during the first two years	=	10,064m ³
Hence total Lorry loads per day	=	10,064m ³ /6m ³
	=	1,677 Lorry loads
	=	559/2 years
	=	230/300 days
Gravel	=	1 Lorry loads per day

Working hours = 9.00 am to 6.00 pm (with 1.00-2.00 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.

TABLE – 6

I. DRILLING MACHINE:

S. No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack-Hammer	5	32	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:

There is no Waste anticipated during this plan period hence, disposal of waste does not arise. The overburden in the form of Gravel, the Gravel will be directly loaded into Tippers for the filling and levelling of low-lying areas. The excavated rough stone (100%) will be directly loaded into Tippers to the needy customers.

5.7. Use of the Mineral:

The excavated rough stone (100%) will be directly loaded into Tippers as raw form to the needy nearby crushing unit to making Road metals and construction materials.

5.8. 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 - 7

Section	Length (m) (Max.)	Width (m) (Avg.)	Depth (m) (Max.)
XY-AB	148	158	27m below ground level (R.L. 455m – R.L. 428m)

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. As per the NGT orders the applicant is directed to plant 500 trees per hectares along the quarry site and in the haul road either at the regular or the phased manner by planting native species.

There is no waste anticipated during the entire life of quarry. Hence, backfilling is not possible in this Rough stone quarry. After completion of quarry operation the quarried out pit will be allowed to collect the seepage and rainwater and the water storage will be kept as temporary reservoir for charging the nearby wells and the water will be utilized for Green belt development purpose. 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 (Refer Plate No. IV and V).

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 shallow Jack hammer drilling and mild blasting with NONEL initiation of shattering effect for loosening the Rough stone. Nonel initiation provides a reasonably good solution to the fly rock problem. The main objectives of Nonel Blasting are to reduce the ground vibration, noise, flyrocks generated due to blasting operations. The overall cost of blasting in NONEL is very less compared to electrical blasting and hence it optimizes the cost of blasting.

Anticipated theoretical calculation of PPV

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 8: PREDICTED PPV VALUES DUE TO BLASTING

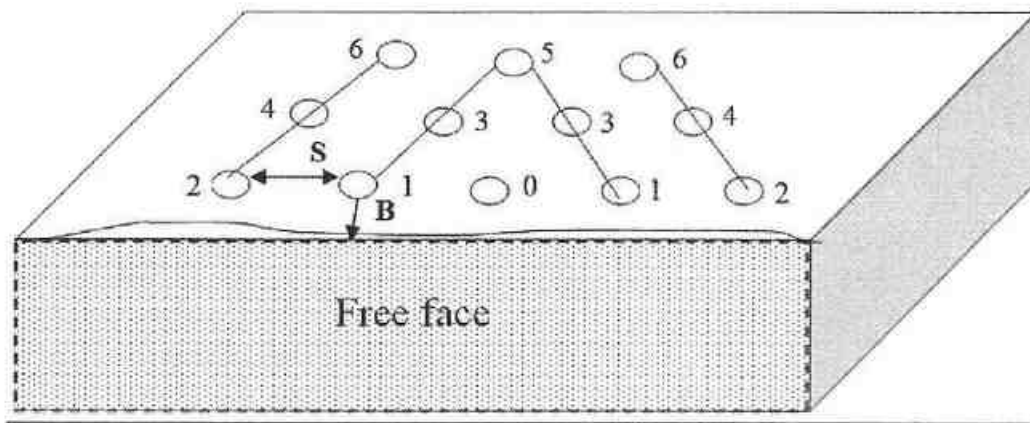
Maximum Charge per day (kg)	Number of Round Blast per day	Number of holes blasted per round	Number of holes blasted per day	Nearest Infrastructure (m)	PPV (mm/s)
53	1	106	106	390	0.856

From the above table, the charge per blast of 53kg 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. If charge per blast will be required for more than 100 kg, the applicant ensures that carry out the **blasting twice or thrice a day** based on the onsite conditions under the supervision of competent qualified statutory personnel employed. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

Drilling and blasting parameters are as follows:

Depth of Each hole	:	1.6m
Spacing between holes	:	1.2m
Burden for hole	:	1.0m
Diameter of hole	:	32mm
Pattern of hole	:	Zigzag – Multi-rows
Inclination of holes	:	80° from horizontal
Use of delay detonators	:	25millisecond delays
Detonating fuse	:	Non-Electric Detonators

BLASTING PATTERN DRAWING



Staggered "V" Pattern of Blasting Design

Spacing	=	1.2m
Burden	=	1.0m
Depth of the hole	=	1.6m
No of holes proposed per day=		106 Holes

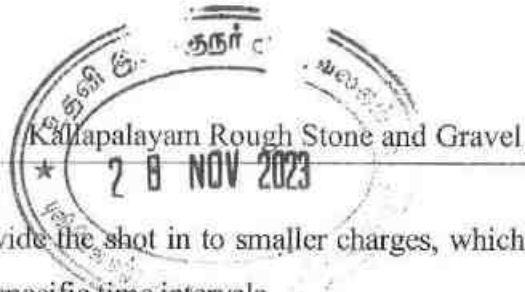
6.2 Type of explosives to be used:

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 secondary blasting is proposed. NONEL blasting and muffle blasting may be adopted after permission from DGMS.

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 of NONEL initiation 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.

**NONEL 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	= 106 Holes
Yield	= 263 Tons
Powder factor	= 5 Tons/ Kg of explosives
Total explosive required	= 53 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 1.00 – 1.30 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 Competent Qualified Statutory personnel appointed by the applicant will maintain the records of Explosives as per the Indian Explosives Act.

7.0 MINE DRAINAGE**7.1 Depth of water table (based on nearby wells and water bodies):**

The area is a plain topography; since the lease applied area consists the most common type of dendritic drainage pattern. The water table in the area is about 45m - 50m which is observed from the existing private boreholes. The lease area is fully covered by Massive Charnockite formation. The quarry operation confined to well above the water table hence, the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt. Anyhow, Garland drain will be constructed all along the boundary to prevent surface run-off water entering into the quarry.

TABLE - 9

Type	Distance & Direction	Location
Bore Well	1.2km Northwest side	10°55'21.30"N 77° 3'19.51"E

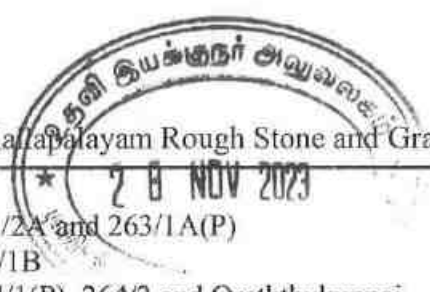
7.2 Arrangements and places where the mine water is finally proposed to be discharged:

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)

TABLE - 10

S.No.	Description	Particulars	Aerial Distance & Direction
1	Nearest National Highway	(NH-544) Coimbatore - palakkadu	6.1km - Northwest
2	State Highways	(SH-163) Palladam - Kochi	1.7km - Northwest
3	Railway station	Chettipalayam Railway station	3.6 km - Southwest
4	Airport	Coimbatore Airport	16.6 km - Northwest
5	Nearest Habitation	520m - SW	
6	Town	Sulur	13.2 km - Northeast
7	Nearest Government School	Chettipalayam - Govt. High School	3.6 km - Southwest
8	Nearest Dispensary	Malumichampatti	7.5m - Southwest
9	Government Hospital	Coimbatore	16.6 km - Northwest
10	Reserved Forest	Noyyal River - 7.9Km (NW)	
11	Defense Installation/Historical Monuments/ Archaeological	Nil within 500m radius.	
12	Nearby Water Bodies	There is no River, Pond, Lake, Odai, Canal located within 50m radius of the lease applied area.	
13	Interstate Boundary	Around 21.8 km - Southwest (Kerala State Boundary)	
14	Critically Polluted areas identified by the CPCB	Coimbatore 16.6 km - NW (Coimbatore - SIDCO)	
15	Protected areas Notified under wildlife (Protection) Act,1972	Around 7.9 km - NW (Noyyal River)	
16	Applicability of CRZ, Notification 2011 as amended.	Not Applicable	
17	Applicability of Hill Area Conservation Authority (HACA) Clearance.	Not Applicable	
18	Housing area, EB line (HT & LT Line)	None of the above situated within 50m radius.	
19	Boundaries of the permitted area.	The boundaries of the permitted areas are as follows (Refer Plate No. II):	



		North - S.F.No. 265 East - S.F.Nos. 263/2A and 263/1A(P) South - S.F.No. 263/1B West - S.F.No. 264/1(P), 264/2 and Oraththukuppai Village															
20	Adjacent Patta lands / Govt. Land	<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>10m to the Cart track & 150m to the Wind Mill</td> </tr> </tbody> </table>	Direction	Classification	Safety Distance	North	Patta land	7.5m	East	Patta. land	7.5m	South	Patta land	7.5m	West	Patta land	10m to the Cart track & 150m to the Wind Mill
Direction	Classification	Safety Distance															
North	Patta land	7.5m															
East	Patta. land	7.5m															
South	Patta land	7.5m															
West	Patta land	10m to the Cart track & 150m to the Wind Mill															

(Refer Plate No. II):

STRUCTURE WITHIN 100m

Number of Structures - 3 Nos.

TABLE - 11

Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building / Structure	Remarks
1	Crusher plant	Stone crushing purpose	Industry	Nil	No resident
2	Shed (2 Nos.)	Applicant's labour shed and Workshop	Non-residential	Nil	No resident
3	Wind Mill	Power Generation	Commercial	Nil	Nil

STRUCTURE WITHIN 100 -200m

Number of Structures - 5 Nos.

Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building / Structure	Remarks
1	Shed (4 Nos.)	Applicant's labour shed Security rest shed and Power room	Non-residential	Nil	No resident
2	Office	Applicant's quarry Office	Commercial	Nil	No resident

STRUCTURE WITHIN 200 -300m

Number of Structures - 6 Nos.

Structure Numbers	Structure Numbers	Structure Numbers	Structure Numbers	Structure Numbers	Structure Numbers
1	Shed (2 Nos.)	Poultry farm.	Commercial	Nil	No resident
2	Wind Mill (4 Nos.)	Power Generation	Commercial	Nil	No resident

9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES

9.1 Employment potential (skilled, semi-skilled, un skilled):

TABLE – 12

Designation	Present Employment position	Employees Requirement	Total
a) Supervisory category			
Geologist	-	1	1
b) Skilled labour			
Mine Foreman	-	1	1
Blaster/Mate	-	1	1
Excavator – Operator	-	1	1
Tipper Drive	-	2	2
Water sprinkler Driver	-	1	1
Jack-Hammer Drillers	-	8	8
c) Unskilled			
Security	-	2	2
Labour & Helper	-	4	4
Co-operator and Cleaner	-	5	5
Total	-	26	26

The proposed output per man shift:

TABLE – 13

Average ROM Production expected per annum	30,259m ³
No. of days likely to be worked	300 days
Average ROM production per day	101m ³
OMS = Average Production per day / Average employment per day	101m ³ / 26 = 4m ³

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.

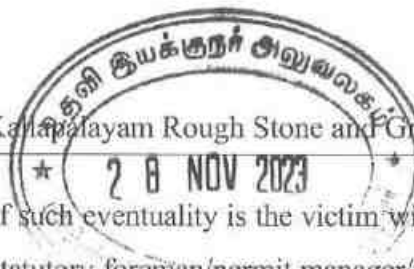
9.2 Welfare Measures:

a) Drinking Water:

Packaged drinking water is available from the nearby water vendors in Kallapalayam which is located about 3.8km on the Southwest 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.



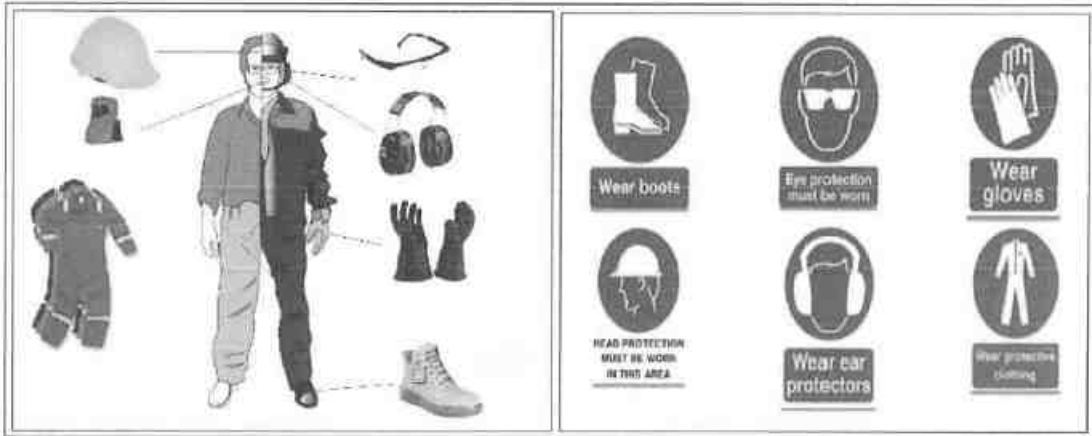
c) **First aid facility:**

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 Coimbotore located at a distance of 16.6km 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,
- Reflector Jackets
- Dust mask
- Mine Goggles,
- Ear plugs,
- Ear muffs
- Safety Shoes

All personnel protective equipment as per the DGMS standard 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**

The EMP is prepared based on the Mines act, Rules & amendment from by state & central government. If the SEIAA/SEAC instructed the modification and alter the EMP the outcome of their recon would be final and the applicant is instructed to follow the EIA / EMP for its compliance as per the CPCB / TNPCB Norms.

Environment	Anticipated impact	Mitigation measure
Land Environment	<p>i. Topography of the area will change due to mining activity. Around 0.41.2 Ha. area will be proposed to quarry operation.</p> <p>ii. Soil quality and it's fertility of adjacent lands will be affected due to fugitive dust and Vehicular emissions during drilling, blasting, loading, unloading and haulage of men and machineries.</p>	<p>i. No waste will be anticipated during entire life of quarry. Hence, backfilling is not proposed in this quarry operation. Anyhow, barbed wire fencing and safety bund will be constructed around the quarry to prevent inadvertent entry of public and cattle.</p> <p>ii. The excavated benches shall be developed for plantation with grasses, herbs and shrubs of local species to improve aesthetic of the area and to prevent any soil erosion and landslide.</p> <p>iii. Mining benches will not exceed beyond the approved height and width.</p> <p>iv. Leftover foreign material like polythene bag, jute bag and useless articles will not be allowed to litter and no ill managed dumping will be used for filling the excavated pits</p>
		<p>This is discussed in following Air Environment due to avoid repetition.</p>



<p>Water Environment</p>	<p>Surface Mining can have direct impact on physico-chemical characteristics of the local drainage and groundwater resources. The detrimental effects, if any, to water resources resulting from surface mining are caused by following:</p> <ol style="list-style-type: none"> Alteration of natural drainage pattern resulting from modification of topography. Abnormal increase in the turbidity of the nearby water bodies. Damage to riparian vegetation and in-stream habitat. The activities can also disrupt the ecological diversity in many ways. Contamination of groundwater if mining intersects with the water table. 	<ol style="list-style-type: none"> Construction of Garland drain with check dam and settling tank will be constructed around the quarry to collect the surface run off rain water and which will be discharge in to the natural drainage system and water bodies in manure as prescribed by TNPCB standards. Further mining will be completely stopped during the monsoon for free flow of surface run off and allowing natural recharge of groundwater. No wastewater shall be generated from the quarry activity. Proper drainage will be Maintained to eliminate inundation of working pits during rains from run-off water. The mine pit water collected due to rains will be utilized for water spraying on the haul Roads and watering for plantations. Septic tanks and soak pits will be provided for the disposal of domestic/ washroom effluents. The deposit will be worked from the top surface up to a depth of 27m below ground level and shall not in any case intersect and contaminate the ground water as the depth of the water table in the area is 45 - 50 meters.
<p>Air Environment</p>	<p>In surface mining operations, the source of air pollution may cause deterioration of air quality due to the fugitive dust emissions from drilling/blasting, scooping, loading-unloading operation of extracted mineral and its transportation. Drilling/blasting and loading of quarry material would be associated with the fugitive dust emission in the active area whereas fugitive emission during transportation would affect the areas/villages situated adjacent to the road side.</p>	<ol style="list-style-type: none"> Green belt will be developed in the safety zone with thick long leaves plant to arrest the fugitive dust and vehicular emissions on the surrounding environments. Wet drilling with dust extractor unit will be carried out to minimize the dust generation. Controlled blasting with Proper blasting pattern will be followed for effective rock fragmentation and generation of minimal fine dust to the atmosphere. Quarry material will be handled under wet condition during loading and unloading to minimize the dust generation of proposition, besides loaded materials are covered by Tarpaulin until to reach the destination during transportation.



	Another source of air pollution would be emission from the drilling machinery and excavators/tippers vehicles to be used for loading.	<p>v. Regular water sprinkling to the haul road to arrest the dust generation.</p> <p>vi. Provision of dust filters/ mask to workers working at dust prone and affected areas.</p> <p>vii. Vehicular emission as a result of combustion of diesel generates small particulate matter (PM₁₀ & PM_{2.5}), Nitrogen oxides and Sulphur dioxide (NO₂ & SO₂). High quality diesel will be used in the motor vehicles to control these pollutants.</p> <p>viii. PUC (Pollution under control) certified vehicles will be used for transportation.</p> <p>ix. CPCB Prescribed emission standards for the vehicles would be followed.</p> <p>x. All vehicles and their exhausts would be well maintained and regularly tested for pollutant concentrations.</p>
<p>Noise Environment</p> <p>In the present mining activity for building material, noise will be generated from drilling machinery, blasting and vehicular movement. Noise level in the working environment is compared with the standards prescribed by Central Pollution Control Board as adopted and enforced by the Govt. of India through Noise Pollution (Regulation and Control) Rules, 2000.</p>	<p>i. Selection of new low – noise equipments for the quarry operation.</p> <p>ii. The noise levels shall be maintained within the permissible levels by involving all the noise regulating measures in vehicles and drilling/blasting operations.</p> <p>iii. To ensure minimum vibrations and noise due to blasting, Non-electric delay detonators in continuous sequence is proposed.</p> <p>iv. Personnel Protective Equipment (PPE) like earmuffs and earplugs shall be provided to the employees whose in critical operation like drilling, blasting and excavation as occupational safety measures.</p> <p>v. Proper maintenance done with regular interval by the Oiling and greasing of the machineries and vehicles to control the Source of noise during operation and transportation.</p> <p>vi. Regular and proper maintenance of machinery and transportation vehicles shall be ensured.</p> <p>vii. Transporting vehicles are enforcing the speed limits of 20km/hour within quarry area and not exceed 40km per hour from quarry to destination to reduce Noise and vibration level.</p> <p>viii. There would be restrictions on mining activity and vehicular movement during night hours.</p>	



<p>Biological Environment</p>	<p>The area having main florae are Neem, Indian jujube, Coconut tree, Palm, Senna auriculata, Calotropis, Casuarina, Teak, Acacia nilotica and shrubs. No plants of botanical interest or animals of zoological interest recorded within 500m radius. The anticipated impacts on biological environment as follows:</p> <ol style="list-style-type: none"> Diversity of living insects in the overburden material. Natural habitats of the existing faunas and its breeding will change due to the noise and vibration during operation. Mining may drive away the nearby residents from their habitat. Access roads crossing the riparian areas will have impact on the species disturbing the ecosystem. Diminution of the quality and quantity of habitat essential for aquatic and riparian species Deposition of dust on the plant and crop leaves is affecting the photosynthesis, Pollination, ratio of growth and reduction in the yield of agriculture. Excessive and unscientific surface mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. 	<ol style="list-style-type: none"> The natural habitats of the existing flora and fauna will not be disturbed. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season for many species. Fruit bearing trees will be planted to survive of the existing native faunas. No clearance of vegetation will be done during the entire mining operations. Water sprinkling on haul roads would be reduces the dust emission, thus avoiding damage to the crops and plants. No night hour mining will be carried out which may catch the attention of wildlife.
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<p>Socio Economic Environment</p>	<p>Any activity during mining will have adverse impact on Environment, careful mitigation measures are proposed to balance the impact on the existing environment and the applicant is always instruct to carry out safe, sustainable, eco-friendly mining operations at all times. The following positive impact on the society due to this mining activity.</p> <ol style="list-style-type: none"> More than 10 local peoples getting direct employment and More than 15 peoples are getting indirect employment due to this developmental project. The continuation of opportunity for the employments, the nearby villages, living peoples and their life style would be improved. The applicant is advised to invest the CER cost (@ 2% from the total Project Cost) to develop the local Panchayat. 	<p>Does not arise.</p>
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10.1 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 B Category mine. The estimated budget would be around **Rs.3,80,000/-**. The compliance monitoring will be carried out for every six months as prescribed by the MOEF&CC and with state concerned authorities.

10.2 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%). The maintenance of machineries & fuelling will be carried out as per the TNPCB Norms and the waste will be disposed in the Norms.

10.3 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 27m below ground level has been envisaged as workable depth for safe & economic quarrying operation during entire life of quarry. There is no waste generated hence, backfilling is not possible. After completion of quarry operation the quarried out pit will be allowed to collect the seepage and rainwater and the water storage will be kept as temporary reservoir for charging the nearby wells and the water will be utilized for Green belt development purpose. 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. The barbed wire fencing cost would be around **Rs.2,10,000/-**

10.4 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. Around 4,120m² area will be utilized for green belt development by planting 500 numbers along the safety zone with 2m height tree saplings during this mining plan period with an anticipated survival rate of 80% with maintain atleast 1000 plants during the entire life of the quarry. Appropriate native species of trees will be planted in a phased manner as described below. As per the SEIAA Recommendation the plantation will be carried out based on the output Environmental Clearance and the recommended species will be carried out for green belt development.

TABLE - 14

Year	No. of trees proposed	Area to be covered (m ²)	Name of the species	No. of trees expected to be grown
I	100	824	Neem, Pongamia	80
II	100	824	Pinnata, Cordia	80
III	100	824	dichotoma, Mango,	80
IV	100	824	Thespesia populnea,	80
V	100	824	Mantharai, etc.,	80

The estimated budget for plantation and maintenance of green belt development would be around **Rs.1,00,000/-** for the period of five years. The greenbelt development will be formed in around the quarried out top benches with 250 tree saplings from third year onwards and 250 tree saplings in approach road at first year of the plan period. The cost would be around **Rs. 1,00,000/-**

10.5 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

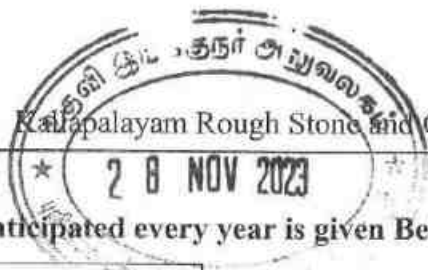
The EMP cost would be around Rs. 3,80,000/- for the period of five years.

A. Operational Cost / Project Cost / Investment:		Approximate Cost (Rs.)																	
		Capital Cost	Recurring Cost/Annum																
i) Land cost	<p>The Land value as per the Government Guideline land cost is about,</p> <table border="1"> <thead> <tr> <th>S.F.No.</th> <th>Extent (Ha.)</th> <th>Cost/Ha. (Rs.)</th> <th>Cost of the area (Rs.)</th> </tr> </thead> <tbody> <tr> <td>63/1A(P)</td> <td>1.31.0</td> <td>3706500</td> <td>4855515</td> </tr> <tr> <td>264/1(P)</td> <td>0.60.0</td> <td>4942000</td> <td>2965200</td> </tr> <tr> <td>Total</td> <td>1.51.0</td> <td>-</td> <td>7820715</td> </tr> </tbody> </table> <p>Round of Rs.78,21,000/- (Source: https://tnreginet.gov.in/portal/)</p>	S.F.No.	Extent (Ha.)	Cost/Ha. (Rs.)	Cost of the area (Rs.)	63/1A(P)	1.31.0	3706500	4855515	264/1(P)	0.60.0	4942000	2965200	Total	1.51.0	-	7820715	78,21,000	Nil
S.F.No.	Extent (Ha.)	Cost/Ha. (Rs.)	Cost of the area (Rs.)																
63/1A(P)	1.31.0	3706500	4855515																
264/1(P)	0.60.0	4942000	2965200																
Total	1.51.0	-	7820715																
ii) Machinery cost	<p>The following machineries are proposed on rental basis to meet out the productions. The rental cost would be around (Including Fuel, oil, grease, spares, etc..)</p>	10,00,000	1,00,000																
iii) Blasting Cost	Explosives, Detonator, etc., (Rs. 6 per ton) (1,69,559 Tons x Rs. 6)	10,18,000	Nil																
iv) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattle cost would be around (Total Peripheral length 500m x Rs. 300/meter)	2,10,000	10,000																
v) Labourers	Labour shed will be constructed as semi-	5,00,000	20,000																

Mining Plan and PQCP Quarry


 Kavalpalayam Rough Stone and Gravel

shed	permanent structure. The cost is around*		
vi) Sanitary facility	Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around	1,00,000	5,000
vii) Others items	First aid room & accessories	50,000	5,000
viii) 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.	80,000	Nil
ix) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around.	Nil	36,000
x) 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.	50,000	5,000
xi) Water sprinkling	Water will be sprinkled in the haul roads by water sprinkler. The cost would be around.	3,00,000	30,000
xii) Garland drain	Construction of Garland drain with check dam to prevent surface run-off rain water entering to the quarry pit, the construction cost is around (Total Peripheral length 260m x Rs. 300/meter).	78,000	10,000
xiii) Greenbelt etc.	Greenbelt development and maintenance will be carried out in the boundary barriers the cost would be around (500 saplings x Rs. 200/sapling).	1,00,000	30,000
	Greenbelt development and maintenance will be carried out in the quarried out top benches (250 saplings x Rs. 200/sapling).	50,000	
	Greenbelt development and maintenance will be carried out in the Panchayat road (250 saplings x Rs. 200/sapling).	50,000	
	Total Cost	1,14,07,000	

**A. Total Project Cost:**

Note: Recurring Cost inclusive of 5% cost inflation anticipated every year is given Below

Year Wise Break up	
1 st Year	2,51,000
2 nd Year	2,63,550
3 rd Year	2,76,728
4 th Year	2,90,564
5 th Year	3,05,092
Total	13,86,933

Round of = 13,87,000

(i) Capital Cost	= Rs. 1,14,07,000
(ii) Recurring Cost (5 Years)	= Rs. 13,87,000
Total Project Cost(A)	= Rs. 1,27,94,000

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	Rs. 1,27,94,000/-
B. EMP Cost	Rs.3,80,000/-
Total Project Cost (A+ B)	Rs.1,31,74,000/-
The applicant Indents to involve corporate environment responsibilities (CER) activity like Water Purifier, Plantation, Books to Library, sanitary facility and as per requirement to the Chettipalayam Government School at 2.0% from the total project cost. The Cost would be around Rs. 2,64,000/- . If the concerned authority is directed to modify the CER cost and mode of utilization of the cost, the same will be implement by the applicant.	Rs.2,64,000/-
Total Cost	Rs.1,34,38,000/-

The Total cost would be around one crore thirty four lakh and thirty eight thousand only.

11.0 PROGRESSIVE QUARRY CLOSURE PLAN**11.1 Introduction:**

The entire area is proposed for a short period of 5 years only hence, the progressive quarry closure plan may not be applicable to this quarry. Anyhow, during temporary discontinuance of quarry the following measures will be taken.

- Barbed wire fencing will be constructed around the quarry.
- Benches will be smoothening.
- Quarry will be closed & sentries will be posted round the clock.
- Green belt development will be maintained.
- Machineries will be removed from pit and engaged in another site.

11.2 Present and Post Land use pattern:LAND USE TABLE – 16

Description	Present area (Ha)	Area at the end of lease period (Ha)
Area Under Quarry	1.20.0	1.46.0
Site Services	Nil	0.01.0
Roads	0.01.0	0.01.0
Green Belt	Nil	0.41.2
Unutilized Area	0.69.8	0.01.8
Grand Total	1.91.0	1.91.0

11.3 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 as per the DGMS, Department of Geology and Mines, Labour Enforcement officer, controller of Explosives etc., circulars, Norms, Rules, Regulations and Act.

11.4 Progressive quarry closure plan preparation:

Name and address of the Qualified Person who prepared the progressive closure plan and name, address and register number of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Name : **M. Santhoshkunar, M.Sc.,**
Qualified Person (Under Rule 15(I)(a) and (I)(b) of MCR, 2016)

Address : Plot No:3, Kattuvattam
Kothukara Samathi Via
Kannakurichi, salem,
Salem – 636 008.

Mobile : +97914 41745

Email : santoshgeo2004@gmail.com

The applicant will himself implement the closure plan; no outside agency will be involved.

(i) Safety & Security:

Safety measures will be implemented to prevent access to 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 5.0 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.
- Installation of CCTV cameras in the quarry and entrance of the quarry.
- Monitoring of Quarrying operation by external agency as directed by authorities.

(ii) 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.

Environmental Monitoring Cell:

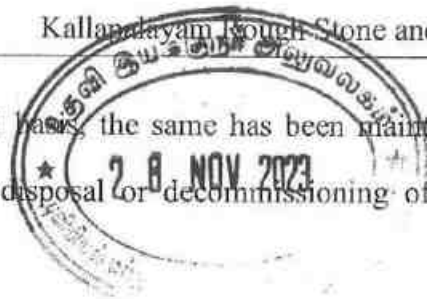
A dedicated team nominated by the mine manager or Agent will monitor and maintain the environmental compliances of the quarry as per the approved Environment Management Plan and report the Compliance to the Mine Manager half yearly.

Disaster Management Cell:

The Competent Qualified Statutory managers appointed by the applicant as per the Director of Mines Safety will be responsible for Disaster Management. It care any eventualities his mobile number will be displayed and he will take all the precautions and safety measures as per Mines and Minerals (Development and Regulations) Act, 1957.

(iii) Disposal of mining machinery

All the Machineries will be engaged on rental basis, the same has been maintained in good condition during entire life of quarry. Hence, disposal or decommissioning of mining machinery does not arise

**(iv) 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.

(v) 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.

(vi) 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 at present scenario:

LAND USE TABLE – 17

ACTIVITY		YEARS					RATE	COST (Rs.)	
		I	II	III	IV	V			
Plantation under safety zone	Nos	100	100	100	100	100	@200 Rs Per sapling	1,00,000	
	Cost	20000	20000	20000	20000	20000			
Plantation in quarried out top benches	Nos	-	-	100	100	50			50,000
	Cost	-	-	20000	20000	10000			
Plantation in approach road	Nos	250	-	-	-	-			50,000
	Cost	50,000	-	-	-	-			
Barbed Wire Fencing (In Mtrs) 500 Mtrs		2,10,000	-	-	-	-	@300 Rs Per Meter	2,10,000	
Garland Drain (In Mtrs) 260 Mtrs		78,000	-	-	-	-	@300 Rs Per Meter	78,000	
TOTAL								4,88,000	

12.0 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 and modified after scrutiny comments as per the guidelines of the Concerned Department and Authorities.

This Mining Plan and mine design is prepared based on the requirement instructed by the applicant to me. If there is any change in the production schedule, change of technology, change in product mix during the course of operations, the applicant is advice to prepare a modified mining plan and get approval by the concerned authority for subsequent clearance and approval. The same will be monitored by the inspecting authority of Department of Geology and mining and other Concerned Departments under Rule 25 and sub rule (5)(d) in Rule 36 of Tamil Nadu Minor Mineral Concession Rules, 1959.

I hereby ensure that the information provided is correct to best of my knowledge and experience, some of the information contained in this report has been provided by external sources and by the applicant and is presented as the form as submitted by the applicant. The information is not intended to serve as legal advice related to the individual situation. I do not owe and specifically disclaim any liability resulting from the use during the course of quarrying operations after the grant of lease. The document may be scrutinized by the competent authority before approval.

Prepared by

M. Santhoshkumar
M. Santhoshkumar, M.Sc.,

Qualified Person

Place: Salem

Date: 24.11.2023

This Mining Plan is Approved
subject to the conditions / stipulation
& indicated in the Approval
Letter No: 198/Mining/2022 dt 28-11-23
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, Coimbatore, 28620/2022
Dated 19-11-2022, for compliance to further
fulfillment of the conditions laid down under
Tamilnadu Minor Mineral Concession Rules 1959

A. S. Sankar
ASSISTANT DIRECTOR
DEPARTMENT OF GEOLOGY & MINING
COIMBATORE DISTRICT.

S. Sankar
28/11/23



உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
மாவட்ட ஆட்சியர் அலுவலக வளாகம்,
கோயம்புத்தூர் - 18.

ந.க.எண்.198/கனிமம்/2022

நாள்: 25.10.2023

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - கள்ளபாளையம் கிராமம் - புல எண்கள். 263/1A (பகுதி)-ல் 1.31.0 ஹெக்டேர் மற்றும் 264/1 (பகுதி)-ல் 0.60.0 ஹெக்டேர் ஆக மொத்தம் 1.91.00 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க தி/வா.தமிழ்நாடு புளூ மெட்டல்ஸ் என்ற நிறுவனத்திற்கு - குவாரி குத்தகை அனுமதி வழங்குவது - தொடர்பாக.

- பார்வை:**
1. தி/வா.தமிழ்நாடு புளூ மெட்டல்ஸ், 1678, திருச்சி ரோடு, இராமநாதபுரம், கோயம்புத்தூர் மாவட்டம் என்பவரது விண்ணப்ப நாள்: 01.03.2022 மற்றும் 25.10.2023.
 2. இவ்வலுவலக கடிதம் இதே எண். நாள்: 01.03.2022.
 3. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு அவர்களின் கடித ந.க.எண். 1288/2022/அ2 நாள்: 19.04.2022.
 4. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் அவர்களின் தணிக்கை அறிக்கை நாள்: 16.10.2023.
 5. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை கடிதம் எண். 1870/எம்.எம்-1/2020 நாள்: 12.08.2020.

பார்வை 1-ல் கோயம்புத்தூர் மாவட்டம், திருச்சி ரோடு, 1678, இராமநாதபுரம் என்ற முகவரியில் இயங்கி வரும் தி/வா.தமிழ்நாடு புளூ மெட்டல்ஸ் என்ற நிறுவனம் கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், கள்ளபாளையம் கிராமம், புல எண்கள். 263/1A (பகுதி)-ல் 1.31.0 ஹெக்டேர் மற்றும் 264/1 (பகுதி)-ல் 0.60.0 ஹெக்டேர் ஆக மொத்தம் 1.91.00 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, திருச்சி ரோடு, 1678, இராமநாதபுரம் என்ற முகவரியில் இயங்கி வரும் தி/வா.தமிழ்நாடு புளூ மெட்டல்ஸ் என்ற நிறுவனத்திற்கு கோயம்புத்தூர்



மாவட்டம், சூலூர் வட்டம், கள்ளபாளையம் கிராமம், புல எண்கள்: 263/1A (பகுதி)-ல் 1.31.0 ஹெக்டேர் மற்றும் 264/1 (பகுதி)-ல் 0.60.0 ஹெக்டேர் ஆக மொத்தம் 1.91.00 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க சில நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளார்கள்.

அனுமதி கோரும் புல எண்கள்: 263/1A (பகுதி) மற்றும் 264/1 (பகுதி) ஆகியவை பட்டா எண்கள் முறையே 641 மற்றும் 642 ஆகியவற்றின்படி மனுதாரர் தி/வா.தமிழ்நாடு புளூ மெட்டல்ஸ் என்ற நிறுவனத்தின் பெயரில் தனிப்பட்டாவாக 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 கோயம்புத்தூர் மாவட்டம், திருச்சி ரோடு, 1678, இராமநாதபுரம் என்ற முகவரியில் இயங்கி வரும் தி/வா.தமிழ்நாடு புளூ மெட்டல்ஸ் என்ற நிறுவனத்திற்கு கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், கள்ளபாளையம் கிராமம், புல எண்கள்: 263/1A (பகுதி)-ல் 1.31.0 ஹெக்டேர் மற்றும் 264/1 (பகுதி)-ல் 0.60.0 ஹெக்டேர் ஆக மொத்தம் 1.91.00 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 கீழ்க்கண்ட 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 புலங்களில் புல எண்: 264/1-ன் வடமேற்கு பகுதியில் அமைந்துள்ள காற்றாலைக்கு 150 மீட்டர் பாதுகாப்பு இடைவெளி அளித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.
4. அனுமதி கோரும் புல எண்: 264/1 (பகுதி)-ன் மேற்கு பகுதியில் செல்லும் வண்டிப்பாதைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி அளித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.
5. அனுமதி கோரும் புலத்தினை அரசு அங்கீகாரம் பெற்ற நிறுவனத்தினரால் DGPS (Differential Global Positioning System)-ன் படி ஆய்வு செய்யப்பட்டு ஒவ்வொரு எல்லைத் தூண்களும் நடப்படவேண்டும்.
6. மாண்பும உச்ச நீதிமன்றம் W.P.(C)No.144/2014 நாள்: 08.01.2020-ல் வழங்கப்பட்ட தீர்ப்புரையின் அடிப்படையில் குவாரிகளில் குவாரிப்பணி முடிவுற்ற பின்னர் மேற்படி நிலத்தில்



- செல்லும் அனுகு பாதைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி அளித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.
6. அனுமதி கோரும் புல எண். 264/1 (பகுதி)-ன் மேற்கு பகுதியில் செல்லும் வண்டிப்பாதைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி அளித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.
 7. அனுமதி கோரும் புலத்தினை அரசு அங்கீகாரம் பெற்ற நிறுவனத்தினரால் DGPS (Differential Global Positioning System)-ன் படி ஆய்வு செய்யப்பட்டு ஒவ்வொரு எல்லைத் தூண்களும் நடப்படவேண்டும்.
 8. மாண்பும உச்ச நீதிமன்றம் W.P.(C)No.144/2014 நூள்: 08.01.2020-ல் வழங்கப்பட்ட தீர்ப்புரையின் அடிப்படையில் குவாரிகளில் குவாரிப்பணி முடிவுற்ற பின்னர் மேற்படி நிலத்தில் பாதிக்கப்பட்ட பகுதிகளை மறு சீரமைத்து தாவரங்கள் மற்றும் புல்வெளிகள் வளர்வதற்கு தகுதியுள்ள நிலமாக மாற்றப்பட வேண்டும்.
 9. 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.

A. J. S. S. S.
உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை
கோயம்புத்தூர்.

பெறுநர்:
தி/வா.தமிழ்நாடு புளூ மெட்டல்ஸ்,
1678, திருச்சி ரோடு,
இராமநாதபுரம்,
கோயம்புத்தூர்.

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25/10/23

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25/10/23



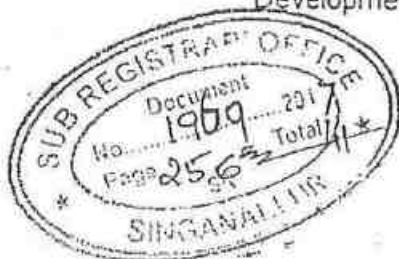
PROCEEDINGS OF THE DISTRICT COLLECTOR, COIMBATORE
Present: Thiru.T.N.Hariharan, I.A.S.,

R.C.No.717/ Mines / 2015

Dated : 14.03.2017

Sub Mines and Minerals – Minor Mineral – Roughstone and Gravel – Coimbatore District – Sulur Taluk - Kallapalayam Village - Over an extent of 6.09.0 hectares of patta lands – in S.F.Nos. 261/1B (0.36.5 hecets.), 261/2(2.26.0 hecets.), 263/1A(1.96.5 hecets.) and 264/1(1.50.0 hecets.) – Quarry lease Application preferred by M/s.Tamilnadu Blue Metals – Precise Area Communicated – Mining Plan Approved by the Assistant Director Geology & Mining – Environmental Clearance Obtained – quarry lease granted – for a period of 5 (five) years – orders - issued

- Ref: 1. Quarry Lease Application of M/s.Tamilnadu Blue Metals dated 27.07.2015.
2. This office letter even number dated 28.07.2015 addressed to the Revenue Divisional Officer, Coimbatore South.
3. The Revenue Divisional Officer, Coimbatore South letter L.Dis.No.6969 / 2015 / A2 dated 06.04.2016.
4. Assistant Director, Geology and Mining, Coimbatore field inspection report dated 19.04.2016.
5. This office letter even number dated 06.06.2016 addressed to the applicant in which precise area was communicated
6. This office letter even number dated 17.06.2016 addressed to the applicant in which the mining plan was approved.
7. State Level Environment Impact Assessment Authority, Chennai Lr.No.SEIAA-TN/F.No.5418/1(a)/ EC.No:3288/2016 dated 11.07.2016.
8. District Environmental Engineer, Tamil Nadu Pollution Control Board, Coimbatore (South) consent order No.160516506078, 160526506078 Dated 31.08.2016 and Proceedings No.F.1226 CBS / RS / DEE / TNPCB / CBS / W&A / 2016 Dated 31.08.2016.
9. M/s.Tamilnadu Blue Metals letter dated 06.01.2017 (along with the EC advertisement paper cutting, acknowledgement of President, Kallapalayam Panchayat and Block Development Officer, Sullanpet Panchayat union).





Order :-

M/s.Tamilnadu Blue Metals has applied on 27.07.2015 for the grant of quarry lease for Roughstone and Gravel over an extent of 6.09.0 hectares of patta lands in S.F.Nos. 261/1B (0.36.5 hecets.), 261/2(2.26.0 hecets.), 263/1A(1.96.5 hecets.) and 264/1(1.50.0 hecets.) of Kallapalayam Village, Suler Taluk, Coimbatore District for a period of 5 years vide reference 1st cited. The applicant has remitted the required application fee of Rs.1,500/- towards application fee in the prescribed head of account and enclosed the original challan along with all the required documents for the grant of quarry lease.

2. In order to get land availability report for the applied area, the Revenue Divisional Officer, Coimbatore South was requested vide reference 2nd cited to offer land availability report for the area applied for quarry lease.

3. The Revenue Divisional Officer, Coimbatore South in the reference 3rd cited, has submitted the land availability report in which she has stated that the lands in S.F.Nos. 261/1B, 261/2, 263/1A and 264/1 stands registered in the name of M/s.Tamilnadu Blue Metals vide patta Nos.643, 644, 641 and 642 of Kallapalayam Village. Previously a quarry lease has been granted to M/s.Tamilnadu Blue Metals in the subject area vide District Collector's Proceedings RC.No.662/2010/MM1 dated 18.08.2010 for a period of five years from 18.08.2010 to 17.08.2015. No natham, approved layout, habitations and ancient monuments are situated within a radial distance of 300 meters from the applied area. Finally, the Revenue Divisional Officer, Coimbatore South has recommended for grant of quarry lease in favour of M/s.Tamilnadu Blue Metals for quarrying Rough stone and Gravel over an extent of 6.09.0 hectares of patta lands in SF.Nos. 261/1B, 261/2, 263/1A and 264/1 of Kallapalayam Village, Suler Taluk, Coimbatore District.

4. The Assistant Director, Geology and Mining, Coimbatore vide reference 4th cited has submitted his field inspection report in which he has reported that the lands in SF.Nos. 261/1B, 261/2, 263/1A and 264/1 stands registered in the name of applicant viz. M/s.Tamilnadu Blue Metals vide patta Nos.643, 644, 641 and 642 of Kallapalayam Village. Previously a quarry lease





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has been granted to M/s.Tamilnadu Blue Metals for quarrying Rough Stone and Gravel in the subject area for a period of five years from 24.07.2005 to 23.07.2010 vide District Collector's Proceedings RC.No. 370/2005/MM2 dated 24.07.2005. Subsequently quarry lease was granted to M/s.Tamilnadu Blue Metals for another period of five years from 18.08.2010 to 17.08.2015 vide District Collector's Proceedings RC.No.662/2010/MM2 dated 18.08.2010.

The applied area consists of Charnockite rocks, it contains hornblende biotite gneiss. It is grey in colour and fine to medium grained. The trend of the deposit is North East to South West dipping vertical. There are multiple joints noticed. The average thickness of overburden soil may varies from 0.5 to 2 meters. Quarry pit has been noticed in SF.Nos. 261/1B and 261/2 for the dimension of Pit I: 68 mts x 192 mts X 26 mts and Pit II: 110 mts x 80 mts X 32 mts. The SF.No.264/1 is a virgin area. An adequate mineral deposit is available in this area. The rock is suitable for construction activities.

Finally, the Assistant Director, Geology and Mining has recommended for grant of quarry lease for quarrying Roughstone and Gravel over an extent of 6.09.0 hectares of patta lands in SF.Nos. 261/1B, 261/2, 263/1A and 264/1 of Kallapalayam Village, Sulur Taluk, Coimbatore District in favour of M/s.Tamilnadu Blue Metals for a period of five years under provisions of rule 19(1)and 20 of Tamil Nadu Minor Mineral Concession Rules 1959.

5. Based on the recommendations of the Revenue Divisional Officer, Coimbatore South and the Assistant Director, Geology and Mining, Coimbatore, precise area was communicated to the applicant with a request to prepare mining plan for the applied area and submit the same before the Assistant Director for getting approval within a period of 3 months from the date of receipt of precise area communication.

6. Accordingly, the applicant has submitted the mining plan prepared by authorized RQP for getting approval. Based on the instructions given in the Commissioner, Geology and Mining, Chennai letter No. 3868 / LC / 2012 dated 19.11.2012, the Mining Plan was approved by the Assistant Director, Geology and Mining, Coimbatore on 17.06.2016 after verifying the mining plan with field conditions.





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7. Subsequently the State Level Environmental Impact Assessment Authority vide reference 7th cited has issued Environmental clearance for the area applied for the grant of quarry lease. Further as insisted in the Environmental Clearance issued by State Level Environmental Impact Assessment Authority, the applicant vide reference 8th cited has submitted the consent letter obtained from District Environmental Engineer, Tamil Nadu Pollution Control Board, Coimbatore (South).

8. In order to comply the conditions imposed in the Environmental Clearance report, the applicant M/s.Tamilnadu Blue Metals letter dated 06.01.2017 has submitted the Environmental Clearance advertised newspaper cutting and acknowledgement of President, Kallapalayam Panchayat and Block Development Officer, Sultanpet Panchayat union. Further as instructed by State Level Environmental Impact Assessment Authority, M/s.Tamilnadu Blue Metals has furnished base line data covering the Air, Water, Noise and land environment quality for the proposed quarry site and sworn affidavit for the insurance protection to the workers.

9. The applicant has submitted the lease deed in the prescribed format, as provided in the Tamil Nadu Minor Mineral Concession Rules, 1959, for execution in non-judicial stamp paper to the value of Rs.2,52,100/- and remitted the security deposit Rs.5,000/- vide challan No.51, dated 09.03.2017 and also remitted the area assessment of Rs.3050/- (for a whole 5 year period of lease) vide challan no.49 dated 09.03.2017 through State Bank of Mysore, Tatabad branch, Coimbatore.

In the circumstances stated above, based on the recommendations of the Revenue Divisional Officer, Coimbatore South, the Assistant Director, Geology and Mining, Coimbatore, the Environmental Clearance issued by the State Level Environment Impact Assessment Authority, Tamil Nadu, Chennai-15 and the consent letter issued by the District Environmental Engineer, Tamil Nadu Pollution Control Board, Coimbatore South, a quarry lease is hereby granted to M/s.Tamilnadu Blue Metals for quarrying Roughstone and Gravel over an extent of 6.09.0 hectares of patta lands in S.F.Nos. 261/1B (0.36.5 hecets.), 261/2(2.26.0 hecets.), 263/1A(1.96.5 hecets.) and 264/1(1.50.0 hecets.) of Kallapalayam Village, Sulur Taluk, Coimbatore District for a period of 5 (five) years from 14.03.2017 to 13.03.2022 under rule 19 (1) of





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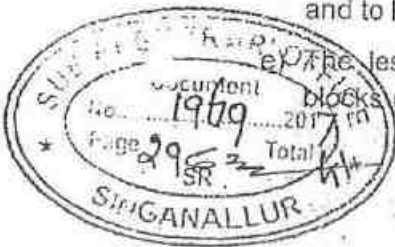
Tamil Nadu Minor Mineral Concession Rules, 1959 subject to the following conditions and general conditions as stipulated in the Tamil Nadu Minor Mineral concession Rules 1959.

1. If lease granted, quarry operation shall be carried out only within the lease granted area.
2. No quarry operation should be carried out in the adjoining patta lands and Government poramboke lands.
3. A safety distance of 7.5 meters should be provided all along the boundary of the area applied for lease.
4. If lease granted, the transport permit obtained for this area should not be used in other areas.
5. To effectually fence off the lease granted area from the adjoining lands and to keep the fences in good condition.
6. Blasting of rock should be done by the shot fire method with less explosives in between 12.00 Noon to 12.30 P.M. after giving proper signal by siren as per the provisions of Indian Explosive Act 1884.
7. While carry out quarry operation, no hindrance should be created to the adjoining patta land and cart track.
8. In order to avoid splinters of stone pieces into the air less affective explosives only to be used for breaking the stone by the well experienced certified blaster (or) short firer.
9. While carrying out blasting, usage of Ammonium Nitrate mixed with soil and diesel and dried in the air (an explosive substance) should be avoided to curtall the stone pieces flown into the air and create trouble to the nearby villagers (or) habitants.
10. Mild explosives, with less blasting sound such as thotta (gelatin stick) and cape (detonator) only to be used for breaking the stones.

GENERAL CONDITIONS:-

- a) The lessee shall, at his own expense, erect boundary marks round the area shown in the plan annexed to the lease or agreement and in which he works minerals and, at all times, maintain and keep such boundary marks in good repair.
- b) The lessee shall maintain a notice board, with descriptions like, name of the lessee, name of the village, survey field number, order in which the lease was granted with lease period and other relevant particulars,
- c) The lessee shall maintain the approach road to his quarry at his own expenses,
- d) To effectually fence off the lease granted area from the adjoining lands and to keep the fences in good condition.

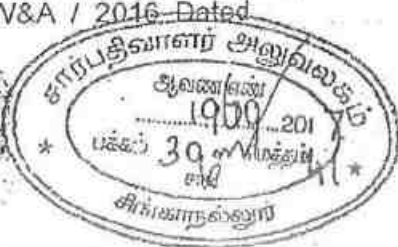
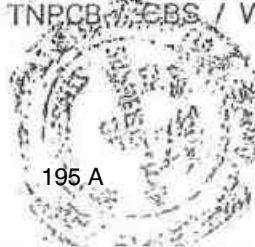
The lessee shall quarry rough stones and shall not produce rough blocks or slabs or any other form of stone, either for export purpose in





the form of raw blocks, slab etc., or for using them in cutting and polishing industry,

- f) The lessee shall pay the seigniorage fee prescribed in Appendix II of Tamilnadu Minor Mineral Concession Rule, 1959, for the rough stone and Gravel transported from the quarry and shall not raise any objection for the revision of seigniorage fee as and when announced by the Government,
- g) The lessee shall keep correct accounts showing the quantity and other particulars of Gravel quarried and dispatched from the quarry.
- h) The lessee shall allow any officer authorized by the State Government to examine such accounts and furnish them with such information and returns as may be specified by them,
- i) The lessee shall remove or allow removal and transportation of rough stone from the area where quarrying is permitted only after obtaining transport permits in the form prescribed. The lessee shall issue the transport permit to the vehicle used for transportation for the Gravel, furnishing the particulars in the transport permits, specifically indicating the vehicle no, the quantity of the Gravel allowed to be transported by the vehicle mentioning the date and time of issue of transport permit, to the vehicle owner / driver. If any violation is noticed, the vehicle along with the mineral will be seized and the lessee is punishable for the illicit transportation of the mineral, under the provisions of the TNMMCR 1959.
- j) Quarrying shall be carried out without affecting the interest of the adjoining land owners,
- k) Blasting of rock should be done by the shot fire method with less explosives in between 12.00 Noon to 12.30 P.M. after giving proper signal by siren as per the provisions of Indian Explosive Act 1884.
- l) The lessee should abide all the conditions imposed by the State level Environment Impact Assessment Authority Tamilnadu.
- m) The lessee shall abide by the conditions laid down in the Payment of Wages Act, 1936 (Central Act IV of 1936), the Mines Act, 1952(Central Act XXXV of 1952) and the Indian Explosives Act, 1984 (Central Act IV of 1884),
- n) In addition to the above conditions, the lessee shall abide by the conditions specified in TNMMC Rules 1959, and also the conditions stipulated in the lease deed. Any violation of the above conditions will lead to penal action and also for cancellation of lease.
- o) The condition imposed by the District Environmental Engineer, Tamil Nadu Pollution Control Board, Coimbatore (South) consent order No. 160516506078, 160526506078 Dated 31.08.2016 and Proceedings No.F.1226 CBS / RS / DEE / TNPCB / CBS / W&A / 2016 Dated





31.08.2016 should strictly be followed without any deviation. Further the lessee has to renew the consent order from time to time whenever the consent is expired.

Sd./xxx
District Collector,
Coimbatore.

To

M/s. Tamilnadu Blue Metals,
1678, Trichy road,
Ramanathapuram,
Coimbatore District - 641 045.

Copy to :

1. Member Secretary, SEIAA, 3rd floor, Panagal Maligai, Saidapet, Chennai.
2. Commissioner, Geology and Mining, Chennai -32
3. District Environmental Engineer, Tamil Nadu Pollution Control Board, Coimbatore South
4. Revenue Divisional Officer, Coimbatore South.
5. Tahsildar, Sulur.
6. Village Administrative Officer, Kallapalayam (through the Tahsildar, Sulur).

///True Copy / By order//

L. Raju
16/11/17
For District Collector,
Coimbatore.

6/11/17
14/11/17





Dr. S. KAEYANASUNDARAM, J.F.S. (Retd.)
CHAIRMAN

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY - TAMIL NADU
3rd Floor, Panagal Maaliga,
No 1 Jeenis Road, Saidapet,
Chennai-15.
Phone No.044-24359974
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Tr. No. SEIAA-TN/F.No.5418/1(a)/EC.No:3288/2016 dated: 11.07.2016

To
M/s. Tamilnadu Blue Metals
No.1678, Trichy Road
Ramanathapuram
Coimbatore

Sir,

Sub: SEIAA-TN - Proposed Rough Stone & Gravel quarry located at S.F.No:261/1B, 261/2, 263/1A & 264/1, Kallapalayam Village, Sullur Taluk, Coimbatore District- issue of Environmental Clearance - Reg.

Ref: 1. Your Application for Environmental Clearance dt: 22.06.2016
2. Minutes of the 77th SEAC held on 08.07.2016
3. Minutes of the SEIAA meeting held on 11.07.2016

Details of Minor Mineral Activity:-

This has reference to your application first cited. The proposal is for obtaining environmental clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below:

1	Name of Project Proponent and address	M/s. Tamilnadu Blue Metals No.1678, Trichy Road Ramanathapuram Coimbatore
2	Location of the Proposed Activity	
	Survey Number	261/1B, 261/2, 263/1A & 264/1
	Latitude and Longitude	10°54'59.11"N to 10°55'11.72"N 77°03'55.98"E to 77°04'08.26"E
	Village	Kallapalayam
	Taluk	Sullur
	District	Coimbatore



3	Proposed Activity	
	i. Minor mineral	Rough Stone & Gravel
	ii. Mining Lease Area	6.09.0 Ha
	iii. Approved quantity	550700 cu.m of Rough stone & 16750 cu.m of Gravel
	iv. Depth of Mining	32 m
	v. Type of mining	Opencast Semi Mechanised Mining
	vi. Category(B1/B2)	B2
	vii. Precise area communication	Rc.No.717/Mines/2015 dated:06.06.2016
	viii. Mining plan approval	Assistant Director Rc.No.717/Mines/2015 dated:17.06.2016
	ix. Mining lease period	5 Years
4	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-	Not attracted Affidavit furnished
5	Man Power requirement per day:	13 Employees
6	Utilities	
	i. Source of Water :	Water vendors/Existing Borehole
	ii. Quantity of Water Requirement in KLD:	
	a. Domestic	0.3KLD
	b. Industrial	} 0.7KLD
	c. Green Belt & Dust Suppression	
	iii. Power Requirement	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	443350 Liters of HSD
7	Cost	
	i. Project Cost	Rs.82.27 Lakhs
	ii. EMP Cost	Rs 7.30 Lakhs
8	Public Consultation:-	Not required as per O.M. dated 24.12.2013 of MoEF, Govt.
9	Date of Appraisal by SEAC:- Agenda No:	77-21
10	Date of Review/Discussion by SEIAA and the Remarks:-	The proposal was placed before the SEIAA in its 179th Meeting held on 11.07.2016 and the Authority after careful consideration, decided to grant environmental clearance to the said project Mining of Rough Stone & Gravel to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.
11	Validity:	The Environmental Clearance will be coterminous with the mine lease period or limited to a maximum period of 5 Years from the date of issue whichever is earlier.



15. The mined out pits should be backfilled where warranted and the area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
19. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
20. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
21. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
22. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
23. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and ear muffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
24. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.
25. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
26. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
27. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
28. The following measures are to be adopted to control erosion of dumps:
 - i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.


CHAIRMAN
SEIAA-TN



Conditions to be Complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - I. The project has been accorded Environmental Clearance.
 - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - III. Environmental Clearance may also be seen on the website of the SEIAA.
 - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.



29. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
30. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
31. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
32. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
33. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
34. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
35. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
36. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.
37. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site
38. Ground water quality monitoring should be conducted once in 3 Months
39. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
40. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
41. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI..
42. Bunds to be provided at the boundary of the project site.
43. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.



44. At least 10 Neem trees should be planted around the boundary of the quarry site.
45. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
46. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
47. The Project Proponent shall provide solar lighting system to the nearby villages
48. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
49. Rainwater shall be pumped out Via Settling Tank only
50. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
51. As per MoEF&CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from standing committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
52. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
53. Safety equipments to be provided to all the employees.
54. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
55. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
56. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
57. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
58. The Proponent shall furnish the data obtained from the Public Works Department regarding the details of Ground Water table in the quarry site.
59. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
60. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
61. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.



General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.



16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied
23. Any appeal against this environmental clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Kalyanath
CHAIRMAN
SEIAA-TN

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi
2. The Principal Secretary, Environment and Forests Department, Government of Tamil Nadu, Tamil Nadu.
3. The Additional Chief Secretary, Industries Department, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (S2), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Coimbatore District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. El Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.



1969/20



தமிழ்நாடு தமிழ்நாடு TAMILNADU

D 043000

TAMILNADU
10453
13.02.2017

Tamil Nadu Blue Metals
Coimbatore

M. DORAISWAMY
"STAMP VENDOR"
10-A, STATE BANK ROAD
COIMBATORE - 641 018
L.No: 733/2-1877

APPENDIX IV
(See Rules 19 (1) and 22)

- I. Coimbatore, District Collector's Ref. No. 717 / Mines / 2015
- II. The Chairman SEIAA-TN, Chennai-16, Environment Clearance Letter No. SEIAA - TN / F. No. 5418 / 1(a) / EC.No: 3288 / 2016 Dated 11.07.2016.
- III. District Environmental Engineer, Tamilnadu Pollution Control Board, Coimbatore (South) Proceedings No.F.1226 CBS/RS/DEE/TNPCB/CBS/W&A/2016 Dated 31.08.2016.

IV. Stamp Duty Calculation: -

1. Anticipated S. Fee for Stone 550700 cbm x 45/-	: Rs. 2,47,81,500/-
2. Anticipated S. Fee for gravel 16750 cbm x 25/-	: Rs. 4,18,750/-
3. Security Deposit	: Rs. 5,000/-
4. Area Assessment for 5 years	: Rs. 3,050/-
Total	: Rs. 2,52,08,300/-

REGISTERED HOLDER / LESSEE



DISTRICT COLLECTOR
COIMBATORE
(LESSOR)



செலாவணம் 1969/2017

பரிசீலனை

மொத்த செலவுகள் ரூ. 89,89,545/-
மொத்த வருமானம் ரூ. 52,58,300/-
மொத்த பதிலீடுகள் ரூ. 37,81,245/-
மொத்த செலவுகள் ரூ. 37,800/-
மொத்த வருமானம் ரூ. 37,800/-
மொத்த பதிலீடுகள் ரூ. 37,800/-
மொத்த செலவுகள் ரூ. 37,800/-
மொத்த வருமானம் ரூ. 37,800/-
மொத்த பதிலீடுகள் ரூ. 37,800/-
மொத்த செலவுகள் ரூ. 37,800/-
மொத்த வருமானம் ரூ. 37,800/-
மொத்த பதிலீடுகள் ரூ. 37,800/-

செலாவணம் பரிசீலனை செய்துள்ளேன்
12.9.2017

செலாவணம் பரிசீலனை செய்துள்ளேன்
12.9.2017

செலாவணம் பரிசீலனை செய்துள்ளேன்
12.9.2017





சுமிநாடு தமிழ்நாடு TAMILNADU

D 043001

TA...ADU

Tamil Nadu Blue Metals

No. : 10454

Coimbatore

Date: 13.02.2017

M. DORAISWAMY
"STAMP VENDOR"
10-A, STATE BANK ROAD,
COIMBATORE - 641 018.
L.No: 7333/B1/97/23-3



-2-

FORM OF AGREEMENT FOR QUARRYING AND CARRYING AWAY MINOR MINERALS (ROUGHSTONE AND GRAVEL) FROM RYOTWARI LANDS IN WHICH THE MINERALS BELONG TO GOVERNMENT

This AGREEMENT made this 14th day of March 2017 between M/s.Tamilnadu Blue Metals by its Partner and authorised signatory Thiru. R.RajKumar, 1678, Trichy Road, Ramanathapuram, Coimbatore District. (hereinafter referred to as "the registered holder / lessee" which term shall include in these presents where the context so admits include also his heirs, executors, administrators, legal representatives and assigns) of the one part and the Governor of Tamil Nadu (hereinafter called "the Government" which term shall where the context so admits, include also his successors in office and assigns) of the other part.

MM [D No: TN 02-20020026779.]

REGISTERED HOLDER / LESSEE



DISTRICT COLLECTOR
COIMBATORE
(LESSOR)

[Signature]

உதவி இயக்குநர் அலுவலகம்
 * 28 NOV 2023



குடிநாடு தமில்நாடு TAMILNADU
 TAMILNADU
 No. 10455
 Date: 13.02.2017

10. 25000/-
 Tamil Nadu Blue Metals
 Coimbatore

0 043002

[Signature]
M. DORAISWAMY
 "STAMP VENDOR"
 10-A, STATE BANK ROAD,
 COIMBATORE - 641 018.
 L.No: 7333/B1/97/E2-3

-3-

WHEREAS the registered holder holds (amongst others) the lands described in the schedule hereunder written (hereinafter referred to as the said lands)

AND WHEREAS, the registered holder has made application to the Collector of the District of **Coimbatore** (hereinafter referred to as "the Collector") seeking grant of quarrying lease for quarrying **Roughstone & Gravel** in the said lands and to deposit mining waste in the said lands and has lodged with the Collector an accurate map or sketch of the said lands.

AND WHEREAS, the Collector, acting for and on behalf of the Government, has granted a quarrying lease to the registered holder and allowed him to commence quarrying operations for **Roughstone & Gravel** in the said lands and to deposit mining waste thereon by the registered holders for a period of 5 (Five) years from **14.03.2017** to **14.03.2022**.

[Signature]
 REGISTERED HOLDER / LESSEE

[Signature]
 DISTRICT COLLECTOR
 COIMBATORE
 (LESSOR)



உதவி இயக்குநர் அலுவலகம்
28 NOV 2023



₹. 25000/-
தமிழ்நாடு தமில்நாடு TAMILNADU
TAMILNADU
Date: 13.02.2017

Tamil Nadu Blue metals
Coimbatore

D 043003

M. DORAISWAMY
"STAMP VENDOR"
10-A, STATE BANK ROAD,
COIMBATORE - 541 018.
T.No. 7333 5137 23

-4-

AND WHEREAS, the registered holder has deposited with the Collector, the sum of Rs.5,000/- (Rupees Five Thousand only) Challan No.51, dated 09.03.2017, State Bank of Mysore, Tatabad Branch, Coimbatore as security against any loss or damage which may be incurred by the Government by reason of any of the said lands being rendered unfit for cultivation by any mining operations therein of the registered holder or by the deposit of mining waste thereon by the registered holder.

NOW THESE PRESENTS WITNESS and the registered holder doth hereby agree with the Government in the manner following, that is to say:

- The registered holder shall be at liberty at all times during the period of the lease to carry on mining operations for **Roughstone & Gravel** in the said lands in a proper and workman like manner and to deposit mining waste on the said lands and shall at all times be answerable and accountable to the Government for all acts and defaults by any of his nominees, servants or agents in carrying on such operations or in making such deposit.

REGISTERED HOLDER / LESSEE



DISTRICT COLLECTOR
COIMBATORE
(LESSOR)

[Signature]

உதவி இயக்குநர் அலுவலகம்
28 NOV 2023



கமலிநாடு தமிழ்நாடு TAMILNADU
TAMILNADU
No. 10457
Date: 13.02.2017

Rs. 25000/-
Tamil Nadu Blue Metals
Coimbatore

D 043004

M. DORAISWAMY
"STAMP VENDOR"
10-A, STATE BANK ROAD,
COIMBATORE - 641 019.

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2. The registered holder cum lessee has paid a sum of Rs.3050/- (Rupees Three Thousand and Fifty only) towards land assessment / Area assessment @ Rs.100/- per hectare per annum in lump sum for a whole period of lease (5 years) vide chalan No.49 dated 09.03.2017 at State Bank of Mysore, Tatabad Branch, Coimbatore lease shall pay to the collector for and on behalf of the Government in addition to the land assessment for the time being payable in respect of the said lands, seigniorage on the minor minerals at the rate specified in Appendix II to the Tamil Nadu Minor Minerals Concession Rules 1959.

3. The registered holder shall and will keep correct accounts in such form as the Collector shall from time to time require and direct showing the quantities and other particulars of all minerals obtained by the registered holder from the said lands and also the number of persons employed in carrying on the said mining operations therein and shall from time to time when so directed by the Collector prepare and maintain complete and correct plans of all mines and working in the said lands and shall allow any officer hereunto authorized by the Director of Geology and Mining, Tamilnadu from time to time

REGISTERED HOLDER / LESSEE

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S. KRISHNAN
COIMBATORE

DISTRICT COLLECTOR
COIMBATORE
(LESSOR)
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சுமிநாடு தமிழ்நாடு TAMILNADU
TAMILNADU
10458
13.02.2017

D 043005

Rs. 25100/-
Tamil Nadu Blue Metals
Coimbatore

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COIMBATORE - 641 018.
L.No: 7333/B1/97/B-3

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and at any time to examine such accounts and any such plans and shall when so required supply and furnish all such informations and returns regarding all or any of the matter aforesaid as the Government shall, from time to time, require and direct.

4. The registered holder shall and will at all times allow any officer authorized by the Director of Geology and Mining, Tamil Nadu in that behalf to enter upon any part of the said lands where any mining operations may be carried on for the purpose of inspecting the same.

5. The registered holder shall forthwith send to the District Collector a report of any accident which may occur at or in the said lands and also of the discovery of any mineral other than Roughstone & Gravel.

6. It shall be lawful for the registered holder at any time to cease mining operations under these presents provided he shall pay to Collector for and on behalf of the Government land assessment, cess and seigniorage due to the Government and shall restore the said lands or fence or fill in abandoned pits and excavations therein if required by the Collector and upon his so doing these presents shall cease and determine.



REGISTERED HOLDER / LESSEE



DISTRICT COLLECTOR
COIMBATORE
(LESSOR)

28 NOV 2023



தமிழ்நாடு தமில்நாடு TAMILNADU
TAMILNADU
10459
Date: 13.02.2017

Rs. 25000/-
Tamil Nadu Blue Metals
Coimbatore

D 043006

M. DORAISWAMY
"STAMP VENDOR"
10-A, STATE BANK ROAD,
COIMBATORE - 641 018.
L.No 7333/B1/97/3

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7. In case the registered holder shall relinquish the whole or any part of the said lands or in case of the expiry or sooner determination of this agreement then and in any such case, he shall restore the lands so relinquished or so much thereon as the Collector shall require to be restored to a state fit for cultivation or shall securely and permanently fence or fill in all such abandoned pits and excavations therein as the Collector shall require to be so fenced or filled in, and in case the registered holder shall fail or neglect to restore any such land which he shall be required to restore to a state fit for cultivation or to so fence, or fill in any such abandoned pit or excavation which he shall be required to so fence or fill in them and in any such case, it shall be lawful for the Collector to so restore any such lands, or as the case may be, to so fence or fill any such pits or excavation at the expense of the registered holder and to apply the said sum of Rs.5,000/- so deposited in or towards the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands which shall have been rendered unfit for cultivation. If however, the amount of deposit is not sufficient to cover the cost of such restoration of fencing or filling in or to meet thirty times the assessment on the area rendered uncultivable, it shall be lawful for the Government to recover balance by resort to civil Court.

REGISTERED HOLDER / LESSEE



DISTRICT COLLECTOR
COIMBATORE
(LESSOR)

25th Nov 2023
 28 NOV 2023



குமரிநாடு தமிழ்நாடு TAMILNADU
 TAMILNADU
 10460
 18.02.2017

Rs. 25000/-
 Tamil Nadu Blue Metals
 Coimbatore

D 043007

M. DORAISWAMY
 "STAMP VENDOR"
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 COIMBATORE - 641 018.
 L.No: 7333/91/97/23-3

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8. The registered holder shall not be entitled to any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by the carrying on of any mining operations or by the deposit of mining waste, unless thirty times the assessment thereon has already been deducted under the preceding clause.
9. The registered holder shall not assign, lease or part with the possession of the said lands or any part thereof for the whole or any part of the said term without previous intimation in writing to the Collector
10. If the registered holder does not intend to carry on mining operations himself, but intends to lease out the right to do so to another person, the registered holder and his lessee shall enter into an agreement with Government binding themselves jointly and severally to accept the conditions and stipulations herein contained which agreement shall be in the form set out in Appendix IV to the Tamil Nadu Minor Mineral Concession Rules, 1959

REGISTERED HOLDER / LESSEE

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DISTRICT COLLECTOR
 COIMBATORE
 (LESSOR)

உதவி சூயக்குநர் அலுவலகம்
★ 28 NOV 2023



Rs 25000

D 044238

தமிழ்நாடு தமில்நாடு TAMILNADU
TAMILNADU

Tamilnadu Blue metal
Coimbatore

16022
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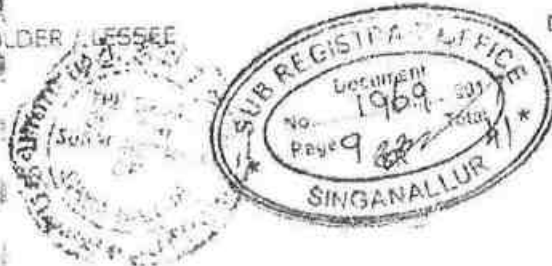
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A. DORAISWAMY
"STAMP VENDOR"
10-A, STATE BANK ROAD,
COIMBATORE - 641 018.
L.No: 7333/B1/97/ES-3

11. All land assessment, cess and seigniorage payable under these presents shall be recoverable under the provisions of the Tamil Nadu Revenue Recovery Act, 1864, as if they were arrears of land revenue.

12. In the event of any breach by the registered holder by any of the conditions of this agreement, it shall be lawful for the Government to levy enhanced seigniorage or for the Collector to give notice in writing to the registered holder of his intention to cancel these presents whereupon the same shall stand cancelled but without prejudice to any rights which the Government may have against the pattadar in respect of any antecedent claim or breach of covenant or condition.

13. Any notice to be given to the registered holder may be addressed to his last known place of abode and where a notice has been so addressed, it shall be deemed to have been duly served for the purpose of these presents.

REGISTERED HOLDER / LESSEE



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COIMBATORE
(LESSOR)

2-தனி இயக்குநர் அலுவலகம்
28 NOV 2023



குமிழ்நாடு தமிழ்நாடு TAMILNADU RS 25000/-

D 044239

MILNADU
No. 16023
Date: 08.02.2017

Tamilnadu Blue metal
Coimbatore

[Signature]
VI. DORAISWAMY
"STAMP VENDOR"
10-A, STATE BANK ROAD,
COIMBATORE - 641 018.
L.No: 7333/B/197/RS-3

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14. Should any question or dispute arise regarding the agreement executed in pursuance of these rules or any matter or thing connected therewith or the powers of the registered holder there under, the amount or payment of the seigniorage fee or area assessment made payable thereby, the matter in issue shall be decided by the Director of Geology and Mining. In case the registered holder / registered holders, lessee / lessees is / are not satisfied with the decision of the Director of Geology and mining, the matter shall be referred to the State Government for decision.

15. The registered holder shall abide by the conditions laid down in the Payment of Wages Act, 1936 (Central Act IV of 1936), the Mines Act, 1952 (Central Act XXXV of 1952) and the Indian Explosives Act 1884 (Central Act IV of 1884).

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REGISTERED HOLDER / LESSEE

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DISTRICT COLLECTOR
COIMBATORE
(LESSOR) 12/26



28 NOV 2023



தமிழ்நாடு
TAMILNADU
No. : 11098
Date: 15.02.2017

Tamilnadu Blue Metals
Coimbatore

AM 027469

M. DORAISWAMY
"STAMP VENDOR"
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COIMBATORE - 641 018 -
L.No: 7333/81/97/2-3

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GENERAL CONDITIONS AS STIPULATED IN TNMMCR - 1959:

- a) The lessee shall, at his own expense, erect boundary marks round the area shown in the plan annexed to the lease or agreement and in which he works minerals and, at all times, maintain and keep such boundary marks in good repair.
- b) The lessee shall maintain a notice board, with descriptions like, name of the lessee, name of the village, survey field number, order in which the lease was granted with lease period and other relevant particulars,
- c) The lessee shall maintain the approach road to his quarry at his own expenses.
- d) To effectually fence off the same demised piece of land from the adjoining lands and to keep the fences in good repairs and condition.

REGISTERED HOLDER / LESSEE



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(LESSOR)

உதவி குயக்குநர் அலுவலகம்
28 NOV 2023



தமிழ்நாடு
TAMILNADU
No. 11099
Date: 15.02.2017

TAMILNADU Rs. 1000/
Tamilnadu Blue Metals
Coimbatore

AM 027470
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- e) Blasting of rock should be done by the shot fire method with less explosives in between 12.00 Noon to 12.30 P.M. after giving proper signal by siren as per the provisions of Indian Explosive Act 1884.
- f) The lessee shall quarry rough stones, jelly, size stones and pillar stones and shall not produce rough blocks or slabs or any other form of stone, either for export purpose in the form of raw blocks, slab etc., or for using them in cutting and polishing industry,
- g) The lessee shall pay the seigniorage fee prescribed in Appendix II of Tamilnadu Minor Mineral Concession Rule, 1959, for the rough stone transported from the quarry and shall not raise any objection for the revision of seigniorage fee as and when announced by the Government,
- h) The lessee shall keep correct accounts showing the quantity and other particulars of rough stone quarried and dispatched from the quarry. He shall allow any officer authorized by the State Government to examine such accounts and furnish them with such information and returns as may be specified by them,

REGISTERED HOLDER / LESSEE

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DISTRICT COLLECTOR
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(LESSOR)



AT 105858

தமிழ்நாடு தமிழ்நாடு TAMILNADU

Tamilnadu Blue Metals
Coimbatore

TAMILNADU
11100
Date: 15-02-2017

M. DORAISWAMY
"STAMP VENDOR"
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COIMBATORE - 641 018.
L.No: 7333/B1/97/88-3

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- i) The lessee shall remove or allow removal and transportation of rough stone from the area where quarrying is permitted only after obtaining transport permits in the form prescribed. The lessee shall issue the transport permit to the vehicle used for transportation for the rough stone, furnishing the particulars in the transport permits, specifically indicating the vehicle no, the quantity of the rough stone allowed to be transported by the vehicle mentioning the date and time of issue of transport permit, to the vehicle owner / driver. If any violation is noticed, the vehicle along with the mineral will be seized and the lessee is punishable for the illicit transportation of the mineral, under the provisions of the TNMMCR 1959.
- j) Quarrying shall be carried out without affecting the interest of the adjoining land owners,
- k) In addition to the above conditions, the lessee shall abide by the conditions specified in TNMMC Rules 1959, and also the conditions stipulated in the lease deed. Any violation of the above conditions will lead to penal action and also for cancellation of lease.



REGISTERED HOLDER / LESSEE



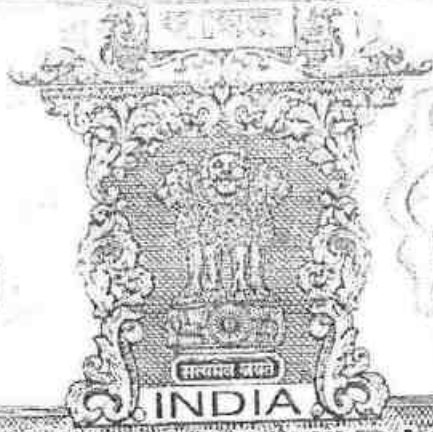
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DISTRICT COLLECTOR 15/02
COIMBATORE
(LESSOR)



भारतीय गैर न्यायिक

पचास
रुपये

रु.50



FIFTY
RUPEES

Rs.50

INDIA NON JUDICIAL

தமிழ்நாடு தமிழ்நாடு TAMILNADU

AT 105859

TAMILNADU

Tamilnadu Blue Metals

Coimbatore

No. 11101.....

M. DORAI SWAMY
"STAMP VENDOR"
10-A, STATE BANK ROAD,
COIMBATORE - 641 013.
L.No: 7333/B1/97/83-3

Date: 15-02-2017

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SPECIAL CONDITIONS IMPOSED BY THE DISTRICT COLLECTOR, IN
RESPECT OF LEASE GRANTED AREA

1. If lease granted, quarry operation shall be carried out only within the lease granted area.
2. No quarry operation should be carried out in the adjoining patta lands and Government poramboke lands.
3. A safety distance of 7.5 meters should be provided all along the boundary of the area applied for lease.
4. If lease granted, the transport permit obtained for this area should not be used in other areas.
5. To effectually fence off the lease granted area from the adjoining lands and to keep the fences in good condition.

REGISTERED HOLDER / LESSEE



DISTRICT COLLECTOR
COIMBATORE
(LESSOR)



4. Blasting of rock should be done by the strict fire control with proper precautions between 7.30 A.M. to 12.30 P.M. after giving proper signal by siren as per the provisions of Indian Explosive Act, 1984.
7. While carry out quarry operation, no drainage should be created to the adjoining patta land and cart track.
8. In order to avoid splinters of stone pieces into the air less effective explosives only to be used for breaking the stone by the well experienced certified blaster (or) shot firer.
9. While carry out blasting, usage of Ammonium Nitrate mixed with soil and diesel and tried in the air (an explosive substance) should be avoided to curtail the stone pieces flown into the air and create trouble to the nearby villagers (or) habitants.
10. Mild explosives, with less blasting sound such as thatta (gelatin stick) and cape (detonator) only to be used for breaking the stones.

Conditions imposed by the State Level Environment Impact Assessment Authority – Tamilnadu (SEIAA-TN)

The Member Secretary, State level Environment Impact Assessment Authority, Tamilnadu in his Letter No. SEIAA.TN/F.No.5418 / 1(a) /EC.No:3288 / 2016 dated 11.07.2016 has stated that the State level Environment Impact Assessment Authority, Tamilnadu accords Environmental clearance for Rough stone & Gravel quarrying in S.F.Nos.261/1B, 261/2, 263/1A and 264/1 totally over an extent of 6.09.0 hectares of Kaliapalayam Village, Sulur Taluk subject to the strict compliance of the following terms and conditions.

2. Conditions to be complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - I. The project has been accorded Environmental Clearance.
 - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - III. Environmental Clearance may also be seen on the website of SEIAA.
 - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. The applicant has to obtain land use classification as industrial use before issue / renewal of mining lease.
3. NOC from the standing committee of the NBWL shall be obtained, if protected areas are locate within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union / Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.

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DISTRICT COLLECTOR
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(LESSOR)

17/26



8. The excavated material shall not be used for any other purpose.
9. The excavated material shall be removed by the proponent for reuse.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7 AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 15 meters from any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying shall be 2m above the ground water table / approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from competent Authorities.
18. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
19. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
20. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
21. The proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
22. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
23. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment.
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
24. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE & F, GoI to control noise to the prescribed levels.
25. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.



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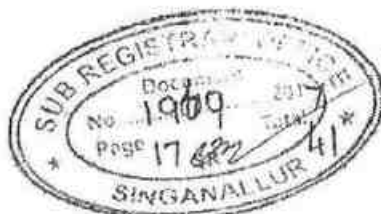
DISTRICT COLLECTOR
COIMBATORE
(LESSOR)

15/26



27. Topsoil, if any, shall not be stockpiled carelessly & if present, it shall be stored in adequate measures and should be used for plantation purpose.
28. The following measures are to be adopted at central area of dump:-
i. Retention of toe walls shall be provided at the foot of the dumps.
ii. Worked out slopes are to be stabilized by planting appropriate shrub/grass species on the slopes.
29. Waste, oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Waste (Management, Handling and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
30. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
31. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
32. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing setting of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
33. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector / mining officer shall ensure this.
34. No tree felling shall be done in the leased area, except only with the permission from competent Authority.
35. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study date, water, air & flora/fauna environment, slurry water generated / disposed and method of disposal, involving a reputed academic Institution.
36. It shall be ensured that the total extent of nearby quarries (existing, abandoned and proposed) located within 500 meters radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.
37. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500 m radius from the periphery of the quarry site.
38. Ground water quality monitoring should be conducted once in 3 Months.

REGISTERED HOLDER / LESSEE



DISTRICT COLLECTOR
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(LESSOR)

19/26



39. Transportation of soil / rock / material etc. to / from the site should be conducted in accordance with the rules.
40. Free Soil test should be conducted and reported to the Regional Director, MoEF, Coimbatore.
41. Air sampling at interceptor point should be conducted and reported to the Regional Director, MoEF, Coimbatore.
42. Bunds to be provided at the boundary of the project site.
43. The project proponent shall undertake plantation / afforestation work by planting the native species on all side of the lease area at the rate of 1000/ha. Suitable tree saplings should be planted on the bunds and other suitable areas in and around the work place.
44. At least 10 Neem trees should be planted around the boundary of the quarry site.
45. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
46. The project proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity.
47. The project Proponent shall provide solar lighting system to the nearby villages.
48. The project proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
49. Rainwater shall be pumped out via Settling Tank only
50. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
51. As per MoEF&CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild life angle including clearance from obtaining committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10 KM from National Park and Sanctuaries.
52. The quarrying activity shall be stopped if the entire quantity indicated in the Mining Plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
53. Safety equipments to be provided to all the employees.
54. Safety distance of 50m has to be provided in case of railway, reservoir, canal/ odai
55. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
56. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.

GENERAL CONDITIONS MENTIONED IN THE SEIAA EC REPORT:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The proponent shall obtain Consent to Establishment from the TNPC Board before commencing the activity.

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(LESSOR)

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3. No change in the existing conditions, size, scope or nature of the activity shall be allowed without the prior approval of the competent authority.
4. No change in the location, plan including excavation, quantity of mineral shall be allowed without the prior approval of the competent authority.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguard shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicle carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contraction due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers / labours shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forest and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/ proponent of this obligation/ requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.

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DISTRICT COLLECTOR
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(LESSOR)

2/26



- 17. The EIA/consent order/ clearance does not imply the administrative clearance is to be granted to the project authorities. Such authorities should be considering the project while taking decisions independently of the Environmental Clearance.
- 18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
- 19. The SEIAA, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
- 20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
- 21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environmental Clearance (Protection) Act, 1985, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
- 22. Any other conditions stipulated by other Statutory / Government authorities shall be complied
- 23. Any appeal against this environmental clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under section 16 of the National Green Tribunal Act, 2010.

The condition imposed by the District Environmental Engineer, Tamil Nadu Pollution Control Board, Coimbatore (South) in his consent order No. 160516506078 and 160526506078 dated 31.08.2016 and consent Proceedings No.F.1226CBS/ RS / DEE / TNPCB / CBS / W & A / 2016 dated 31.08.2016 should strictly be followed without any deviation. Further the lessee has to renew the consent order from time to time whenever the consent is expired.

For the purpose of calculating stamp duty the anticipated seigniorage fee for Roughstone and Gravel for Five years is estimated as Rs. 2,52,08,300/- (Rupees Two Crores Fifty Two Lakhs Eight Thousand Three Hundred Only).

REGISTERED HOLDER / LESSEE

22/26

DISTRICT COLLECTOR
COIMBATORE
(LESSOR)





THE SCHEDULE

- | | | |
|-------------------------------------|---|----------------|
| 1) Name of the District | : | Coimbatore |
| 2) Name of the Taluk | : | Sulur |
| 3) Name of the Village | : | Kallapalayam |
| 4) Name of the Sub Registrar Office | : | Singanallur |
| 5) Lease Period | : | 5 (Five) Years |

From 03.03.2017 to 03.03.2022

Survey Number	Area Assessment per hectares per year Rs.	Total Extent Hects.	BOUNDARIES			
			NORTH BY S.F.No.	SOUTH BY SF No.	EAST BY SF No.	WEST BY SF No.
261/1B	Rs.3050/- for 5 years (Rs. 100 / hectare / year)	0.36.5	263/1A & 263/1B	261/4	261/2	261/1A
261/2		2.26.0	263/1A, 263/2A, 263/2B & 263/2C	261/4 & 261/3	260	261/1B
263/1A		1.96.5	265	261/1A, 261/1B & 262	263/2A	264/1
264/1		1.50.0	265	262	263/1A & 263/1B	264/2 & Orattukupai Village
Total		6.09.0				

IN WITNESS whereof M/s.Tamilnadu Blue Metals by its Partner and authorised signatory Thiru. R.Rajkumar, 1678, Trichy Road, Ramanathapuram, Coimbatore District. the Registered holder/ lessee and Thiru.T.N.Hariharan, I.A.S., District Collector, Coimbatore acting for and on behalf of and by the order and direction of the Governor of Tamil Nadu have hereunto set their hands.

M/R
REGISTERED HOLDER / LESSEE

[Signature] 23/20
DISTRICT COLLECTOR
COIMBATORE
(LESSOR)

Signed by the above named in the presence of:

Signed by the above named in the presence of:

1. *[Signature]*
M. ...
S/o. ...
...

1. *[Signature]*
ASSISTANT DIRECTOR
DEPARTMENT OF GEOLOGY & MINING
COIMBATORE DISTRICT

2. *[Signature]*
R. ...
S/o ...
...




[Signature]
...

PROPERTY AS THE NAME OF REGISTRAR, SUPERVISOR'S SIGNATURE AND
AT _____ IN PROPERTY OF



Left Thumb



My


Additions As per the recitals of the document

Execution Admitted by

I have satisfied my self as to the execution of the Instrument by Thiru HARIHARAN COLLECTOR KOVAI who is exempted from Personal Appearance under Section 88(1) of the Registration Act.

Claim Admitted by

Left Thumb



My

Additions As per the recitals of the document

Identified by

Name: சி. பி. சண்முகம் S/o கனகாபதி பகவதர்
H-12, TNHB காலனி,
கோவை-5



Endorsement Sheet no. 1 of



செய்தல்

செய்தல்

2023

Temporary Subregistrar
Singanailur



Registered as No 1969 of 2017 of Book I

Date : 24/03/2017 Temporary Subregistrar
Singanailur

[Handwritten signature]



Endorsement Sheet no. 2 of 2



R. RAJAMANI ¹²⁸¹
S.R.O. STAMP VENDOR
HALLADAM, COIMBATORE DT
TAMILNADU, 20252/77
11.1.2005

Tamil Nadu Blue Metal
CBE

PARTNERSHIP DEED

THIS DEED OF PARTNERSHIP executed on this 12th Day of January 2005 at Chennai between.

1. Mr. RAVI PRAKASH KHEMKA, S/o, Shri Ramdayal Khemka, aged about 63 years, residing at V-101, 5th Main Road, Anna Nagar, Chennai 600 040, hereinafter called the FIRST Partner.
2. Mr. RAJ KUMAR, S/o, Shri Ravi Prakash, aged about 39 years, residing at V-101, 5th Main Road, Anna Nagar, Chennai 600 040, hereinafter called the SECOND Partner.
3. Mr. TIRUPATHI KUMAR, S/o Shri Ravi Prakash, aged about 36 years, residing at V-101, 5th Main Road, Anna Nagar, Chennai 600 040, hereinafter called the THIRD Partner,



x *Ravi Prakash*
x *Raj Kumar*
Tirupathi Kumar

.....2.....



2005

R. RAJAMANI 1282
S.R.O. STAMP VENDOR
PALLADAM, COIMBATORE DT
TAMILNADU, 20252/77
11.1.2005

Tamil Nadu Blue Metal
-2- CBE



WHEREAS the parties hereby agreed to enter into Partnership and run a business with effect from 12.01.2005 under the name and style of TAMILNADU BLUE METAL dealing mainly in Blue Metal, Jelly and other stone products, and other merchandise agreed by the Partners time to time, at No.1678, Trichy Road, Ramanathapuram, Coimbatore - 641 045, and whereas the parties hereto agreed to reduce the terms and conditions agreed upon in to writing:

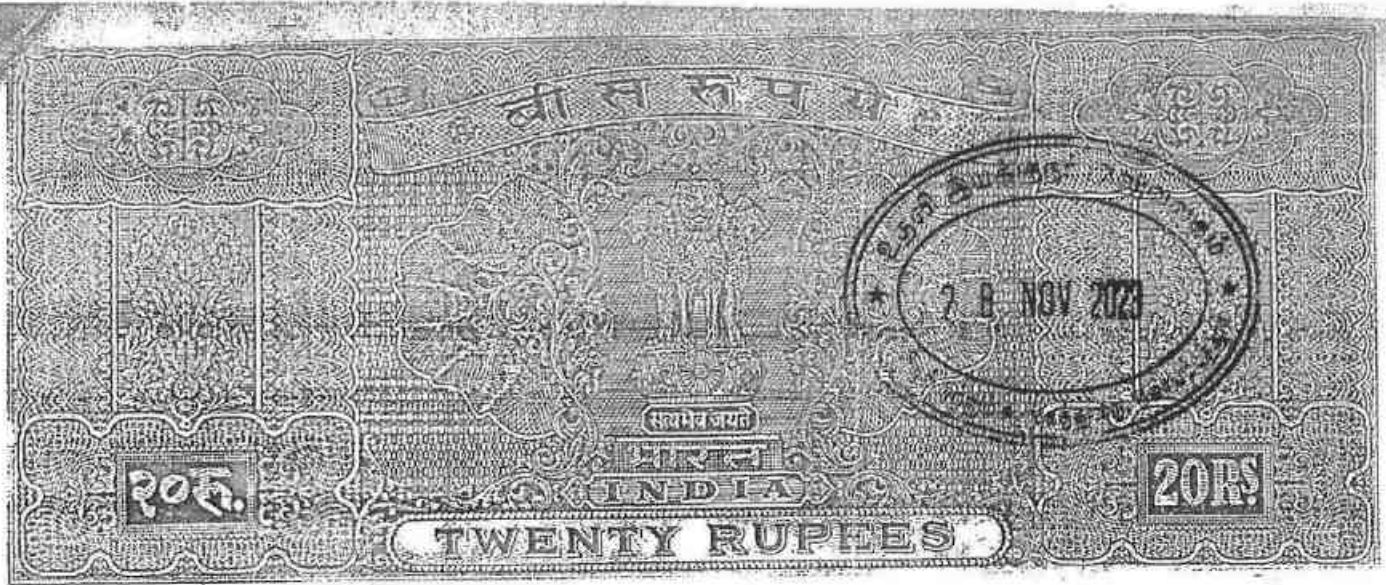
NOW THIS DEED WITNESSETH AS FOLLOWS:

1. The Parties hereby agree to carry on the business in Partnership under the name and style of TAMILNADU BLUE METAL, at No.1678, Trichy Road, Ramanathapuram, Coimbatore - 641 045, or at such other place or places as the parties hereto shal. mutually determine from time to time.

+ [Signature] 3....



x [Signature]



RR
R. RAJAMANI
S.R.O, STAMP VENDOR
PALLADAM, COIMBATORE DT
TAMILNADU, 20252/77

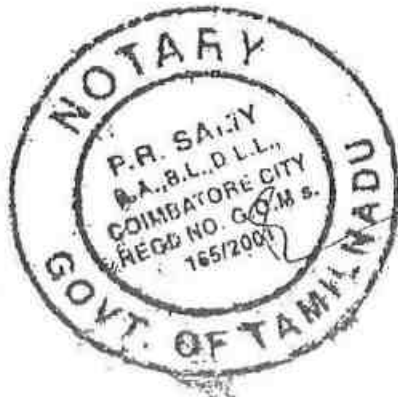
1283
11.1.2005 -3-

2000

Tamil Nadu Blue Metal
CBE



2. The main business of the partnership shall be dealing in Blue Metal, Jelly and other stone products and other merchandise. The Partnership is entitled to do any other business or businesses by the mutual consent of the partners. However no Partner shall enter into any speculation business.
3. The Partnership shall be deemed to have commenced from 12.01.2005
4. The Partnership shall be AT WILL. But the death or retirement of any of the parties hereto shall not IPSOFACTO cause the dissolution of the firm and the surviving partners shall be entitled to continue and carry on the business in any manner they might choose.
5. The capital of the partnership shall consist of such sum or sums of money that shall be contributed by the partners from time to time.



x *P. Rajamani* ...4...
x *M/V*
x *A. K. ...*



AB
Q. RAJAMANI 1284
S.R.O. STAMP VENDOR
PALLADAM, COIMBATORE DT
TAMILNADU, 20252177
11-1-2005

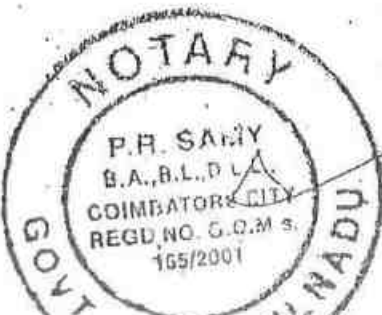
20rs
Tamil Nadu Blue
CBE

-4-

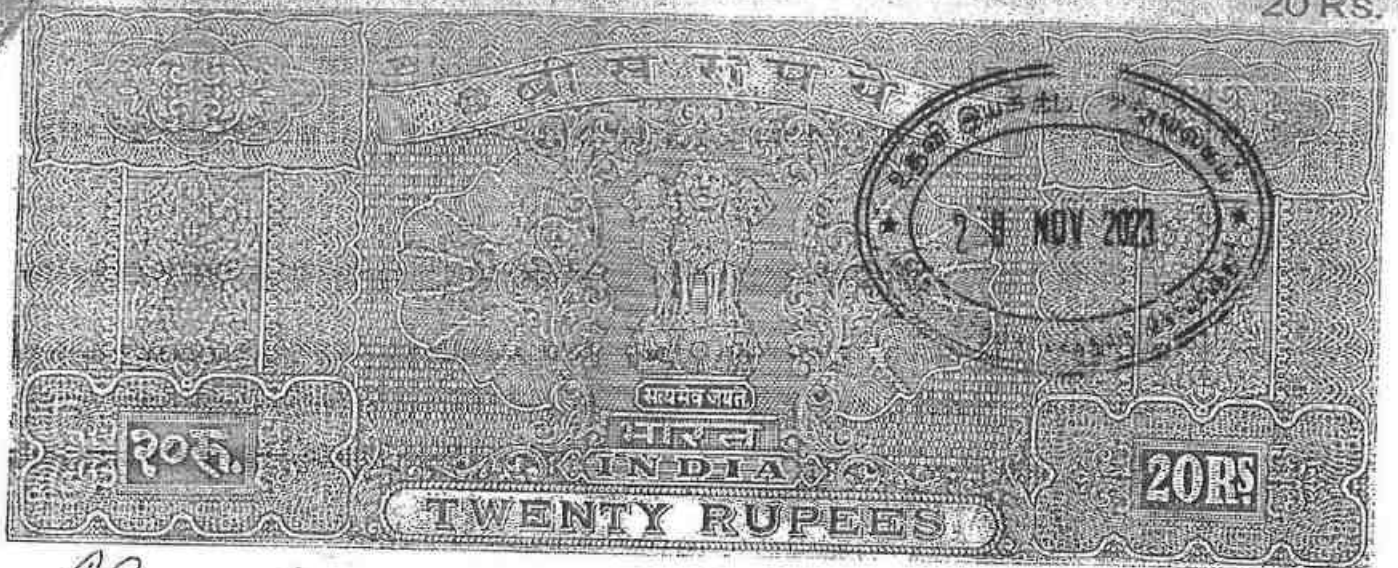
- 6. All outgoing and expenses of whatever kind incurred in carrying out the business of the partnership shall be paid out of the receipts and earnings of the said business.
- 7. The Net Profit and Loss of the business shall be divided equally.
- 8. The Partnership is entitled to open a Bank account or accounts on behalf of and in the name of the Partnership and the same shall be operated by all the partners either jointly or severally or by any authorised representative of the partner or partners.
- 9. The partners are authorised jointly or severally to sign and execute all the documents relating to pledge, hypothecation or mortgage of firm's

* *Pran Kumar* ...5...

* *MV*



20 Rs.



R. RAJAMANI 1285
S.R.O. STAMP VENDOR
PALLADAM, COIMBATORE DT
TAMILNADU, 20252/77

11.1.2005

-5-

20 rs.
Tamil Nadu Blue Metal
CBE.



Property movable or immovable, besides book debts or the firm in favour of the bank, to draw and negotiate bills, to sign promissory notes, to execute all such other documents which may be required to borrow money on behalf of the firm from the bank or from other parties either private or Government body.

- 10. The necessary and proper books of accounts shall be kept by the firm and the same shall be closed to profit and loss account on the 31st Day of March every year, first of such accounts shall closed on the 31st Day of March, 2005. The books shall be kept at the chief place of the business and be kept open at all times to the inspection of all the parties hereto who shall be at liberty to take copies thereof and make extracts therefrom.

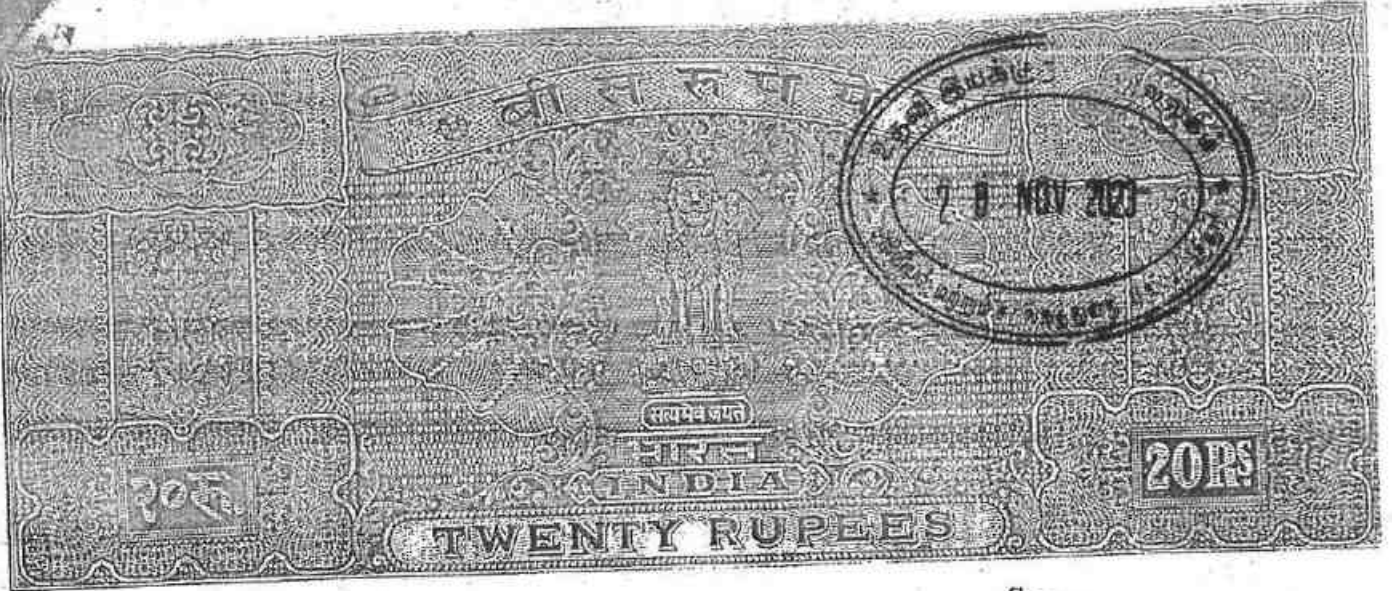
...6...

Pran. Laxmi



M/L

16-1-2005



R.R.
R. RAJAMANI 1286
S.R.O. STAMP VENDOR
PALLADAM, COIMBATORE DT
TAMILNADU. 20252/77

11.1.2005

Tamil Nadu Blue Mo

CBE.



11. Each party shall punctually pay and discharge their individual debts and engagements and shall at all times keep indemnified the other parties and their representatives and the property of the partnership against the same and all actions, proceedings, costs, claims and demands in respect thereof.

12. The parties hereto are hereby authorised jointly and severally to represent the firm or by their authorised representatives in any Civil or Criminal Courts, Courts of insolvency, before all Judges, Magistrates, Collectors, Munsiffs, Registrars, Income tax and Sales tax Authorities, Official Assignee, Official Receiver, Police Commissioner and Civilian Officers of the State Government as well as Central Government, Import and Export Trade Control Authorities and Customs Authorities. Each party is further authorised to conduct, at the partnership business jointly and severally and to sign and verify all Plaints, Appeals, Petitions etc.,

From [Signature]

....7....



20 Rs.



R. RAJAMANI 1287
S.R.O. STAMP VENDOR
ALLADAM, COIMBATORE DT
TAMILNADU. 20252/77
11.1.2005

20RS

Tamil Nadu Blue Metal
CRF

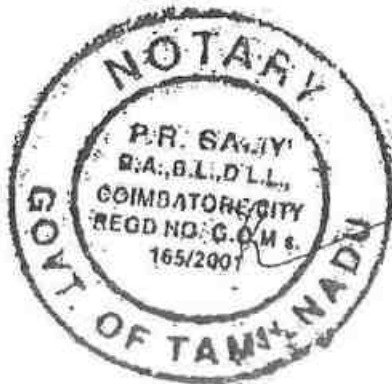
-7-

Which are to be filed in any Civil or Criminal Courts or before any Officers of the Indian Government as well as State Governments, Swear necessary affidavits and certify all written statements and defend all suits against the firm or against any of the parties hereto.

13. If during the continuance of the Partnership or at any time afterwards any dispute, difference, or question shall arise among the said parties or any of their representatives touching the partnership accounts, or transactions thereof or the dissolution or winding up thereof, the construction, meaning or rights and liabilities of the parties hereto or their representatives under this deed, then every such dispute, difference or question shall be referred to two arbitrators, to be appointed by all the parties unanimously and their umpire pursuant to the Indian Arbitration Act, 1940 or any Statutory modification thereof for the time being in force.

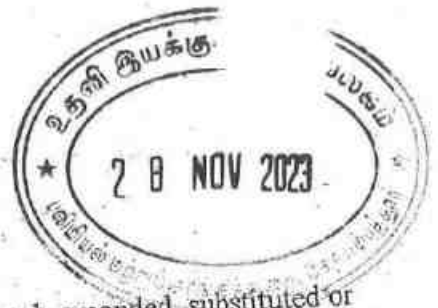
P. R. Sanyal

...8...



M/S

Handwritten signature



14.

above terms may be verified, altered, amended, substituted or expressed consent of the parties hereto such consent to be only.

15.

In all other matters, partnership shall be governed by the Indian partnership Act, 1932 and any statutory modification thereof for the time being in force.

IN WITNESS WHEREOF THE PARTIES HERETO HAVE SET THEIR RESPECTIVE HANDS ON THIS 12th DAY OF JANUARY, 2005.

WITNESSES:

SIGNATURE OF THE PARTNERS

1) *[Signature]* (S. R. Ramaswami) 1)
22 Cholam St. RM Nagar
Chennai 48

[Signature]

2) M. Chandrabalan 2)
44 A. Bhatrakalyanm
Coimbatore.
3) Govt. Girls Hostel
Frontside,
Udumalpet.

[Signature]

[Signature]



P.R. SAMY, B.A., B.L., D.L.L.
ADVOCATE AND NOTARY,
"GAYATHRI COMPLEX",
25, HUZUR ROAD,
COIMBATORE-641 018.

TAMIL NADU BLUE METALS

1678, Trichy Road, Ramanathapuram
Coimbatore - 641 045. Tel : 0422 436566
GSTIN : 33AAEFT4506G1ZH



Extract from the MINUTES OF THE MEETING OF THE COMPANY HELD ON 28.01.2022 AT 1678, TRICHY ROAD, RAMANTHAPURAM, COIMBATORE – 641 045.

RESOLVED MR. RAJKUMAR, Partner of the Firm be and hereby authorized to sign all documents /undertaking and to do all such acts necessary for the purpose of renewal of License No. RC No.717/Mines/2015.

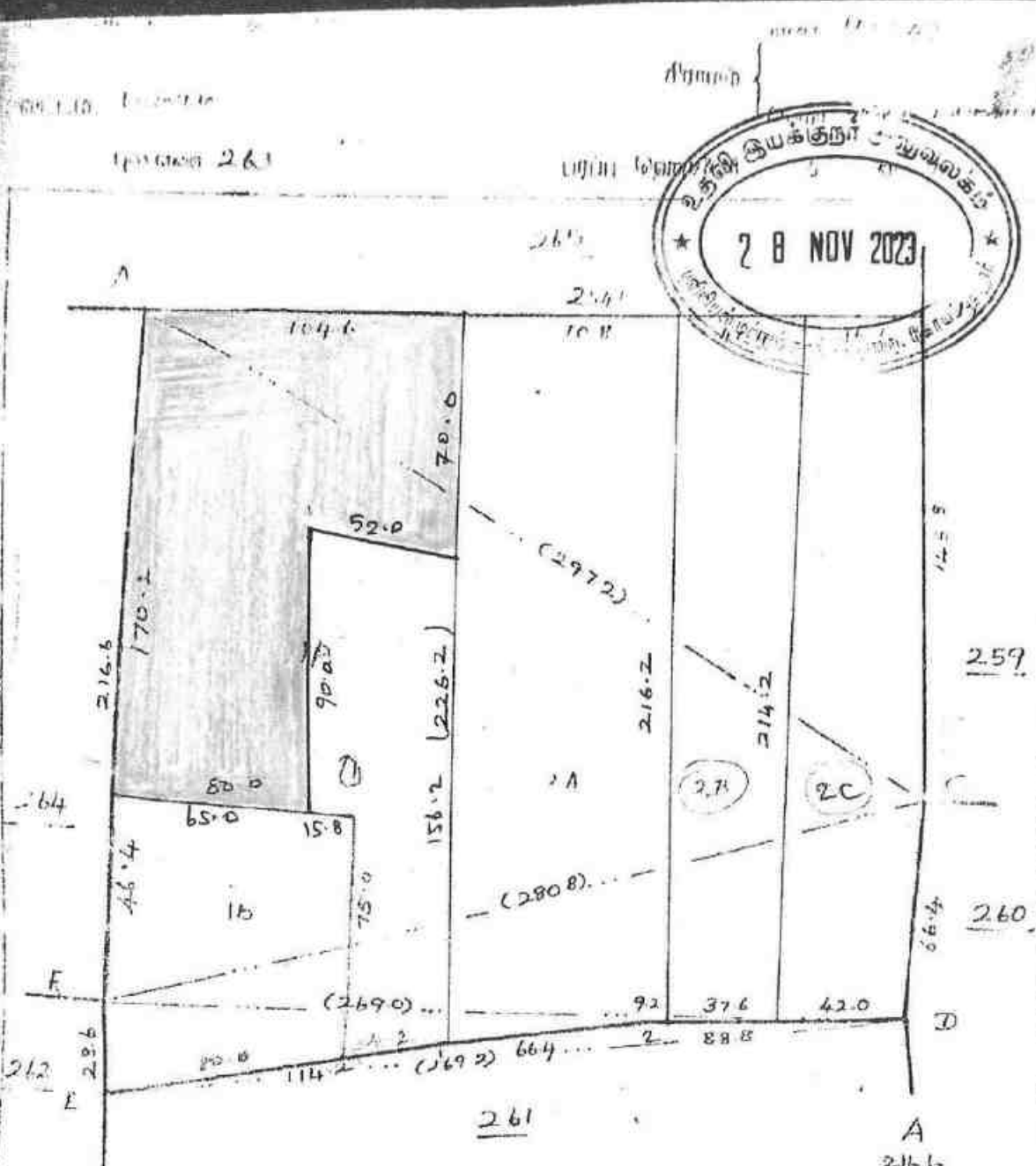
The Resolution was unanimously passed.

FURTHER RESOLVED THAT a Certified True Copy of the Resolution signed by the Company secretary to be handed over to the Mines Department - Government of Tamilnadu.


RAJKUMAR.
PARTNER.

/CERTIFIED TRUE COPY/
FOR TAMILNADU BLUE METAL


COMPANY SECRETARY.



சென்னை இயக்குநர் அலுவலகம்
 28 NOV 2023
 சென்னை இயக்குநர் அலுவலகம்

சுற்றுலா துறை
 சென்னை

03/11/2023
 சுற்றுலா துறை
 42, கள்ளப்பாளையம்
 சென்னை வட்டம்

LEASE APPLIED AREA

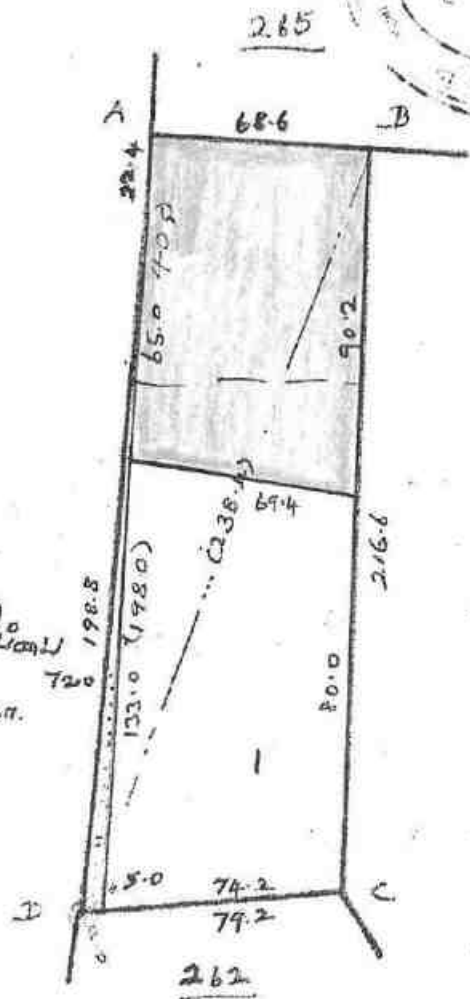
Thang 25/1403 dt 13.11.22 உட்கட்டுப்பு

A	216.6	44.0	78.0
F	113.6	269.2	180.4
E	1	(2808)	19
D	66.4	260	259

சுற்றுலா துறை
 சென்னை
 42, கள்ளப்பாளையம்
 சென்னை வட்டம்

பகுதி 264

பரப்பு செக்டர்கள் - 2



பகுதி எண்: 72
 சி. ரெக்டிரேட்டர்
 சேவையாற்றும் துறை.

263

புள்ளியை
 காண்க

110
 99
 82, கள்ளப்பாளையம்,
 கலூர் வட்டம்

	B
	(238.2)
A/638	212.4
	118.2
	5

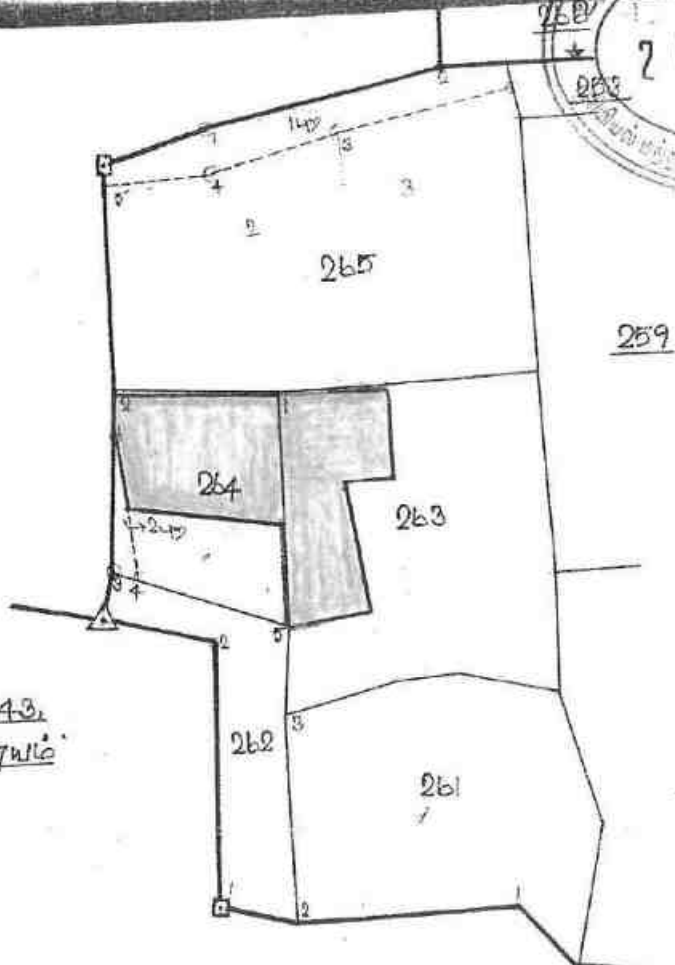
அளவு 1:2000

Lease Applied Area-

வட்டம் தஞ்சை
திருமலர் கள்ளியாண்டலம்



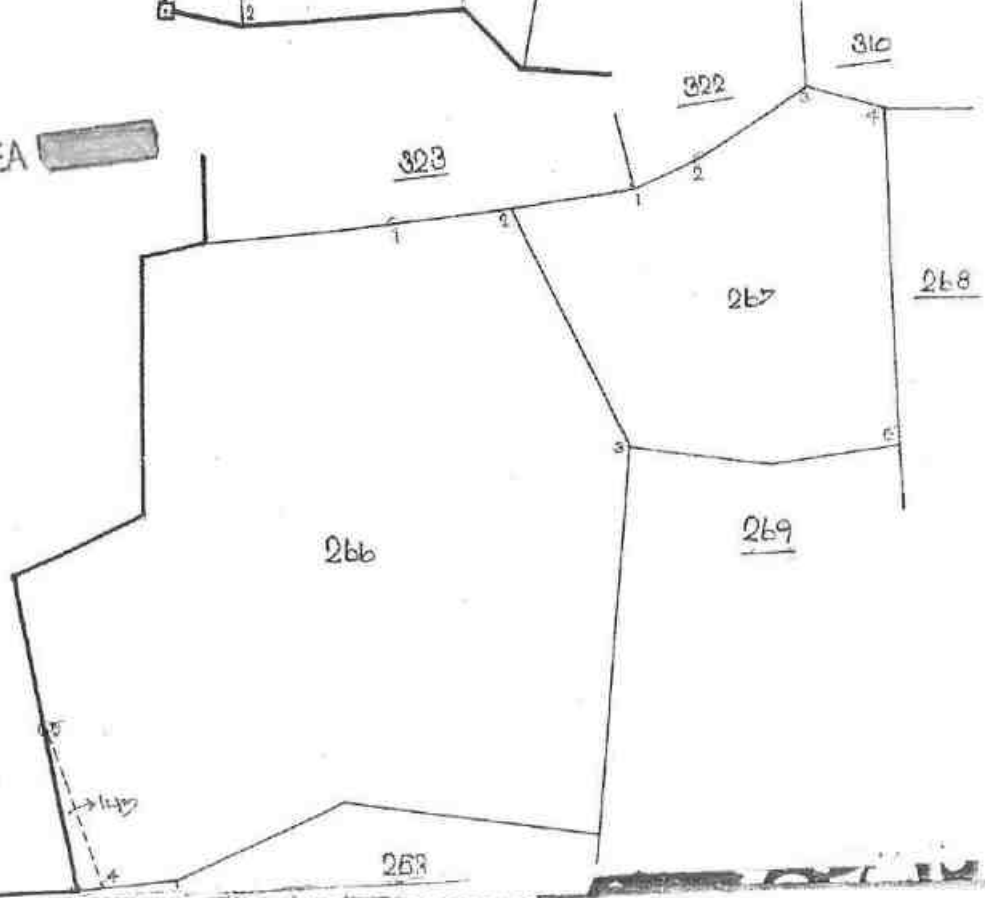
காலியை
தங்கி வட்டம்



க. எண்:- 43
கள்ளியாண்டலம்

LEASE APPLIED AREA

காலியை
தங்கி வட்டம்



சா. எண்:-
திருமலர்
19.10.23
தரும திருமலர் அலுவலகம்
ச. 2. கள்ளியாண்டலம்
காலியை வட்டம்.



தமிழக அரசு

வருவாய்த் துறை

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



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

வருவாய் கிராமம் : கல்லாபாளையம்

பட்டா எண் : 641

உரிமையாளர்கள் பெயர்

1. தமிழ்நாடு புது மெட்டல்

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	
263	1A	1 - 96.50	2.72	--	--	--	--	R09/2835E--- - 09-08-2004
		1 - 96.50	2.72					

குறிப்பு2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/024/00641/80411 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 31-10-2023 அன்று 11:15:18 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) பி.நி.வி

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

வருவாய் கிராமம் : கல்லாபாளையம்

பட்டா எண் : 642

உரிமையாளர்கள் பெயர்

1. தமிழ்நாடு புளூ மெட்டல்

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	
264	1	1 - 50.00	2.06	--	--	--	--	R09/2835F--- - 14-03-2005
		1 - 50.00	2.06					

குறிப்பு2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/024/00642/80422 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 31-10-2023 அன்று 11:17:54 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

அ-பதிவேடு விவரங்கள்



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

கிராமம் : கல்லாபாளையம்

1. புல எண்	263	9. மண் வயனமும் ரகமும்	5 - 4
2. உட்பிரிவு எண்	1A	10. மண் தரம்	6
3. பழைய புல உட்பிரிவு எண்	263-1P	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 96.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.72
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	641
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.தமிழ்நாடு புளூ மெட்டல்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 40411 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

கிராமம் : கல்லாபாளையம்

1. புல எண்	264	9. மண் வயனமும் ரகமும்	5 - 4
2. உட்பிரிவு எண்	1	10. மண் தரம்	6
3. பழைய புல உட்பிரிவு எண்	264-P	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 50.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.06
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	642
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.தமிழ்நாடு புளு மெட்டல்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 40422 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

आयकर विभाग
INCOME TAX DEPARTMENT
TAMILNADU ELECTRICITY METAL
02/02/2005
Reference Account Number
AAEFT4506G
Signature

भारत सरकार
GOVT OF INDIA



In case the person is not found with the above details
Income Tax PAN Service Dept. (ITIS)
Plot No. 1, Sector 11, G.D. Housing
New Alambur, Chennai - 600 044
For more information please refer to the
Income Tax Department (ITIS)
Plot No. 1, Sector 11, G.D. Housing
New Alambur, Chennai - 600 044



आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

RAJ KUMAR

RAVI PRAKASH KHEMKA

19/07/1965
Permanent Account Number

AAKPK2002N

mn
Signature

09012008

इस कार्ड के खोने / पाने पर कृपया सूचित करें / लौटारें :
आयकर पैन सेवा इकाई, एन एस डी एल
पहली मजिल, टाइम्स टॉवर, कान्हा मिल्स कंपाउंड,
एस. बी. मार्ग, लोअर पारेल, मुंबई - 400 013

*If this card is lost / someone's lost card is found,
please inform / return to :*
Income Tax PAN Services Unit, NSDL,
1st Floor, Times Tower,
Kanana Mills Compound,
S. B. Marg, Lower Parel, Mumbai - 400 013

Tel: 91-22-2499 4650, Fax: 91-22-2495 0664,
e-mail: tmninfo@nsdl.co.in



भारतीय विशिष्ट पहचान प्राधिकरण
 भारत सरकार
 Unique Identification Authority of India
 Government of India



பதிவேட்டு எண்/Enrolment No.: 2017/30704/41326

Rajkumar (ராஜ்குமார்)
 S/O: Ravi Prakash, V -101, ANNA NAGAR, Anna
 Nagar, Chennai,
 Tamil Nadu - 600040

Date: 00/10/2016

உங்கள் ஆதார் எண்/ Your Aadhaar No.:

3142 6279 9104



தகவல்

- ஆதார் அடையாளத்திற்கான சான்று, குடியியலமைப்பு அம்சம்.
- அடையாள சான்று ஆன்லைன் ஆதர்ப்புகேள்வு மூலமாகப் பெறவும்.
- இது எலக்ட்ரானிக் செயல்பாடு மூலம் தயாரிக்கப்பட்ட கடிதமாகும்.

INFORMATION

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

எனது ஆதார், எனது அடையாளம்.



Validity unknown
 Digitally signed by Unique Identification Authority of India
 Date: 2016.08.18 10:24:15 IST

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்.
- ஆதார் ஆதார்ப்புகேள்வு ஒரு முறை மட்டுமே தங்கள் விவரங்களைப் பூர்த்தி செய்து பதிவு செய்ய வேண்டிய அவசியம் ஏற்படும்.
- தயவுசெய்து உங்களின் சமீபத்தைய பதிய மொபைல் நம்பர் மற்றும் e-மெயில் மூலவரிசை பதிவு செய்யவும். இதனால் உங்களுக்கு பல்வேறு வசதிகளை பெற்றுக் கொள்ளும் வசதியும் கிடைக்கும்.

- Aadhaar is valid throughout the country.
- You need to enrol only once for Aadhaar.
- Please update your mobile number and e-mail address. This will help you to avail various services in future.

भारत सरकार
 GOVERNMENT OF INDIA



ராஜ்குமார்
 Rajkumar
 பிறந்த நாள்/ DOB: 19/07/1965
 ஆண் / MALE



भारतीय विशिष्ट पहचान प्राधिकरण
 UNIQUE IDENTIFICATION AUTHORITY OF INDIA

முகவரி:
 தலைவர் / தாய் பெயர்: ரவி பிரகாஷ், வி -101, அண்ணா நகர், அண்ணா நகர், சென்னை, தமிழ் நாடு - 600040

Address:
 S/O: Ravi Prakash, V-101, ANNA NAGAR, Anna Nagar, Chennai, Tamil Nadu - 600040

3142 6279 9104

எனது ஆதார், எனது அடையாளம்.

3142 6279 9104

MERA AADHAAR, MERI PEHACHAN

அண்ணாமலைப்

ANNAMALAI



ANNEXURE
பல்கலைக்கழகம்

UNIVERSITY



அறிவியற்புலம்
FACULTY OF SCIENCE



மே, 2010 இல்

பயன்பாட்டு நிலத்தியல்

பிரிவில்

நடத்திய தேர்வுகளில்

சந்தோஷ்குமார் ம/

கூடுதல்

மதிப்புப்புள்ளிகள் 10.00 க்கு சராசரியாக 7.04 பெற்று

முதல் வகுப்பில்

தேர்ச்சியடைந்து முறையாக அமைக்கப்பெற்ற தேர்வுக்குழுவினர் சான்றளித்தபடி,

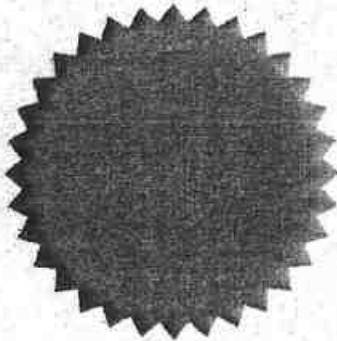
அறிவியல் நிறைஞர் பட்டம் பெறுவதற்கு உரியவர் ஆகின்றார்

என அண்ணாமலைப் பல்கலைக்கழக ஆளவை இதன்வழி அறிவிக்கின்றது.

The Senate of the ANNAMALAI UNIVERSITY hereby makes known that **SANTHOSHKUMAR M /** has been admitted to the Degree of **MASTER OF SCIENCE in APPLIED GEOLOGY,** he/she having secured **OGPA of 7.04 /** out of **10.00** been certified by duly appointed Examiners at the Examination held in **MAY,2010 /** to be qualified to receive the same and that he/she was placed in **FIRST CLASS.**

பல்கலைக்கழக முத்திரை பெறுகின்றது

Given under the seal of the University



அண்ணாமலைநகர்
Annamalainagar

நாள்:

Dated: 06/10/2010

Senthilvel
துணை தேர்வாணையர் (கல்விசார்ந்த)
Dy. Controller of Examinations (Academic)

249A

M. Rathinasabapathi

Dr.M.Rathinasabapathi

பதிவாளர்
Registrar

M. Ramanathan

Dr.M.Ramanathan

துணை வேந்தர்
Vice-Chancellor

ANNEXURE



GOVERNMENT OF INDIA
 MINISTRY OF LABOUR AND EMPLOYMENT DIRECTORATE GENERAL OF
 MINES SAFETY

Certificate of Practical Experience granted by the Manager to a Candidate for a Manager's/ Surveyor's/ Mining foreman/ Mining Mate/ Blasters certificate of competency examination under Metalliferous Mines Regulation, 1961.

I, M.S.Pavel being the Manager of K.Pitchampatti Multicolor Granite Mine belong to M/s. Anupkumar Lohia do hereby certify that **Thiru. M.santhoshkumar** son of **Thiru. R.Mathiyazhagan** (whose signature is appended) worked in the above mine from 10.07.2012 to 31.07.2018. 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.

M.S. Pavel

(Signature with date and official seal)

(Mines Manager 1st class)
MANAGER (MINES)
MULTICOLOUR GRANITE MINE
K. PITCHAMPATTI,
KARUR - TALUK & DIST.

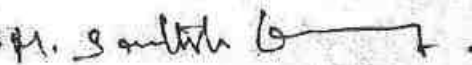
M. Santosh Kumar
 (Signature of Candidate)


State the name of the mineral works: Multi Colour Granite

S. No.	Particulars of Practical experience (a)	Place of Experience (b) Opencast	Period of Practical experience (c)		Total Experience (e)		
			From	To	Yrs.	Months	Days
1.	As a trainee in drilling operation	Open cast	10.07.2012	24.10.2013	01	03	16
2.	As a trainee in deep hole blasting operation	Open cast	25.10.2013	31.12.2014	01	02	07
3	Production incharge quality control and Supervisor of Earth moving Mining Machinery	Open cast	01.01.2015	31.07.2018	03	07	00
GRAND TOTAL					06	00	23
In words : Six years twenty three days							

In below ground working	In open cast working	In all
Nil	Average monthly output 250m ³	250m ³
Nil	Average daily employment 25Nos	25Nos

Note: The average employment is less because this is mechanized mines having deep hole drilling, blasting and Heavy Earth Moving Machineries operation.

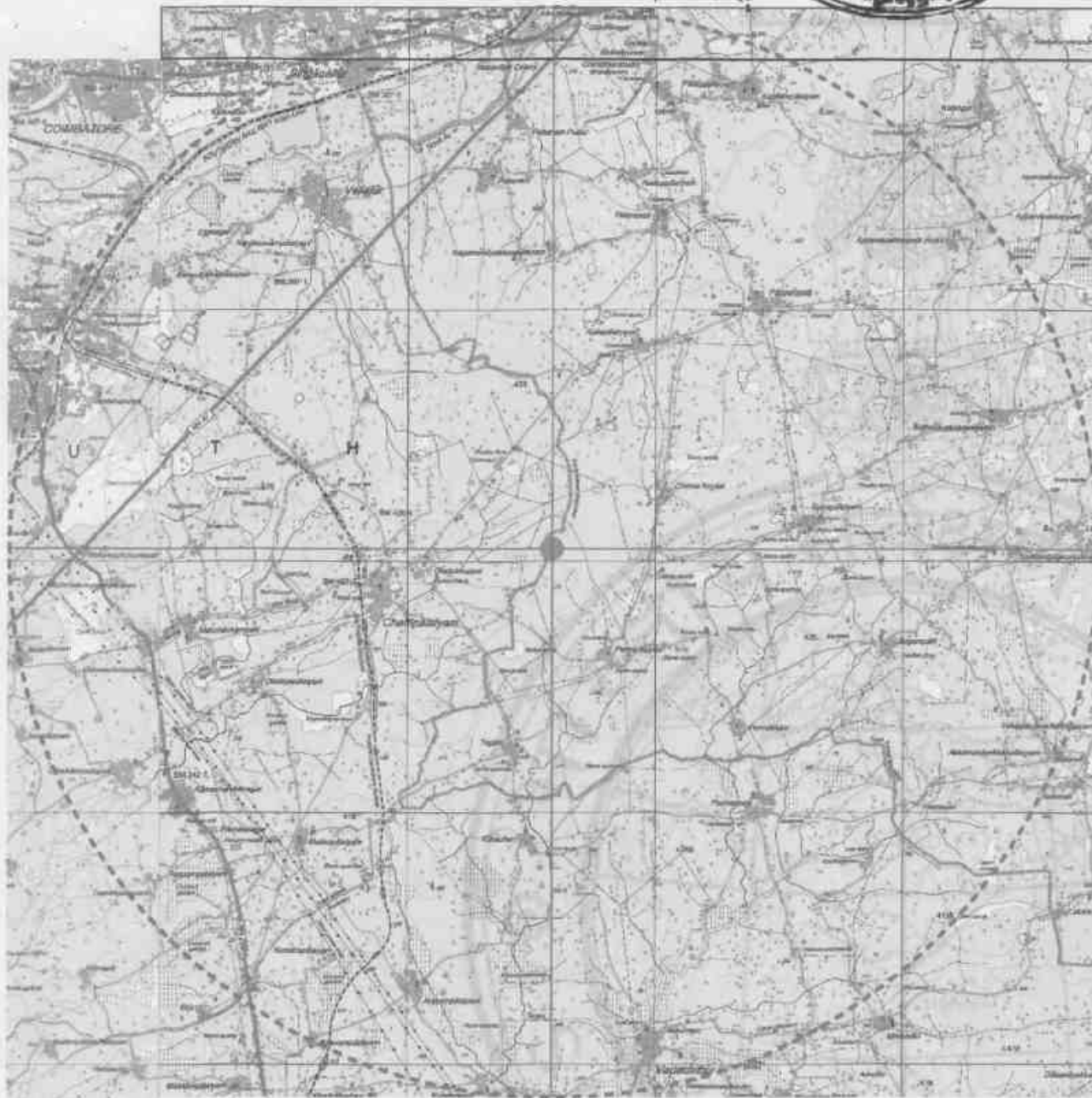

(Signature of Candidate)


(Signature with date and official seal)

(Mines Manager 1st class)
MANAGER (MINES)
MULTICOLOUR GRANITE MINE
K. PITCHAMPATTI,
KARUR - TALUK & DIST.



11° 00' 36.90''N



76° 58' 27.09''E

77° 09' 31.41''E

10° 49' 40.48''N

TOPO SHEET NO. : 58 F/01

LATITUDE : 10° 55' 05.8546''N to 10° 55' 11.5313''N

LONGITUDE : 77° 03' 56.3316''E to 77° 04' 02.1862''E

10KM RADIUS :

Q.L.APPLIE252/AEA :

PLATE NO:I-A

DATE OF SURVEY : 22.11.2023

APPLICANT:
 TM.TAMILNADU BLUE METALS,
 1678,TRICHY MAIN ROAD,
 RAMANATHAPURAM,
 COIMBATORE-45.

LOCATION OF QUARRY:
 S.F.NO : 263/1A(P)& 264/1(P),
 EXTENT : 1.91.00 Hg.
 VILLAGE : KALLAMPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

INDEX

CONVENTIONAL SYMBOLS	
Express highway with or without bridge with access lines	
Roads, marked according to importance	
Roads, double carriageway according to importance	
Unmetalled road, Cart track, Path, foot path with path, Footpath	
Stream, with bank to left, unbridged Canal	
Dam, masonry or non-filled, with or without	
River, dry with water channel, with island & water, 100m level	
Submerged bridge, Road, Bridge, Road	
Mule track, railroad, Tube well, Spring, Tank, perennial, dry	
Settlements, head of the bank, broken ground	
Railways, broad gauge, double, single with station, under construction	
Railways, other gauges, double, single with station, under construction	
Mineral pits or workings, with cutting with barrier	
Catchment with left-bank, boundary, C.M.S.	
State boundaries (State, District, Taluk, Panchayat)	
Towns or Villages, unbridged, elevated, Fort	
Hole, permanent, temporary, hole, Archaic	
Temple, Chattri, Chattri, Mosque, Sign, Tank, Shrine	
Lighthouse, Lightship, Signal light, unbridged, Archaic	
Wire, Wire in water, Glass, Stone	
Police station, other, Station, Centre, Barbed, Other, station	
River, cultivated, wooded, Surveyed, etc.	
Boundary, International	
Water, International, undetermined	
Water, International, defined or fixed, limit	
Boundary, other, unbridged, unbridged	
Height, Horizontal, station, level, approximate	
Barometrical, station, level, exact	
Peak, other, Telegraph, office, Control, etc.	
Head house, or, inspection, language, District, house, Police, station	
Camping ground, Forest, reserved, protected	
Gravel, stone, alternative, source, or, head	
Hospital, Dispensary, Veterinary, Hospital, Dispensary	
Aerodrome, Helipad, Tourist, etc.	
Power line, with, pylons, supported, with, poles, unspanned	

**TOPO SKETCH OF QUARRY
 LEASE APPLIED AREA FOR
 10KM RADIUS**

SCALE- 1:100000

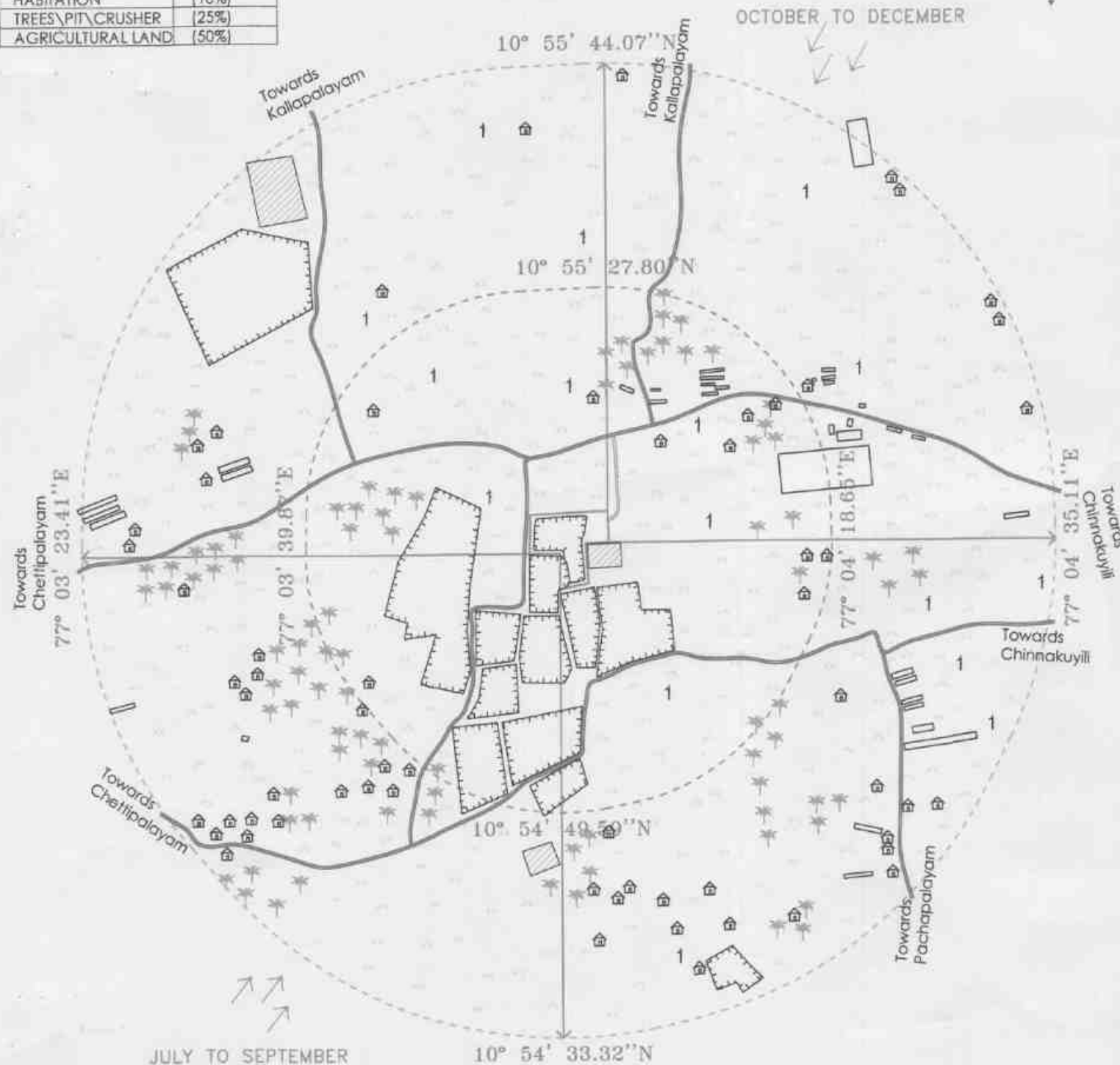
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE
 BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
 AUTHENTICATED
 BY STATE GOVERNMENT

M. Santosh Kumar

M.SANTOSHKUMAR, M.Sc.,
 QUALIFIED PERSON
 Under Rule 15(1)(a) and (b) of MCR, 2016

LANDUSE PATTERN	
DESCRIPTION	PERCENTAGE
ROADS	(15%)
HABITATION	(10%)
TREES\PIT\CRUSHER	(25%)
AGRICULTURAL LAND	(50%)



1Km Radius :

500m Radius :

Q.L.Applied Area :

TOPO SHEET NO. : 58 F/01

LATITUDE : 10° 55' 05.8546"N to 10° 55' 11.5313"N

LONGITUDE : 77° 03' 56.3316"E to 77° 04' 02.1862"E

APPLICANT:
 T.VI.TAMILNADU BLUE METALS,
 1678,TRICHY MAIN ROAD,
 RAMANATHAPURAM,
 COIMBATORE-45.

LOCATION OF QUARRY:
 S.F.NO : 263/1A(P)& 264/1(P),
 EXTENT : 1.91.00 Ha.
 VILLAGE : KALLAMPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

INDEX

- APPROACH ROAD
- PANCHAYAT ROAD
- HABITATION
- TREES
- AGRICULTURAL LAND
- PIT
- WIND DIRECTION
- HABITATION
- INFRASTRUCTURE
- CRUSHER PLANT
- WIND MILL

**ENVIRONMENTAL AND
 LANDUSE PLAN FOR 1Km RADIUS**
 SCALE- 1:10,000

PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE
 BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
 AUTHENTICATED
 BY STATE GOVERNMENT

 M.SANTHOSHKUMAR,M.Sc.,
 QUALIFIED PERSON
 Under Rule-15((a)and(b)of MCR,2016

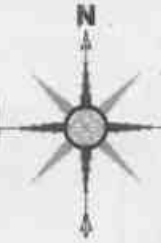


PLATE NO:I-C

DATE OF SURVEY : 22.11.2023

APPLICANT:

T.VI.TAMILNADU BLUE METALS,
1678,TRICHY MAIN ROAD,
RAMANATHAPURAM,
COIMBATORE-45.

LOCATION OF QUARRY:

S.F.NO : 263/1A(P)& 264/1(P),
EXTENT : 1.91.00 Ha.
VILLAGE : KALLAMPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.



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Q.L.APPLIED AREA



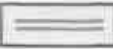
MAJOR ROAD



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

M. Santhosh Kumar

M.SANTHOSHKUMAR, M.Sc.,
QUALIFIED PERSON

Under Rule 15(1)(a) and (b) of MCR, 2018

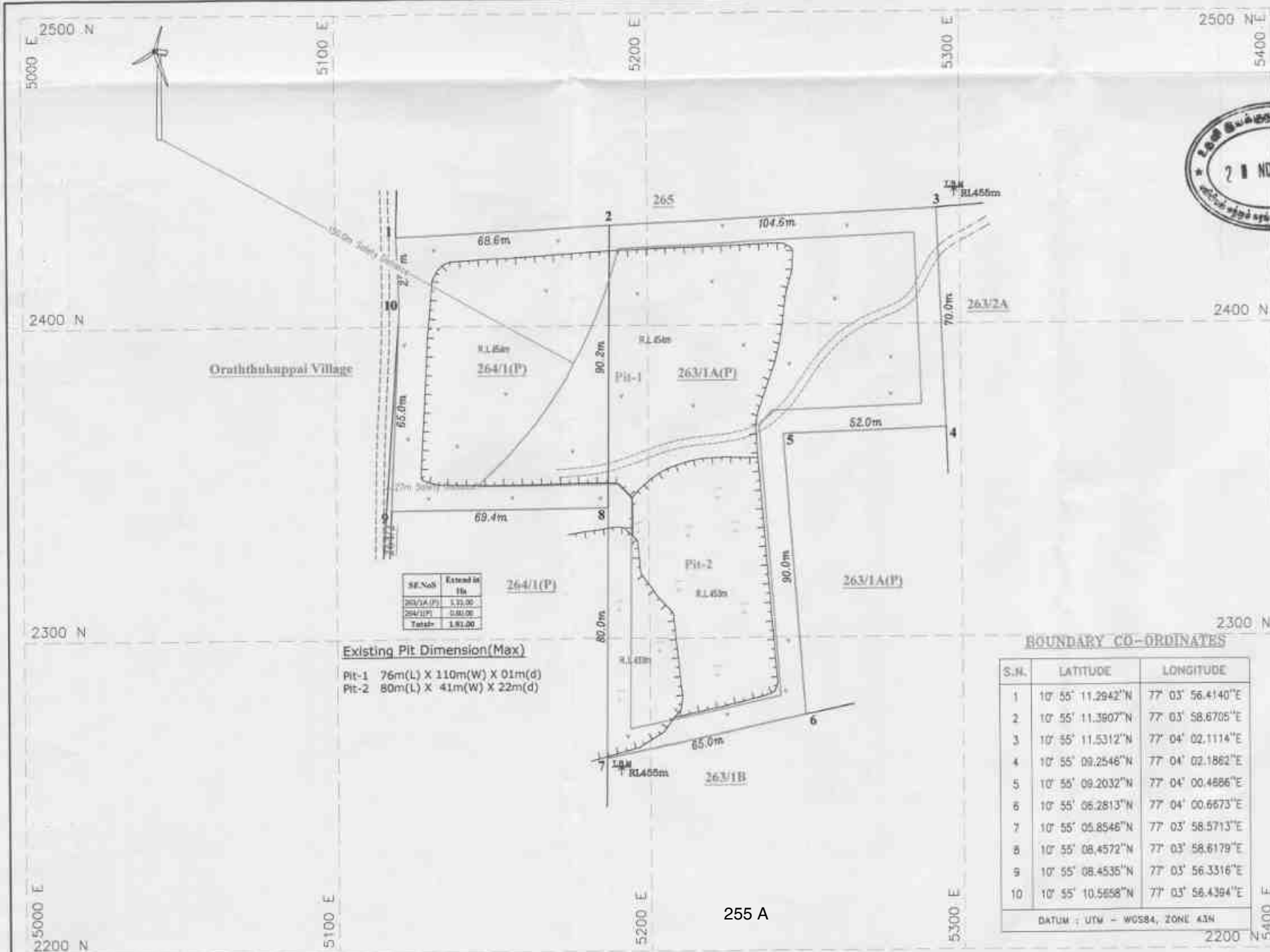


PLATE NO-II
DATE OF SURVEY : 22.11.2023

APPLICANT:
T.V.TAMILNADU BLUE METALS,
1678,TRICHY MAIN ROAD,
RAMANATHAPURAM,
COIMBATORE-45.

LOCATION OF QUARRY:
S.F.NO : 263/1A(P) & 264/1(P).
EXTENT : 1.91.00 Ha.
VILLAGE : KALLAMPALAYAM,
TALUK : SULLUR,
DISTRICT : COIMBATORE.
STATE : TAMIL NADU.

INDEX

Q.L. APPLIED AREA BOUNDARY	
7.5m, 10m & 150m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	
STRIKE AND DIP	
GRAVEL	
QUARRY PIT	
QUARRY ROAD	
WIND MILL	
ROUGH STONE	

SF.No	Extent in Ha
263/1A(P)	1.91.00
264/1(P)	0.00.00
Total	1.91.00

Existing Pit Dimension (Max)
Pit-1 76m(L) X 110m(W) X 01m(d)
Pit-2 80m(L) X 41m(W) X 22m(d)

BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 55' 11.2942"N	77° 03' 56.4140"E
2	10° 55' 11.3907"N	77° 03' 58.6705"E
3	10° 55' 11.5312"N	77° 04' 02.1114"E
4	10° 55' 09.2548"N	77° 04' 02.1862"E
5	10° 55' 09.2032"N	77° 04' 00.4686"E
6	10° 55' 06.2813"N	77° 04' 00.6673"E
7	10° 55' 05.8546"N	77° 03' 58.5713"E
8	10° 55' 08.4572"N	77° 03' 58.6179"E
9	10° 55' 08.4535"N	77° 03' 56.3316"E
10	10° 55' 10.5658"N	77° 03' 58.4394"E

DATUM : UTM - WGS84, ZONE 43N

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 LEASTMAP AUTHENTICATED BY STATE GOVERNMENT

M. Sathish
M.SANTHOSHAN, P.E.,
QUALIFIED PERSON
Under Rule 150(1)(a) of MCR 2016

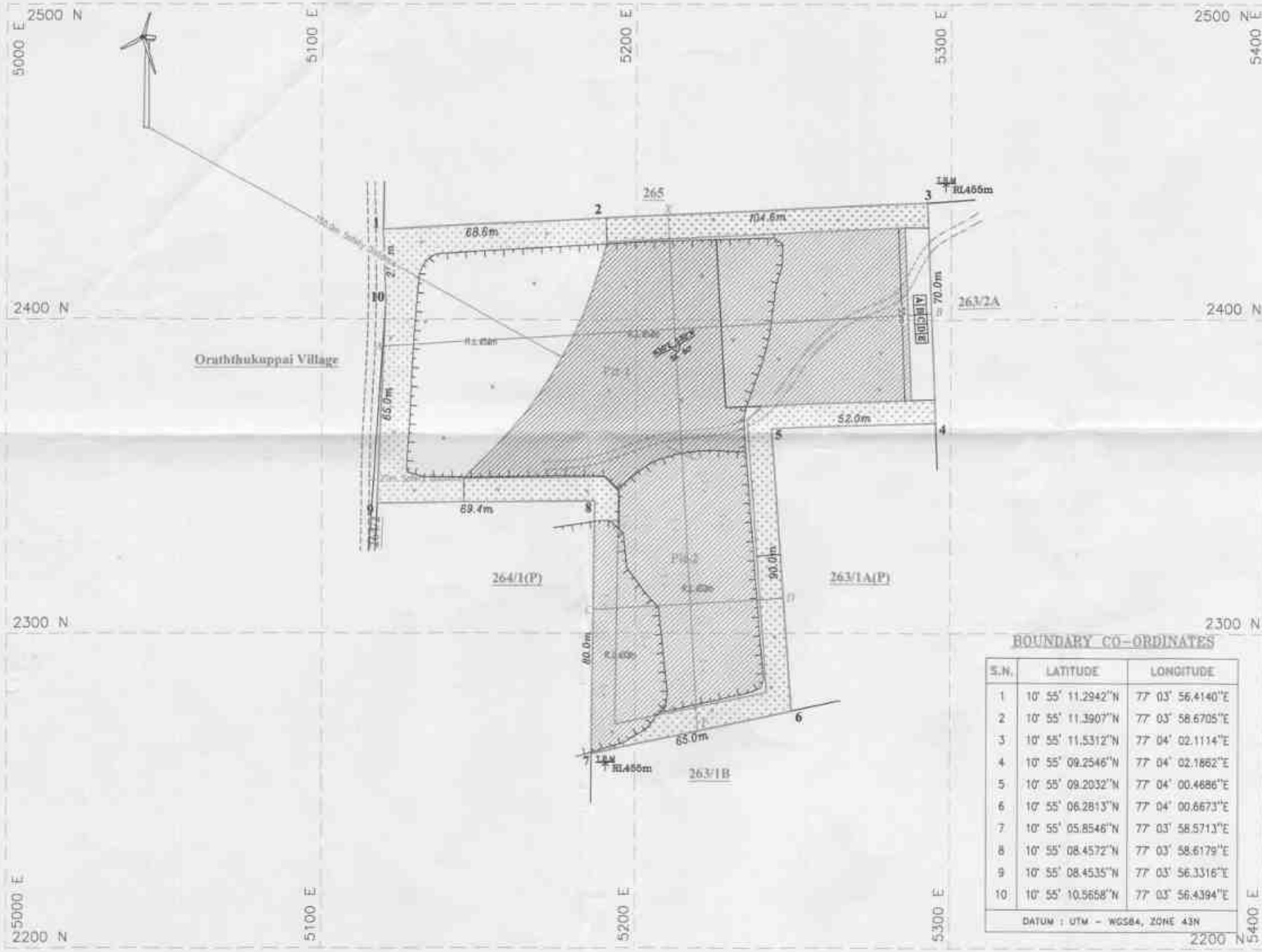


PLATE NO-III
DATE OF SURVEY : 22.11.2023

APPLICANT:
TVI,TAMILNADU BLUE METALS,
167B,TRICHY MAIN ROAD,
RAMANATHAPURAM,
COIMBATORE-45.

LOCATION OF QUARRY:
S.F.NO : 263/1A(P)& 264/1(P).
EXTENT : 1.91.00 Ha.
VILLAGE : KALLAMPALAYAM,
TALUK : SULLUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

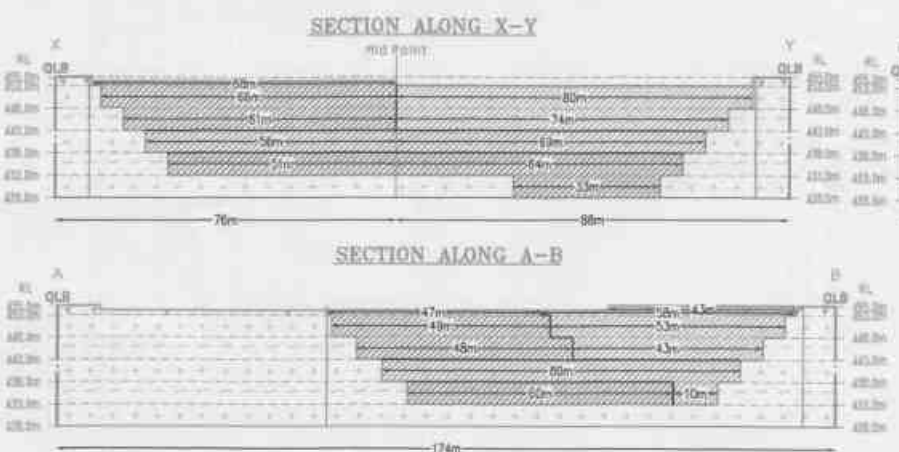
BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 55' 11.2942"N	77° 03' 56.4140"E
2	10° 55' 11.3907"N	77° 03' 58.6705"E
3	10° 55' 11.5312"N	77° 04' 02.1114"E
4	10° 55' 09.2546"N	77° 04' 02.1882"E
5	10° 55' 09.2032"N	77° 04' 00.4686"E
6	10° 55' 06.2813"N	77° 04' 00.6673"E
7	10° 55' 05.8546"N	77° 03' 58.5713"E
8	10° 55' 08.4572"N	77° 03' 58.6179"E
9	10° 55' 08.4535"N	77° 03' 56.3316"E
10	10° 55' 10.5658"N	77° 03' 56.4394"E

DATUM : UTM - WGS84, ZONE 43N

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APPROACH ROAD	
STRIKE AND DIP	
GRAVEL	
QUARRY PIT	
QUARRY ROAD	
WIND MILL	
ROUGH STONE	
STRIKE AND DIP	



PRESENT & POST LAND USE PATTERN

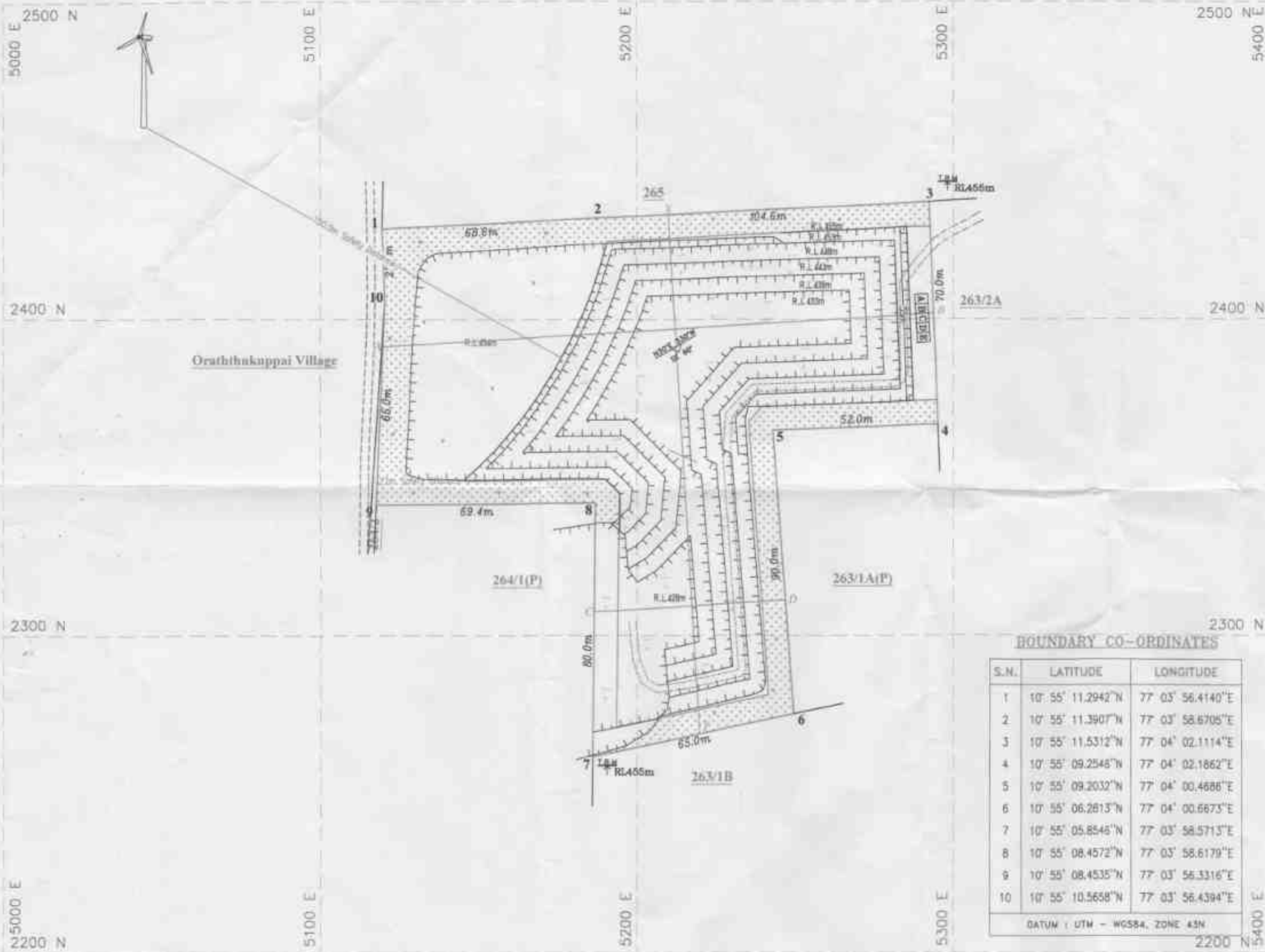
DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	1.20.2	1.46.0
INFRASTRUCTURE	Nil	0.01.0
ROADS	0.01.0	0.01.0
GREEN BELT	Nil	0.41.2
UN-UTILIZED AREA	0.68.8	0.01.8
GRAND TOTAL	1.91.0	1.91.0

I Yr PLANTATION	I Yr EXCAVATION	SITE SERVICES A-OFFICE B-FIRST AID ROOM C-STURK D-NEST SHED E-TOILET
II Yr PLANTATION	II Yr EXCAVATION	
III Yr PLANTATION	III Yr EXCAVATION	
IV Yr PLANTATION	IV Yr EXCAVATION	
V Yr PLANTATION	V Yr EXCAVATION	

**TOPOGRAPHY, GEOLOGICAL,
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 LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT

M. Senthil
M.SARATHOORNARAJAN,
QUALIFIED PERSON
Linear Rule 1000x40x3/17 MCR2016



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 55' 11.2942"N	77° 03' 56.4140"E
2	10° 55' 11.3907"N	77° 03' 58.6705"E
3	10° 55' 11.5312"N	77° 04' 02.1114"E
4	10° 55' 09.2548"N	77° 04' 02.1862"E
5	10° 55' 09.2032"N	77° 04' 00.4688"E
6	10° 55' 06.2613"N	77° 04' 00.6673"E
7	10° 55' 05.8546"N	77° 03' 58.5713"E
8	10° 55' 08.4572"N	77° 03' 58.6179"E
9	10° 55' 08.4535"N	77° 03' 56.3316"E
10	10° 55' 10.5658"N	77° 03' 56.4394"E

DATUM : UTM - WGS84, ZONE 43N

PLATE NO-V
DATE OF SURVEY : 22.11.2023

APPLICANT:
TAMILNADU BLUE METALS,
1678,TRICHY MAIN ROAD,
RAMANATHAPURAM,
COIMBATORE-45.

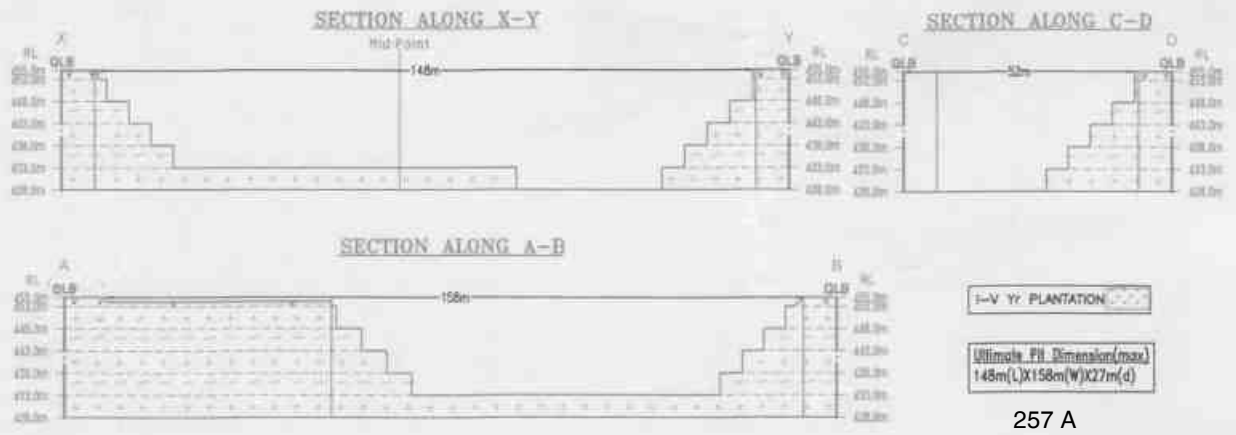
LOCATION OF QUARRY:
S.F.NO : 263/1A(P)& 264/1 (P).
EXTENT : 1.91.00 Hq.
VILLAGE : KALLAMPALAYAM,
TALUK : SULLUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

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GRAVEL	
QUARRY PIT	
QUARRY ROAD	
WIND MILL	
ROUGH STONE	
STRIKE AND DIP	

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 LEASERMAP AUTHENTICATED BY STATE GOVERNMENT
M. Sankar
M.SANTOSHINI, M.S.
QUALIFIED PERSON
Under Rule 15(2)(j) of MCR, 2018



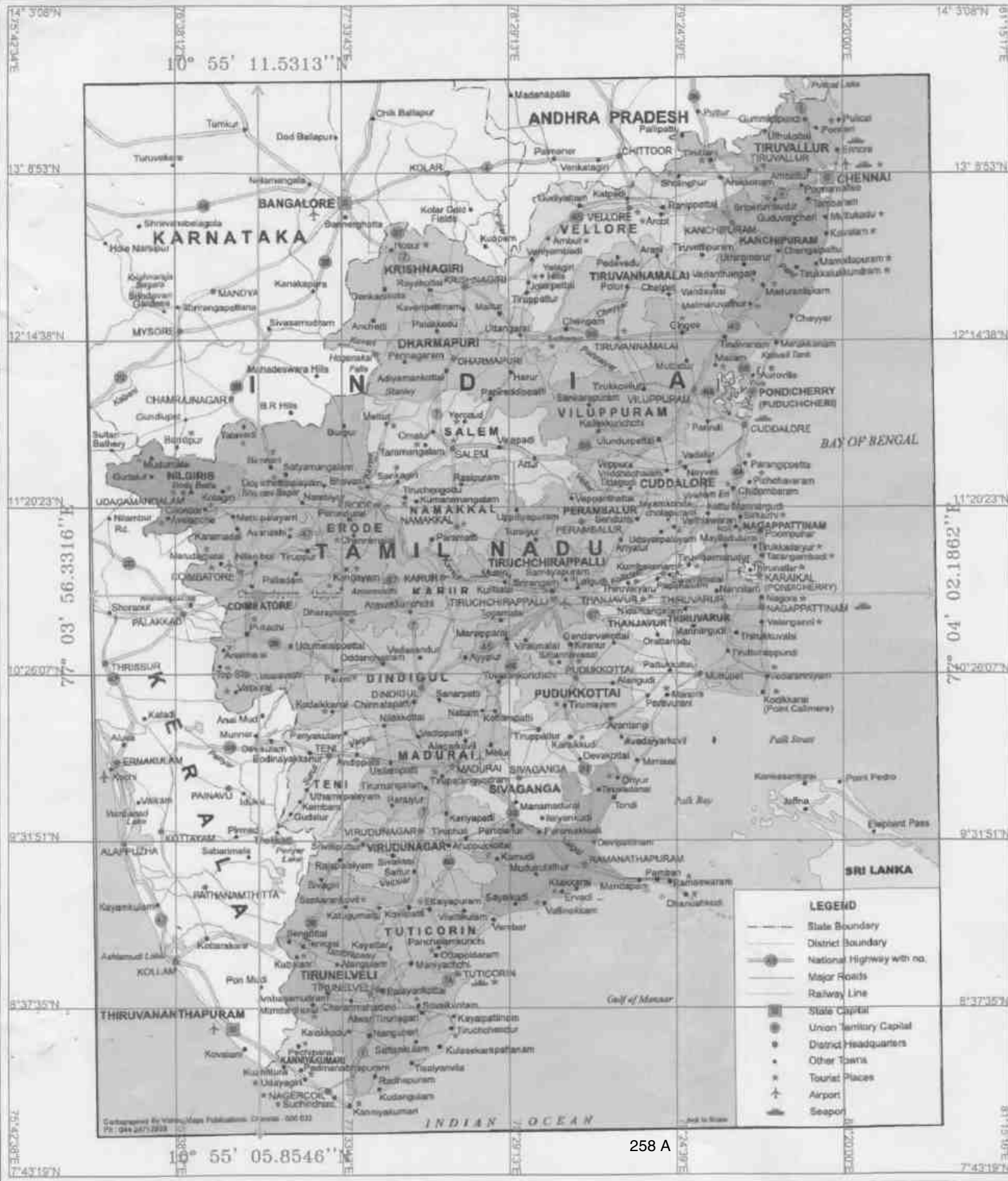


PLATE NO.1
 DATE OF SURVEY : 22.11.2023

APPLICANT:
 Tvi.TAMILNADU BLUE METALS,
 1678,TRICHY MAIN ROAD,
 RAMANATHAPURAM,
 COIMBATORE-45.

LOCATION OF QUARRY:
 S.F.NO : 263/1A(P)& 264/1(P).
 EXTENT : 1.91.00 Ha.
 VILLAGE : KALLAMPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE.
 STATE : TAMIL NADU.

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Q. L.A. AREA : ●
 TOPO SHEET NO. : 58 F/01
 LATITUDE : 10° 55' 05.8546"N to 10° 55' 11.5313"N
 LONGITUDE : 77° 03' 56.3316"E to 77° 04' 02.1862"E

LOCATION PLAN
 SCALE 1:24,00,000

PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE
 BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
 AUTHENTICATED
 BY STATE GOVERNMENT
 H. Sankar J.
 M.SANTHOSHKUMAR,M.Sc.,
 QUALIFIED PERSON
 Under Rule 150(a)and(b)of MCR,2018

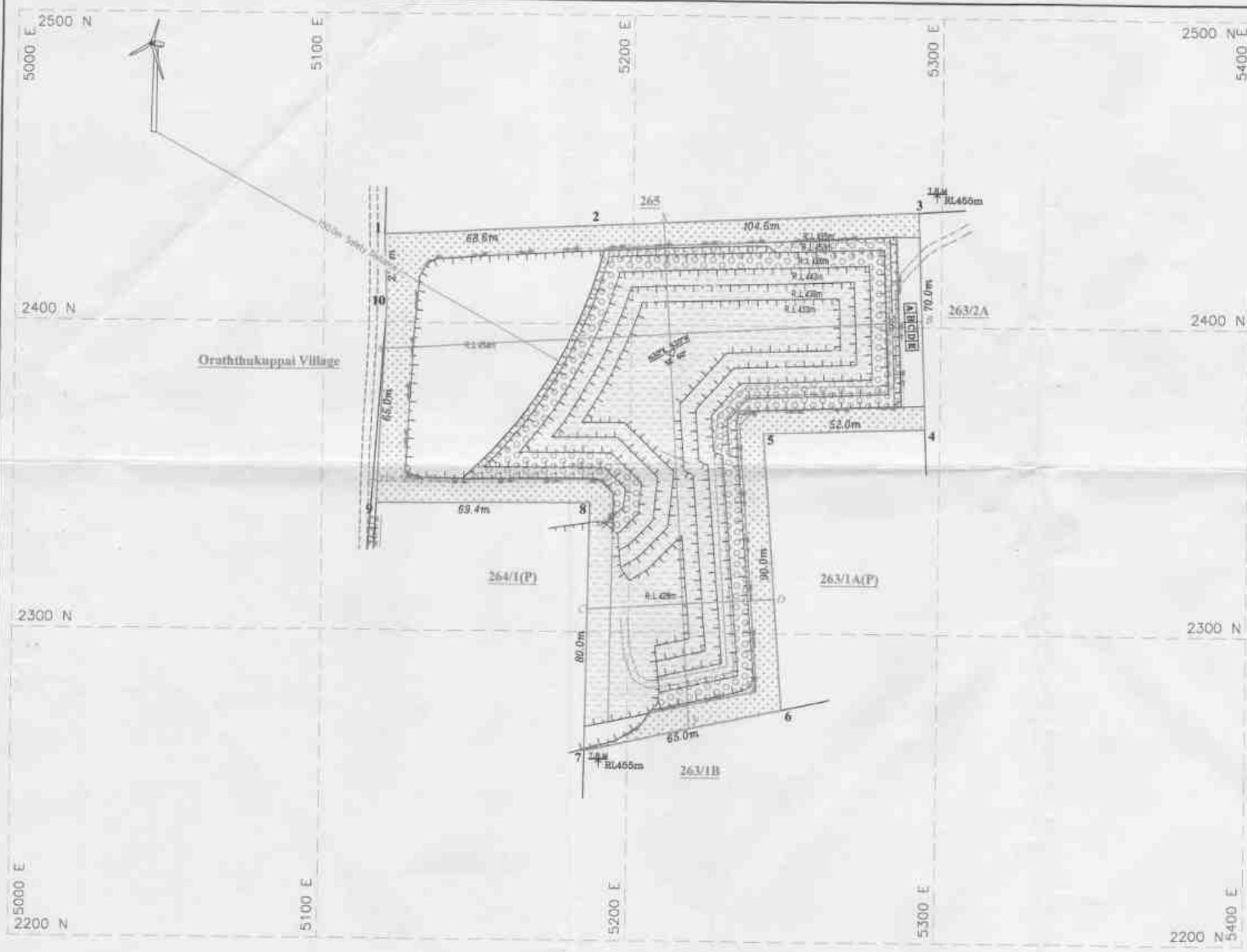


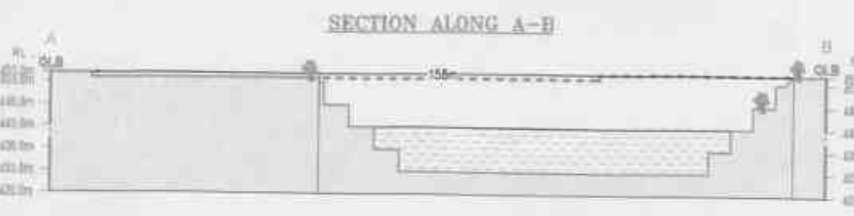
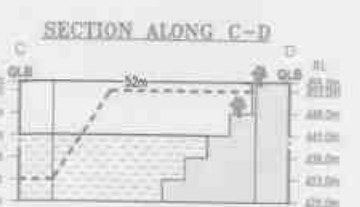
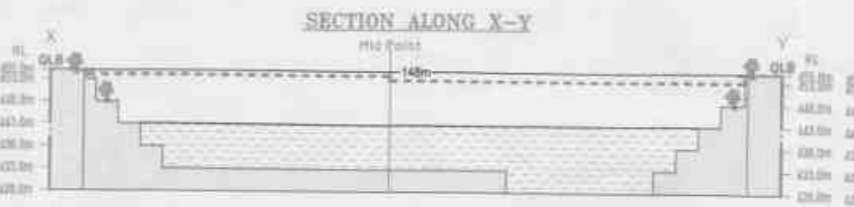
PLATE NO-IV
DATE OF SURVEY : 22.11.2023

APPLICANT:
M. TAMILNADU BLUE METALS,
167B, TRICHY MAIN ROAD,
RAMANATHAPURAM,
COIMBATORE-45.

LOCATION OF QUARRY:
S.F.NO : 263/1A(P) & 264/1(P).
EXTENT : 1.91.00 Ha.
VILLAGE : KALLAMPALAYAM,
TALUK : SULLUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

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QUARRY ROAD	
WIND MILL	
STRIKE AND DIP	
REHABILITATED LANDFORM	
EXISTING LANDFORM	
OLD SURFACE LEVEL	
FINISHED SURFACE LEVEL	
TREES	
FENCING	
PROPOSED GARLAND DRAIN	
PROPOSED WATER STORAGE	



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 55' 11.2942"N	77° 03' 56.4140"E
2	10° 55' 11.3907"N	77° 03' 58.6705"E
3	10° 55' 11.5312"N	77° 04' 02.1114"E
4	10° 55' 09.2546"N	77° 04' 02.1862"E
5	10° 55' 09.2032"N	77° 04' 00.4686"E
6	10° 55' 06.2613"N	77° 04' 00.6673"E
7	10° 55' 05.6546"N	77° 03' 58.5713"E
8	10° 55' 08.4572"N	77° 03' 58.6179"E
9	10° 55' 08.4535"N	77° 03' 56.3316"E
10	10° 55' 10.5858"N	77° 03' 56.4394"E

DATUM : UTM - WGS84, ZONE 43N

- SITE SERVICES**
- A-OFFICE
 - B-FIRST AID ROOM
 - C-STORE
 - D-REST SHED
 - E-TOILET

1-5 Yr PLANTATION

Proposed Pit Dimension(max)
140m(L)X150m(W)X27m(D)

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 LEGENARY AUTHENTICATED BY STATE GOVERNMENT

M. Sankaranarayanan
M.SANKARANARAYANAN, I.C.E.,
QUALIFIED PERSON
Under Rule 170(X) of the Mines Act, 1952

சோதனை செய்துள்ள லாபவலயம், வேளாண்மைத் துறை
 அமைச்சர், தாமரைத்தாண்டி, No: 1678 தஞ்சை
 மாவட்டம், தஞ்சை மாவட்டம் கிராமிய வளத் துறை
 ம/ச. தஞ்சை மாவட்டம் கிராமிய வளத் துறை
 தஞ்சை மாவட்டம் கிராமிய வளத் துறை
 : 5736/2006 -ம் ஆண்டு, தஞ்சை மாவட்டம், கிராமிய வளத் துறை
 கீழ்க்கண்ட,

1) ச.அ 263/1A	-	சி	4.0	4.85
2) ச.அ 264/1	-	சி	4.0	3.71
3) ச.அ 261/1B	-	சி	4.0	0.90
4) ச.அ 261/2	-	சி	4.0	5.58
5) ச.அ 263/2A	-	சி	4.0	3.95
			<hr/>	
			4.0	18.99

உள்ளடக்கம்

சி.அ 641, 642, 643, 644, 645 -ம் ஆண்டில் ஆய்வு செய்து
 உடனடி நடவடிக்கை எடுக்க வேண்டும்.

ச.அ 263/1A - கிராமிய வளத் துறை
 கிராமிய வளத் துறை, (6) கிராமிய வளத் துறை 239 லட்சம் ரூபாய்
 கிராமிய வளத் துறை (6) 250 லட்சம் ரூபாய் 'AQUASUB'
 திட்டம் மூலம் கிராமிய வளத் துறை.

ச.அ 261/2 - கிராமிய வளத் துறை
 கிராமிய வளத் துறை கிராமிய வளத் துறை, தஞ்சை மாவட்டம்

கிராமிய வளத் துறை கிராமிய வளத் துறை கிராமிய வளத் துறை
 கிராமிய வளத் துறை 300 லட்சம் ரூபாய், கிராமிய வளத் துறை,
 கிராமிய வளத் துறை திட்டம், கிராமிய வளத் துறை
 கிராமிய வளத் துறை, கிராமிய வளத் துறை, கிராமிய வளத் துறை
 கிராமிய வளத் துறை, கிராமிய வளத் துறை, கிராமிய வளத் துறை

**TOPOGRAPHICAL VIEW OF KALLAPALAYAM ROGH STONE AND
GRAVEL QUARRY LEASE APPLIED AREA**



Name of the Applicant : **Tvl. TAMILNADU BLUE METALS,**
Address : 1678, Trichy Road,
Ramanathapuram,
Coimbatore District, Tamil Nadu.
Mobile No. 9841085555.

Location:

S.F. Nos. : 263/1A(P) and 264/1(P)
Extent : 1.91.0 Ha
Village : Kallapalayam
Taluk : Sulur
District : Coimbatore

Signature of the applicant
For M/s. Tamilnadu Blue Metals


(R. Rajkumar)
(Managing Partner)


18.12.2022
(Village Incharge)
தமிழ்நாடு கரிமக் கனிம வள அமைச்சு
தலைநகர் அலுவலகம்
சுலூர் வட்டம்
Attestation

Hydrogeological Report

Rough Stone and Gravel Quarry

Over an extent of 1.91.0Ha of Patta lands in

S.F.Nos. 263/1A(P) and 264/1(P) of Kallapalayam Village,

Sulur Taluk,

Coimbatore District, Tamil Nadu State

Hydrogeological Report for Kallapalayam

Rough Stone and Gravel Quarry

1. INTRODUCTION

NAME OF THE APPLICANT WITH ADDRESS-

Name of the applicant : **Tvl. Tamilnadu Blue Metals,**
Address : 1678, Trichy Road, Ramanathapuram,
Coimbatore District
State with PIN Code : Tamil Nadu
Mobile No : +9841085555
Aadhaar No : 3142 6279 9104 (Refer Annexure No. XI)
E-mail : rajkumarnepc@yahoo.com

DETAILS OF THE AREA-

Land Classification : Patta land
Survey No : 263/1A(P) and 264/1(P)
Extent : 1.91.0Ha
Village : Kallapalayam
Taluk : Sulur
District : Coimbatore

The Client requires detailed information on ground water occurrences at proposed project site of Rough Stone and Gravel quarry. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose, all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements.

The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

2. SCOPE OF THE WORKS –

The scope of works includes:

- ❖ Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- ❖ To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- ❖ To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- ❖ To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

3. BACKGROUND INFORMATION

Geographical information of the study area-

The investigated site falls in the Toposheet No: 58 I/16 Latitude between: **10°55'05.8546"N to 10°55'11.5313"N** and Longitude between **77°03'56.3316"E to 77°04'02.1862"E** on WGS datum-1984.

GEOMORPHOLOGY

Coimbatore district forms part of the upland plateau region of Tamil Nadu with manyhill ranges, hillocks and undulating topography with a gentle slope towards east except for the hilly terrain in the west. The undulating topography with innumerable depressions, are used as tanks for storage of rainwater for agriculture.

The prominent geomorphic units in the district are 1) Structural hills, 2) Ridges, 3) Inselbergs, 4) Bazada, 5) Valley fill, 6) Pediment, 7) Shallow Pediments and 8) Deep Pediments.

The Nilgiris on the northwest and Anamalai on the south are the important ranges, which attain a heights of over 2513m above mean sea level (MSL) and the highest elevation in the valleys adjoining the hills is 600 M above MSL. The 'PalghatGap', which is an east-west trending mountain pass, is an important physiographic feature is located in the western part of the district.

Soils

The soils of Coimbatore district can be broadly classified into 6 major soils types viz, Red calcareous Soil, Black Soil, Red non-calcareous, Alluvial and Colluvial Soil, Brown Soil, and Forest Soil. About sixty per cent of the district is covered by red soils, of which red

calcareous soil is predominant. They occupy most parts of Palladam, Coimbatore, Mettupalayam and Udumalpettaluks. Medium to deep red calcareous soils are found mainly in Pollachi and Udumalpettaluks. Parts of Palladam, Avinashi and Udumalpettaluks are occupied by red non-calcareous soils.

The highlands in Coimbatore, Palladam and Avinashitaluks are mostly occupied by the black soils, which are dark gray to grayish brown in colour.

The Alluvial soils are found in small patches along the Noyil river mainly in the upper reaches. The Colluvial soils are found mainly in Chinnathadagam and Chitrachavadi sub-basins and as scattered patches at the foothills of the Anaimalai. The Forest soils are confined to the reserve forest area and have a surface layer of organic matter.

Rainfall and Climate

The district receives the rain under the influence of both southwest and northeast monsoons. The northeast monsoon chiefly contributes to the rainfall in the district and summer rains are negligible.

Rainfall data from six stations over the period 1901-2000 were utilized and a perusal of the analysis shows that the normal annual rainfall over the district varies from about 550mm to 900mm. It is the minimum around Sulur (550 mm) in the eastern part of the district. It gradually increases towards south and attains a maximum around Anaimalai hills.

The district enjoys a tropical climate. The weather is pleasant during the period from November to January. Mornings in general are more humid than the afternoons, with the humidity exceeding 78% on an average. In the period June to November the afternoon humidity exceeds 66% on an average. In the rest of the year the afternoons are drier, the summer afternoons being the driest. The period from April to June is generally hot and dry. The temperature recorded varies from 11.7°C to 42.6°C.

GEOLOGY

Regional Geology of Coimbatore District-

The district is occupied by 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 fissile hornblende gneisses (Peninsular gneiss – younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsite – kyanite quartzites, ferruginous quartzite (Satyamangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the district especially around Mettupalayam, Avinashi 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 Punjapuliyampatti Granites respectively. The quaternary alluvium is seen in the West and Northwestern areas of Udumalaipettai and 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. In the Udumalaipettaitaluk area, it overlies the kankar deposit.

It is revealed the Coimbatore district is occupied by the rocks of Sathiyamangalam, Peninsular gneissic complex-I and Charnockite group of Archaean age, Peninsular Gneissic Complex-II of Archaean to Palaeoproterozoic age, Basic intrusive of Mesoproterozoic age, Younger intrusive of Neoproterozoic age and recent alluvium.

The Peninsular gneissic complex-I comprising hornblende biotite gneiss and granite area the major rock types exposed. Hornblende biotite granite is medium to coarse grained and mesocratic and considered to be retrograded product of product of Charnockite – Pyroxene granulite. It is medium grained, White to pale pink colored with disseminations of limonitised magnetite. The white colored granite appears to be older and the pink colored cuts across the white colored granite. The younger phase of coarse grained granite occur as thin stringers and lesser in the southern part. The peripheral part of granite close to the gneiss is granitic in nature.

STRATIGRAPHY SUCCESSION

Lithology	Group	Super Group	Age
Gypseous clay			Holocene
Granite	Acid intrusives		Neoproterozoic
Dolerite /basic dyke	Basic intrusives		Mesoproterozoic
Quartzofeldspathic Gneiss Garnet.		Peninsular Gneissic complex- II	Archaean to Palaeoproterozoic
Hornblende biotite gneiss			
Charnockite		Southern Granulite Complex	Archaean
Grey HornblendBiotite gneiss		Peninsular Gneissic complex- I	
Gabbro	Sitampundi		
	Mettupalayam		

Amphibolite	Complex		
Magnetite Quartzite			
Talc – Termolite – Actinolite Schist	Sathiyamanagalam Group		

4. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A, expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

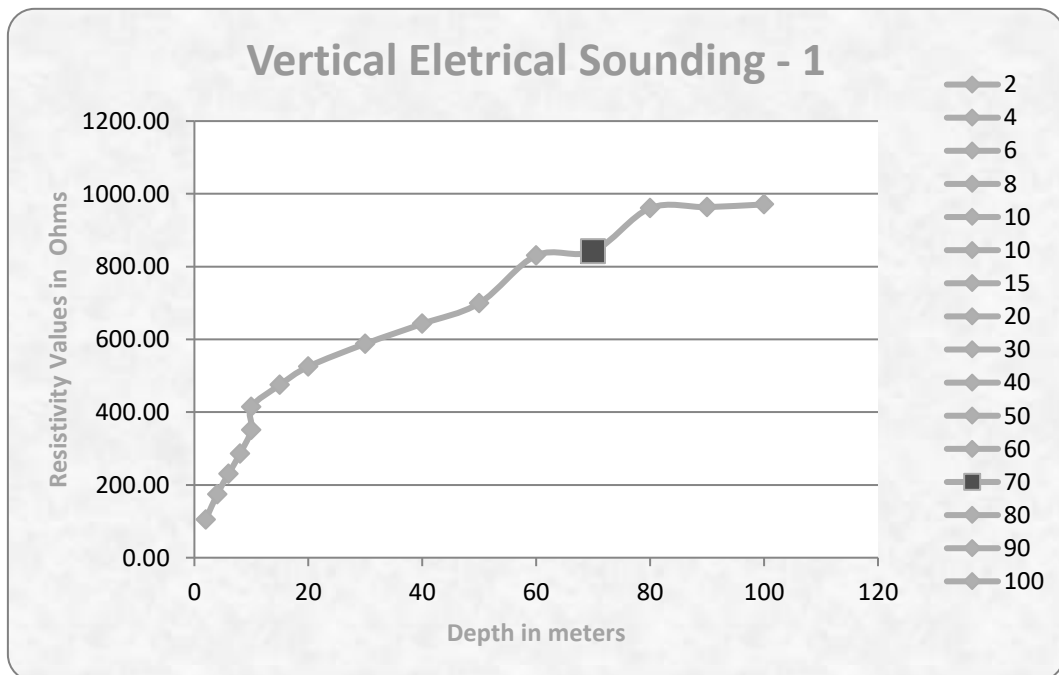
$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

Vertical Electrical Sounding (VES)

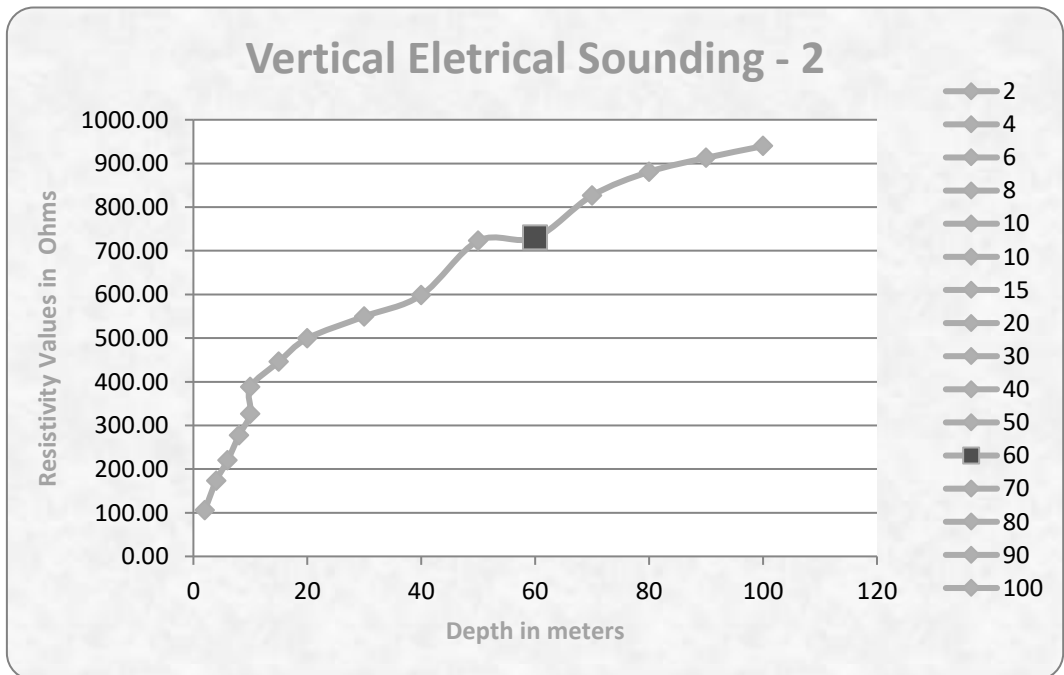
When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

Vertical Electrical Sounding Data's and Graphs

STATION-1					
GPS Coordinates - 10°55'05.8546"N 77°03'56.3316"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.26	104.84
2	4	1	23.55	7.40	174.27
3	6	1	54.95	4.20	230.79
4	8	1	98.91	2.89	285.85
5	10	1	155.45	2.26	351.32
6	10	5	23.55	17.60	414.48
7	15	5	62.80	7.56	474.77
8	20	5	117.75	4.46	525.17
9	30	5	274.75	2.14	587.97
10	40	5	494.55	1.30	642.92
11	50	5	777.15	0.90	699.44
12	60	5	1122.55	0.74	830.69
13	70	5	1530.75	0.55	841.91
14	80	5	2001.75	0.48	960.84
15	90	5	2535.55	0.38	963.51
16	100	5	3132.15	0.31	970.97

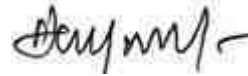


STATION-2					
GPS Coordinates - 10°55'11.5313"N 77°04'02.1862"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.46	105.79
2	4	1	23.55	7.36	173.33
3	6	1	54.95	4.00	219.80
4	8	1	98.91	2.80	276.95
5	10	1	155.45	2.10	326.45
6	10	5	23.55	16.46	387.63
7	15	5	62.80	7.10	445.88
8	20	5	117.75	4.24	499.26
9	30	5	274.75	2.00	549.50
10	40	5	494.55	1.21	598.41
11	50	5	777.15	0.93	722.75
12	60	5	1122.55	0.65	729.66
13	70	5	1530.75	0.54	826.61
14	80	5	2001.75	0.44	880.77
15	90	5	2535.55	0.36	912.80
16	100	5	3132.15	0.30	939.65



5. Conclusion –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 80m to 85m where minor fractures are observed and shallow aquifers are expected above 65m-70m BGL. The ultimate pit limit as per the approved mining plan depth is 27m below ground level, which will have no impact on the Ground Water.



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2318/22

அனுப்புநர்

திருமதி.இரா.சகுந்தலாமணி,
வட்டாட்சியர்,
குலூர்.

பெறுநர்

வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் தெற்கு.

ந.க.1274/2022/அ7

நாள்: 07.04.2022

அய்யா.,

பொருள்: கனிமங்கள் மற்றும் சுரங்கங்கள் - கோயம்புத்தூர் மாவட்டம் - குலூர் வட்டம் - கள்ளப்பாளையம் கிராமம் - புல எண்கள் 261/1B-இல் பு.ஹெக் 0.36.5, புல எண்.261/2-இல் பு.ஹெக் 2.26.0, புல எண்.263/1A(பகுதி) -இல் பு.ஹெக் 1.54.5, புல எண்.263/2A-இல் பு.ஹெக் 1.60.0 மற்றும் 264/1 (பகுதி)-இல் பு.ஹெக் 0.60.0 பூமியும் ஆக மொத்தம் பு.ஹெக் 6.37.0 பரப்புள்ள பட்டா பூமியில் தி/வா.தமிழ்நாடு புளு மெட்டல்ஸ் நிறுவனத்தினர் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரியது - அறிக்கை அனுப்புதல் - தொடர்பாக.



பார்வை:

1. தி/வா.தமிழ்நாடு புளு மெட்டல்ஸ் நிறுவனத்தினரின் விண்ணப்பம், நாள்:01.03.2022
2. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர், கடிதம் ந.க.198/கனிமம்/2022, நாள்:01.03.2022
3. வருவாய் கோட்டாட்சியர் கோயம்புத்தூர் தெற்கு அவர்களின் கடிதம், ந.க.1288/2022/அ2, நாள்:09.03.2022
4. கிராம நிர்வாக அலுவலர், கள்ளப்பாளையம் அறிக்கை நாள்:29.03.2022
5. நில வருவாய் ஆய்வாளர் செலக்கரிச்சல் அறிக்கை நாள்:29.03.2022

கோயம்புத்தூர் மாவட்டம், குலூர் வட்டம், கள்ளப்பாளையம் கிராமம், புல எண்கள் 261/1B-இல் பு.ஹெக் 0.36.5, புல எண்.261/2-இல் பு.ஹெக் 2.26.0, புல எண்.263/1A(பகுதி) -இல் பு.ஹெக் 1.54.5, புல எண்.263/2A-இல் பு.ஹெக் 1.60.0 மற்றும் 264/1 (பகுதி)-இல் பு.ஹெக் 0.60.0 பூமியும் ஆக மொத்தம் பு.ஹெக் 6.37.0 பரப்புள்ள பட்டா பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரியது தொடர்பாக பிரஸ்தாப புலம் தணிக்கை செய்து எனாதறிக்கையினை கிழ்கண்டவாறு சமர்ப்பித்துக்கொள்கிறேன்.

குலூர் வட்டம், கள்ளப்பாளையம் கிராமம், க.ச.எண்.263/1A, 264/1, 261/1B, 261/2 மற்றும் 263/2A நெ.காலைகளில் பு.ஹெ முறையே 1.96.5, 1.50.0, 0.36.5, 2.26.0 மற்றும் 1.60.0 ஆக மொத்தம் பு.ஹெ 7.69.0 விஸ்தீரணமுள்ள பூமியானது சிங்காநல்லூர் சார்பதிவாளர் அலுவலக கிரையப்பத்திர எண்.5736/2006

நாள்:04.08.2006 இன்படியும், பட்டா எண்.641, 642, 643, 644, மற்றும் 645 இன்படியும் தமிழ்நாடு புளூமெட்டல்ஸ் நிறுவனத்திற்கு தனியாக பாத்தியப்பட்டது. மேற்படி 261/1B-இல் பு.ஹெக் 0.36.5, புல எண்.261/2-இல் பு.ஹெக் 2.26.0, புல எண்.263/1A(பகுதி) -இல் பு.ஹெக் 1.54.5, புல எண்.263/2A-இல் பு.ஹெக் 1.60.0 மற்றும் 264/1 (பகுதி)-இல் பு.ஹெக் 0.60.0 பூமியும் ஆக மொத்தம் பு.ஹெக் 6.37.0 பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரி மேற்படி நிறுவனத்தினர் மனு செய்துள்ளனர்.

மேற்படி பூமியானது வடக்கில் 127 மீட்டர் தொலைவில் தோட்டசாளையும், கோழிப்பண்ணையும் (காலியாக உள்ளது), வடக்கில் 190 மீட்டர் தொலைவில் கோபால கிருஷ்ணன் என்பவருக்கு பாத்தியப்பட்ட தோட்டசாளை (வீடு) ஒன்றும், கிழக்கு பகுதியில் 170 மீட்டர் தொலைவில் அக்வாசிப் அலுவலக கட்டிடமும், 180 மீட்டர் தொலைவில் காற்றாலை 1 ம், தெற்கு பகுதியில் 73 மீட்டர் தொலைவில் காற்றாலை 1ம், மேற்கு பகுதியில் 70 மீட்டர் தொலைவில் காற்றாலை 1 ம், வடமேற்கு மூலையில் 61 மீட்டர் தொலைவில் காற்றாலை 1ம் உள்ளது.

மேற்படி பூமிக்கு புல எல்லைகளாக,

பச்சாபாளையம் கிராமத்திற்கு வடக்கு, ஓராட்டுக்குப்பை கிராமத்திற்கு மற்றும் மேற்படி கிராமம் க.ச.எண்.265/2-க்கு தெற்கு, க.ச.எண்.259 மற்றும் 260 க்கு மேற்கு, பச்சாபாளையம் கிராமம் மற்றும் ஓராட்டுக்குப்பை கிராமத்திற்கு கிழக்கும், இதன் மத்தியில் புல எண். 263/1A, 264/1, 261/1B, 261/2 மற்றும் 263/2A இல் 6.37.0 ஹெக்டேர் பூமி உள்ளது.

மேற்படி இருப்பு கிடங்கு அமைப்பதற்காக கோரியுள்ள பூமியானது:

1. மேற்படி பூமியில் அரசு புறம்போக்கு நிலம் ஏதும் இல்லை.
2. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் நத்தம் குடியிருப்பு பகுதிகளோ, அங்கரிக்கப்பட்ட வீட்டுமனைகளோ ஏதுமில்லை.
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 500 மீட்டர் சுற்றளவில் கோவில், மசூதி, தேவாலயம் போன்ற மத வழிபாட்டுத்தளங்கள், ஏதுமில்லை.
7. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் தேசிய மற்றும் மாநில நெடுஞ்சாலைகள் ஏதும் செல்லவில்லை.

8. மேற்படி பூமியில் குறைமின்னழுத்தக்கம்பிகள், உயர் மின்னழுத்தக்கம்பிகள் ஏதும் செல்வதில்லை.

எனவே தி/வா.தமிழ்நாடு புளூ மெட்டல்ஸ் நிறுவனத்தாருக்கு சூலூர் வட்டம், கள்ளப்பாளையம் கிராமம், 261/1B-இல் பு.ஹெக் 0.36.5, புல எண்.261/2-இல் பு.ஹெக் 2.26.0, புல எண்.263/1A(பகுதி) -இல் பு.ஹெக் 1.54.5, புல எண்.263/2A-இல் பு.ஹெக் 1.60.0 மற்றும் 264/1 (பகுதி)-இல் பு.ஹெக் 0.60.0 பூமியும் ஆக மொத்தம் பு.ஹெக் 6.37.0 ஹெக்டேர் பரப்புள்ள பட்டா பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் அனுமதி வழங்கலாம் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு: தொடர்புடைய ஆவணங்கள்

தங்கள் உண்மையுள்ள
Sri. Jeyaraj
வட்டாட்சியர் 74-22
சூலூர்.

Sri
2/4/22

புலத்தணிக்கை குறிப்பு
நாள்: 24.03.2022
கிராமம்: கள்ளப்பாளையம்
புல எண்: 263/1A, 264/1, 261/1B,
261/2 மற்றும் 263/2A

உடனிருந்த அலுவலர்கள்: செலக்கரிச்சல் நில வருவாய் ஆய்வாளர்,
கள்ளப்பாளையம் கிராம நிர்வாக அலுவலர் மற்றும் கிராம உதவியாளர்

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், கள்ளப்பாளையம் கிராமம், புல எண்கள் 261/1B-இல் 0.36.5 ஹெக்டேர், புல எண்.261/2-இல் 2.26.0 ஹெக்டேர், புல எண்.263/1A(பகுதி) -இல் 1.54.5 ஹெக்டேர், புல எண்.263/2A-இல் 1.60.0 ஹெக்டேர் மற்றும் 264/1 (பகுதி)-இல் 0.60.0 ஹெக்டேர் பூமியும் ஆக மொத்தம் 6.37.0 பரப்பளவில் தி/வா.தமிழ்நாடு புளூ மெட்டல்ஸ் நிறுவனத்தினர் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிம அனுமதி கோரியது தொடர்பாக பிரஸ்தாப புலமானது இன்று (24.03.2022) என்னால் புலத்தணிக்கை செய்யப்பட்டது

மேற்படி பூமியானது வடக்கில் 127 மீட்டர் தொலைவில் தோட்டசாளையும், கோழிப்பண்ணையும் (காலியாக உள்ளது), வடக்கில் 190 மீட்டர் தொலைவில் கோபால கிருஷ்ணன் என்பவருக்கு பாத்தியப்பட்ட தோட்டசாளை (வீடு) ஒன்றும், கிழக்கு பகுதியில் 170 மீட்டர் தொலைவில் அக்வாசிப் அலுவலக கட்டிடமும், 180 மீட்டர் தொலைவில் காற்றாலை 1 ம், தெற்கு பகுதியில் 73 மீட்டர் தொலைவில் காற்றாலை 1ம், மேற்கு பகுதியில் 70 மீட்டர் தொலைவில் காற்றாலை 1 ம், வடமேற்கு மூலையில் 61 மீட்டர் தொலைவில் காற்றாலை 1ம் உள்ளது.

மேற்படி பூமிக்கு புல எல்லைகளாக,

பச்சாபாளையம் கிராமத்திற்கு வடக்கு, ஓராட்டுக்குப்பை கிராமத்திற்கு மற்றும் மேற்படி கிராமம் க.ச.எண்.265/2-க்கு தெற்கு, க.ச.எண்.259 மற்றும் 260 க்கு மேற்கு, பச்சாபாளையம் கிராமம் மற்றும் ஓராட்டுக்குப்பை கிராமத்திற்கு கிழக்கும், இதன் மத்தியில் புல எண். 263/1A, 264/1, 261/1B, 261/2 மற்றும் 263/2A இல் 6.37.0 ஹெக்டேர் பூமி உள்ளது.

மேற்படி இருப்பு கிடங்கு அமைப்பதற்காக கோரியுள்ள பூமியானது:

1. மேற்படி பூமியில் அரசு புறம்போக்கு நிலம் ஏதும் இல்லை.
2. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் நத்தம் குடியிருப்பு பகுதிகளோ, அங்கரிக்கப்பட்ட வீட்டுமனைகளோ ஏதுமில்லை.

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 500 மீட்டர் சுற்றளவில் கோவில், மசூதி, தேவாலயம் போன்ற மத வழிபாட்டுத்தளங்கள், ஏதுமில்லை.
7. மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் தேசிய மற்றும் மாநில நெடுஞ்சாலைகள் ஏதும் செல்லவில்லை.
8. மேற்படி பூமியில் குறைமின்னழுத்தக்கம்பிகள், உயர் மின்னழுத்தக்கம்பிகள் ஏதும் செல்வதில்லை.

எனவே தி/வா.தமிழ்நாடு புளு மெட்டல்ஸ் நிறுவனத்தாருக்கு சூலூர் வட்டம், கள்ளப்பாளையம் கிராமம், புல எண்கள் 261/1B-இல் 0.36.5 ஹெக்டேர், புல எண்.261/2-இல் 2.26.0 ஹெக்டேர், புல எண்.263/1A(பகுதி) -இல் 1.54.5 ஹெக்டேர், புல எண்.263/2A-இல் 1.60.0 ஹெக்டேர் பரப்புள்ள பட்டா பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்கலாம் என பரிந்துரைத்து வருவாய் கோட்டாட்சியர் அவர்களுக்கு கடித வரைவு தயார் செய்யலாம்.

திரு. பி. சி. சிவசாமி
வட்டாட்சியர் 24/3/22
சூலூர்.



Thiru. K.V. GIRIDHAR, 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.7812/SEAC/ToR-882/2020 Dated: 16.03.2021

To

Thiru.D.Ramesh
No.2/14(i), Sri Ragavendra Avenue
2nd Street, 3rd Phase
Vilankuruchi Road
Coimbatore District - 641035



Sir / Madam,

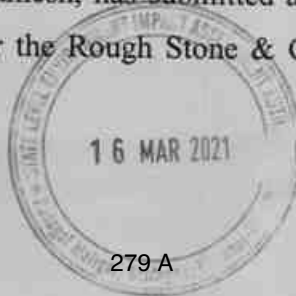
SEIAA

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) Proposed Rough Stone & Gravel quarry lease over an extent of 0.91.0 Ha in S.F.Nos. 291/1B1A of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu by Thiru.D.Ramesh 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/ 56020/2020, Dated: 28.08.2020.
 2. Your application submitted for Terms of Reference dated: 07.09.2020
 3. Minutes of the 197th SEAC Meeting held on 03.02.2021.
 4. Minutes of the 428th SEIAA Meeting held on 02.03.2021.

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

The proponent, Thiru.D.Ramesh, has submitted application for ToR on 07.09.2020, in Form-I, Pre- Feasibility report for the Rough Stone & Gravel quarry lease over an extent of




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0.91.0 Ha in S.F.Nos.291/1B1A of Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

The proposal was placed in the 197th SEAC Meeting held on 03.02.2021. Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of Terms of Reference (ToR) with Public Hearing, subject to the following specific conditions in addition to the points mentioned in the standard terms of reference for EIA study for non-coal mining projects and details issued by the MoEF& CC to be included in EIA/EMP report:

1. Restricting the depth of mining from 56m to 51m ultimate depth and quantity of 60002cu.m of Rough stone for five years with a bench height of 5m as per the approved mining plan considering the hydrogeological regime of the surrounding area.
2. The Project Proponent shall furnish the contour map of the water table detailing the number of wells located around the site and its impacts on the wells due to mining activity.
3. The Project Proponent shall conduct the hydro-geological study to evaluate the impact of proposed mining activity on the groundwater table, agriculture activity, and water bodies such as rivers, tanks, canals, ponds etc. located nearby by the proposed mining area.
4. The Project Proponent shall furnish the details on the number of groundwater pumping and open wells within 1 km (radius) along with the water levels in both monsoon and non-monsoon seasons. The proponent also shall contact the data of water table level from the PWD / TWAD in this area in both monsoon and non-monsoon seasons.
5. The Proponent shall carry out the Commutative impact study on the Agricultural area due to Mining, Crushers and other activities around the site area.
6. The details of the surrounding well and the cumulative impact on the groundwater shall be part of the EIA study.
7. The Socio-economic studies should be carried out within a 10 km buffer zone from the mines.
8. A tree survey study shall be carried out (nos. name of the species, age) in the mining tease applied area and its management during mining activity.




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9. CER activities should be carried out taking into consideration the requirement of the Local habitants available within the buffer zone as per Office Memorandum of MoEF& CC.
10. A Detailed mining closure plan for the proposed project shall be submitted.
11. A detail report on the safety and health aspects of the workers and for the surrounding habitants during operation of mining for drilling and blasting shall be submitted.
12. The recommendation for the issue of Terms of Reference is subject 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).
13. Details of the lithology of the mining lease area shall be furnished.
14. The project proponent shall furnish the details of the existing Green belt area earmarked with GPS coordinates and a list of trees is planted with a copy of photos/documental.ong with the EIA Report.

Discussion by SEIAA and the Remarks:-

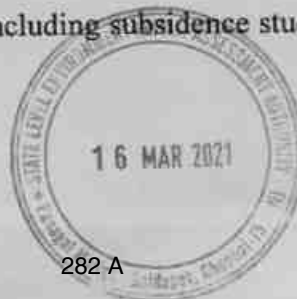
The proposal was placed before the 428th Authority meeting held on 02.03.2021. After detailed discussion, the Authority unanimously accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal condition in addition to the following conditions.


1. As per the recommendation of SEAC and as accepted by the proponent, the ultimate depth of mining is restricted to 51m and accordingly the quantity of mining is 60002 cu.m of Rough stone for a period of five years leaving a bench height of 5m as per the approved mining plan considering the hydro geological regime of the surrounding area.
2. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation


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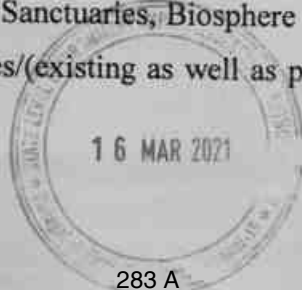
A. STANDARD TERMS OF REFERENCE

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




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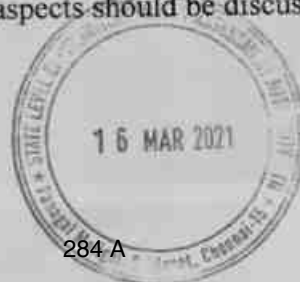
- and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation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




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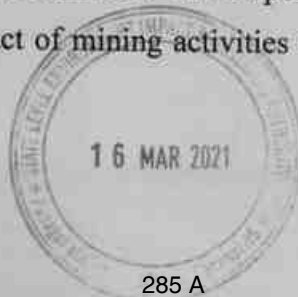
mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

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




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- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission




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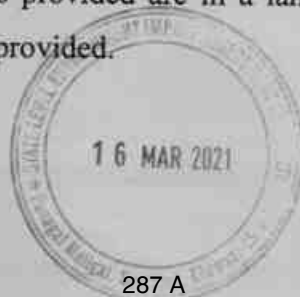
from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

- 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.




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- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.




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

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.




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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 is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures




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

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

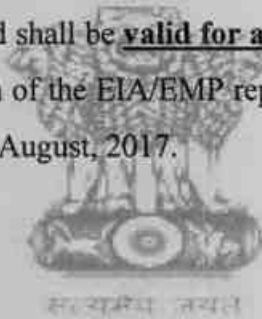
- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated




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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 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.





MINING PLAN FOR PACHAPALAYAM ROUGHSTONE 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 : 0.91.0ha
S.F.NO : 291/1B1A
VILLAGE : PACHAPALAYAM
TALUK : SULUR
DISTRICT : COIMBATORE
STATE : TAMILNADU

FOR

APPLICANT

Thiru.D.Ramesh,

S/o.G.R.Duraisamy,

No.2/14(i), Sri Ragavendra Avenue,

2nd Street, 3rd Phase,

Vilankurichi Road,

Coimbatore District.

PREPARED BY

Dr.P.Thangaraju, M.Sc., Ph.D.,

Qualified Person

Regd.off.No:17, Advaita Ashram Road,

Alagapuram Post,

Salem - 636 004.

Cell: 94433 56539.

E-mail id: geothangam@gmail.com

Handwritten signature

D.Ramesh,
S/o.G.R.Duraisamy,
No.2/14(i), Sri Ragavendra Avenue,
2nd Street, 3rd Phase,
Vilankurichi Road,
Coimbatore District.



CONSENT LETTER FROM APPLICANT

The Mining Plan in Respect Roughstone and Gravel Quarry in S.F.No.291/1B1A over an extent of 0.91.0ha of Patta Land in Pachapalayam Village, Suler 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,
Advaitha 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

D.Ramesh

Place : Coimbatore

Date : 13.12.2018

D.Ramesh,

S/o.G.R.Duraisamy.

No.2/14(i), Sri Ragavendra Avenue,

2nd Street, 3rd Phase,

Vilankurichi Road,

Coimbatore District.



DECLARATION OF THE APPLICANT

The Mining Plan in Respect of Roughstone and Gravel Quarry in S.F.No.291/1B1A over an extent of 0.91.0ha of Patta Land in Pachapalayam Village, Sular 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

A handwritten signature in black ink, appearing to read 'D.Ramesh'.

D.Ramesh

Place : Coimbatore

Date : 13.12.2018

A handwritten signature in black ink, appearing to read 'D.Ramesh'.

Dr.P.Thangaraju, M.Sc., Ph.D.,

Regd.off.No:17,

Advaitha 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.291/IB1A over an extent of 0.91.0ha of Patta Land in Pachapalayam Village, Sulur Taluk, Coimbatore District, Tamilnadu State has been prepared for

Thiru.D.Ramesh,

S/o.G.R.Duraisamy,

No.2/14(i), Sri Ragavendra Avenue,

2nd Street, 3rd Phase,

Vilankurichi Road,

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 : 29.12.2018



Dr.P.Thangaraju, M.Sc., Ph.D.,

Regd.off.No: 17,

Advaitha 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.291/IB1A over an extent of 0.91.0ha of Patta Land in Pachapalayam Village, Suler Taluk, Coimbatore District, Tamilnadu State has been prepared for

Thiru.D.Ramesh,

S/o.G.R.Duraisamy,

No.2/14(i), Sri Ragavendra Avenue,

2nd Street, 3rd Phase,

Vilankurichi Road,

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 : 29.12.2018





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.291/1B1A over an extent of 0.91.0ha of Patta Land in Pachapalayam Village, Suler Taluk, Coimbatore District, Tamilnadu State for **Thiru.D.Ramesh**, S/o.G.R.Duraisamy, No.2/14(i), Sri Ragavendra Avenue, 2nd Street, 3rd Phase, Vilankurichi Road, 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 : 29.12.2018





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**MINING PLAN FOR PACHAPALAYAM ROUGHSTONE AND GRAVEL QUARRY
OVER AN EXTENT OF 0.91.0ha IN PACHAPALAYAM VILLAGE,
SULUR TALUK, COIMBATORE DISTRICT, TAMILNADU.**

(Prepared Under Rule 41 & 42 as Per the Amended Under Tamilnadu Minor Mineral Concession Rules, 1959)

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The Mining Plan and Environment Management plan is prepared for Thiru.D.Ramesh, S/o.G.R.Duraisamy, No.2/14(i), Sri Ragavendra Avenue, 2nd Street, 3rd Phase, Vilankurichi Road, Coimbatore District has applied for Roughstone and Gravel Quarry in S.F.No.291/1B1A over an extent of 0.91.0ha 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.1160/Mines/2017 Dated 12.12.2018** to submit Mining Plan for the approval in Department of Geology and Mining, Coimbatore to obtain Environment Clearance from the Appropriate Authorities, 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 environment 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 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 M and Pre feasibility report to obtain environment clearance from the Appropriate Authorities, 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 14.08.2018.

**Short Notes of Mining plan**

- a. Village Panchayat - Pachapalayam
- b. Panchayat Union - Sular
- c. The Geological Resources are $5,64,740\text{m}^3$ of Roughstone and $10,268\text{m}^3$ of Gravel formation in the entire area.
- d. The Total Mineable Reserves are $61,657\text{m}^3$ of Roughstone formation in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined and is about $61,657\text{m}^3$ of Roughstone formation for a period of five years in the entire area.
- f. Total extent of the lease applied area is about 0.91.0ha.
- g. Topography of the area = The area exhibits Plain topography.
- h. Existing Depth of mining = 29m (Max) from below the ground level.
- i. Proposed Depth of mining = 56m from below the ground level.
- j. Lease period = Five years.
- k. It is a fresh application, the area has been quarrying in 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 existing road from the main road to quarry is in good condition and the same is being maintained and utilized for Transportation of Rough stone and Gravel.
- 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.
- r. The lease applied area is about 0.91.0ha bounded by eight corners; the corners are designated as 1-8 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.



Mining Plan

Pachapalayam Roughstone and Gravel Quarry

- t. 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 area.*
- u. There are no wastages anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- v. Around 17 employees are deploying in the quarrying operation.
- w. Total Cost of the project is about **Rs.37,77,670/-**.

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Mining Plan

Pachapalayam Roughstone and Gravel Quarry

2.0 GENERAL INFORMATION

2.1 a) Name of the Applicant : Thiru.D.Ramesh,

b) Address of the Applicant (With Phone No and Aadhaar Number)

Address : S/o.G.R.Duraisamy,
No.2/14(i), Sri Ragavendra Avenue,
2nd Street, 3rd Phase,
Vilankurichi Road,
Coimbatore District.

Pin code : 641 035

Mobile No : 96009 44422

Aadhaar Number : 6890 1165 8519

Mail ID : ~~pl~~ ramesh12164 @ 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 Roughstone and Gravel only.

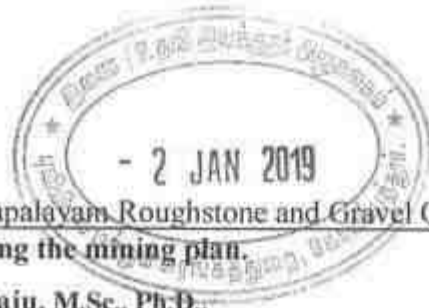
b) Precise area communication letter details received from the competent authority of the Government.

The precise area communication letter was received from the District Collector, Coimbatore vide R.c.No.1160/Mines/2017 Dated 12.12.2018 to obtain approved mining plan and obtain Environment Clearance from the Appropriate Authorities, 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

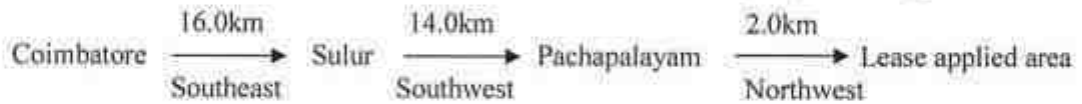
d) Name and address of the Qualified Person preparing the mining plan.

Name : Dr.P.Thangaraju, M.Sc., Ph.D.,
Address : Regd.off.No.17,
Advaitha Ashram Road,
Alagapuram, Salem – 636 004.
Mobile : 94433 56539
Tele Fax : 0427- 2431989
Email : geothangam@gmail.com

3.0 LOCATION

a) Details of the area with location map

The lease applied area is about 16.0km Southeastern side of Coimbatore, 14.0km from Southwestern side of Suler and 2.0km from Northwestern side of Pachapalayam Village.



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Location Map of the Lease applied

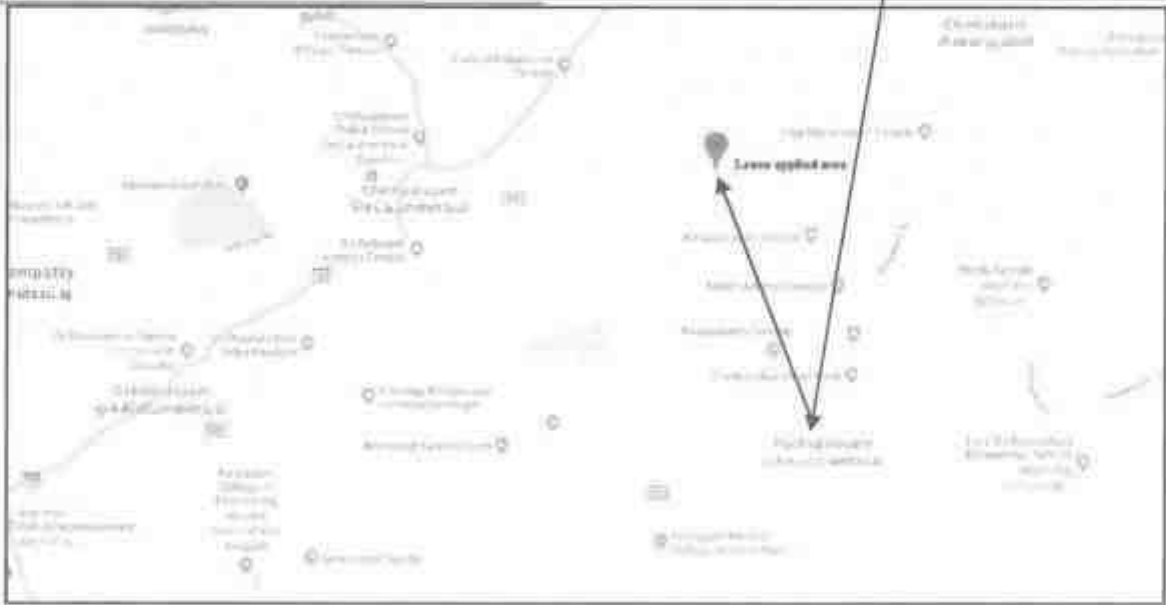
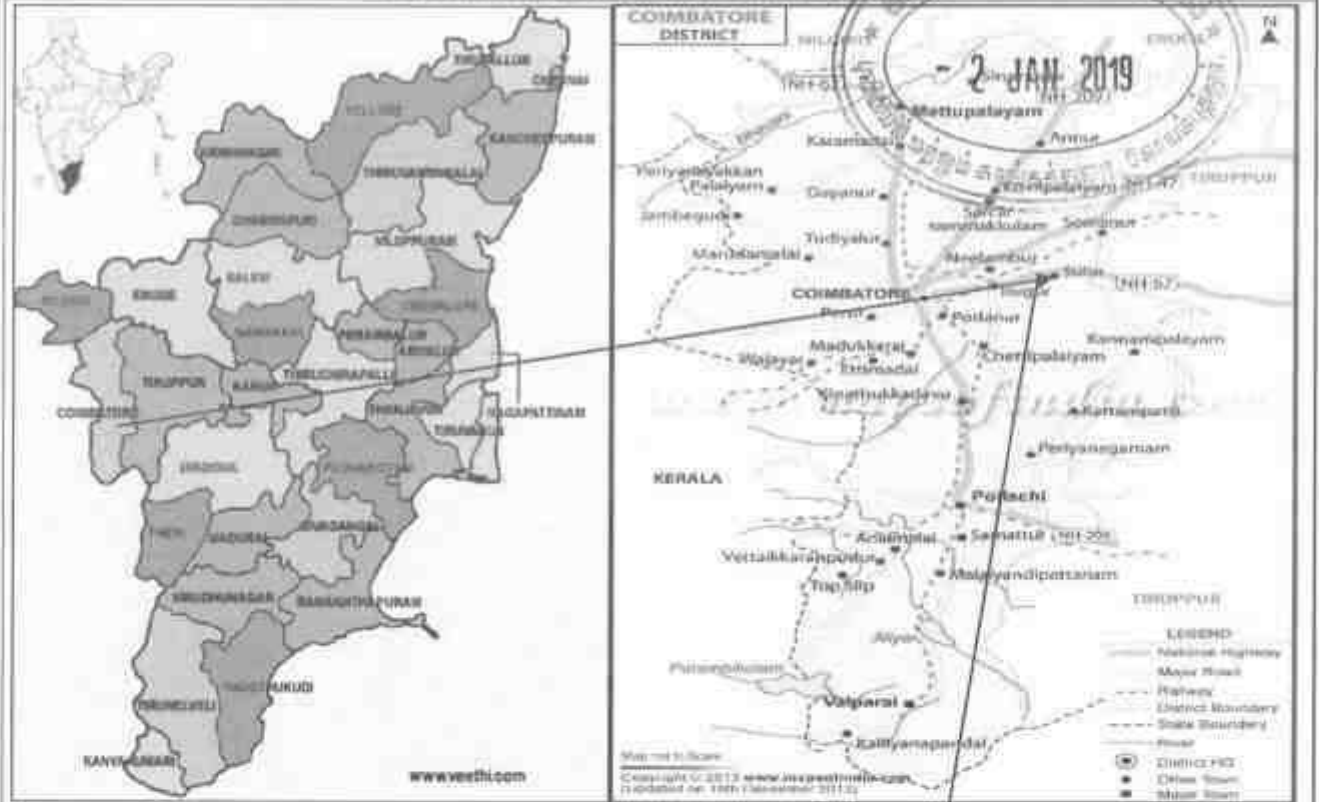


TABLE - 1

District	Taluk	Village	S.F.No	Lease applied area in ha
Coimbatore	Sulur	Pachapalayam	291/1B1A	0.91.0
Total Extent				0.91.0ha

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Mining Plan

Pachapalayam Roughstone and Gravel Quarry

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 the Name of Minor Mahendiran vide Patta No.706. The applicant has been consent from Pattadhar. (Refer the Patta copy as Annexure No.IV & Consent Document as No.VII).

d) Toposheet No. with latitude and longitude.

The lease area falls in the Toposheet No.58-F/01 Latitude between 10°54'56.50"N to 10°55'01.53"N and Longitude between 77°03'51.07"E to 77°03'55.73"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 Southwestern side of the applied area which connects the village road at a distance 300m.

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 3.0km 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 424m (Max) above Mean sea level. The area is covered by the Gravel which is about 1.0m thickness. Massive Charnockite is found after 1.0m (Gravel) which is clearly inferred from the existing quarrying pit.

The Water level in the surrounding area is 65-60m below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 850mm 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 Tamilnadu, 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 pit.

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.,

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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) & (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 are calculated up to a maximum depth of 56m from below the ground level.

TABLE- 2

GEOLOGICAL RESOURCES						
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Geological Resources in Rough stone (m ³)	Gravel Formation (m ³)
XY-AB	I	62	84	1	-	5208
	II	62	84	5	26040	-
	III	62	84	5	26040	-
	IV	62	84	5	26040	-
	V	62	84	5	26040	-
	VI	62	84	5	26040	-
	VII	62	84	5	26040	-
	VIII	62	84	5	26040	-
	IX	62	84	5	26040	-
	X	62	84	5	26040	-
	XI	62	84	5	26040	-
	XII	62	84	5	26040	-
Total					286440	5208
XY-CD	I	46	110	1	-	5060
	II	46	110	5	25300	-
	III	46	110	5	25300	-
	IV	46	110	5	25300	-
	V	46	110	5	25300	-
	VI	46	110	5	25300	-
	VII	46	110	5	25300	-
	VIII	46	110	5	25300	-
	IX	46	110	5	25300	-
	X	46	110	5	25300	-

Mining Plan

Pachapalayam Roughstone and Gravel Quarry

	XI	46	110	5	25300	2 JAN 2019
	XII	46	110	5	25300	
	Total				278300	5060
	Grand Total				564740	10268

The Geological Resources of Roughstone = 5,64,740m³

The Geological Resources of Gravel = 10,268m³

Existing Pit Dimension:

TABLE-3

The area has been quarried in earlier, the existing pit dimensions are follow,

Description	Length in (m) Max	Width in (m) Max	Depth in (m) Max
Pit	83m	76m	29m from below the ground level

Mineable Reserves:

The Mineable reserves are calculated by deducting 7.5m safety distance maintained by adjacent Patta land, 10m safety distance maintained by Government Poramboke land and bench locked up Reserves.

TABLE-4

MINEABLE RESERVES					
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Mineable Reserves in Rough stone (m ³)
XY-AB	VII	37	51	2	3774
	VIII	37	51	5	9435
	IX	32	41	5	6560
	X	27	31	5	4185
	XI	22	21	5	2310
	XII	17	11	5	935
	Total				
XY-CD	II	17	30	2	1020
	III	17	30	5	2550
	IV	17	30	5	2550
	V	17	25	5	2125
	VI	17	20	5	1700
	VII	17	15	3	765
	VII	32	57	2	3648
	VIII	32	52	5	8320
	IX	27	42	5	5670
	X	22	32	5	3520
	XI	17	22	5	1870
	XII	12	12	5	720
	Total				
Grand Total					61657

The available mineable reserves have been computed as 61,657m³ of Roughstone formation at the rate of 100% recovery upto a maximum depth of 56m 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, the Gravel was removed previous lease period. There is no removal of Gravel during the present plan period. The entire quarried out Roughstone will be consumed hence waste dump is not proposed. 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						
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserves in Rough stone (m ³)
I Year	XY-AB	VII	37	51	2	3774
		II	17	30	2	1020
	XY-CD	III	17	30	5	2550
		IV	17	30	5	2550
		V	17	25	5	2125
		VI	17	20	5	1700
		VII	17	15	3	765
		Total				
II Year	XY-AB	VII	32	57	2	3648
		VIII	32	52	5	8320
	Total					11968
III Year	XY-AB	VIII	37	51	5	9435
		IX	32	41	5	6560
	Total					15995
IV Year	XY-CD	IX	27	42	5	5670
		X	22	32	5	3520
	Total					9190
V Year	XY-CD	XI	17	22	5	1870
		XII	12	12	5	720
	XY-AB	X	27	31	5	4185
		XI	22	21	5	2310
		XII	17	11	5	935
	Total					10020
Grand Total						61657

The Recoverable reserves have been computed as **61,657m³** of Roughstone formation for a period of five years at the rate of 100% recovery upto a maximum depth of 56m 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.

One lorry load	=	6m ³ (approx.)
Total No of Working days	=	260 Days per year
Total quantity to be removed in this five years plan period	=	61,657m ³
Hence total lorry loads per day	=	61,657m ³ /6m ³
	=	10276 Lorry loads
	=	10276/5 years
	=	2055/260
	=	7-8 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 - 5**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, the Gravel was removed previous lease period. There is no disposal of Gravel. The entire quarried out Rough stone will be consumed hence waste dump is not proposed.

5.7 Brief note on conceptual mining plan for the entire lease period Phase 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 Phased 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

Description	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
Conceptual	83m	76m	56m from below ground level

Greenbelt has proposed on the 10m safety barrier and Nearest Panchayat roads by planting Neem/Pungan of native species. All the Phase 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

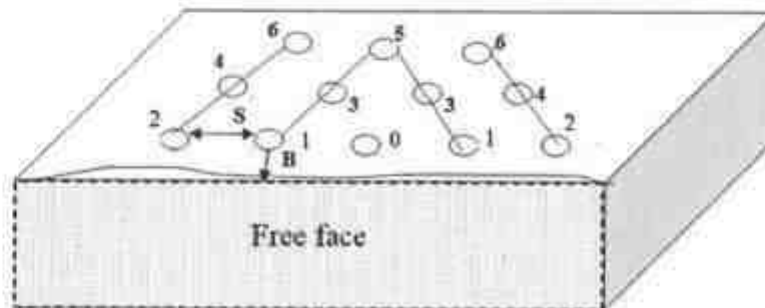
6.1 Blasting patterns

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



- 2 JAN 2019

Staggered "V" Pattern of Blasting Design

Spacing	=	1.2m
Burden	=	1.0m
Depth of the hole	=	1.5m
No of holes proposed per day	=	38Holes

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.

Blasting program for the production per day:

No of Holes	=	38Holes
Yield	=	114Tons
Powder factor	=	6tons/Kg of explosives
Total explosive required	=	19Kg- 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 (Phased on nearby wells and water bodies).

The water table in the area is about 65m BGL 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 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 -7

Type	Distance & Direction	Location
Borehole	160m Southwestern side	10°54'53.14"N 77°03'47.31"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).

There is no HT/LT Line is within 50m from the lease applied area.

8.3 Water bodies (river, pond, lake, odai, canal, etc.,).

There is no water body within 50m 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-47) Salem – Cochin which is about 6.0km from the Northwestern side of the lease applied area.

The State Highway (SH-163) Palladam – Cochin Fortier which is about 2.0km 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 Reserve forest/forest/social forest/ wildlife sanctuary within 500m radius of the lease applied area.

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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 – 3.0km (Coimbatore – Pollachi) western side. Highways - (NH-47) Salem – Cochin which is about 6.0km from the Northwestern side of the lease applied area. Noyyal River is passing 8.0km from Northwestern 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 300m from the Southwest 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>Chinnakuyili</td> <td>2.5km - NE</td> </tr> <tr> <td>2.</td> <td>Pachapalayam</td> <td>2.0km - SE</td> </tr> <tr> <td>3.</td> <td>Chettipalayam</td> <td>3.0km - W</td> </tr> </tbody> </table>	S.No	Name of the Village	Approximate distance & Direction from lease applied area	1.	Chinnakuyili	2.5km - NE	2.	Pachapalayam	2.0km - SE	3.	Chettipalayam	3.0km - W				
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1.	Chinnakuyili	2.5km - NE																	
2.	Pachapalayam	2.0km - SE																	
3.	Chettipalayam	3.0km - W																	
4.	Adjacent Land	7.5m	East - S.F.No.291/1A South - S.F.No.291/1B, 291/1B2 & 291/1D1 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 – There is no HT/LT Line is within 50m from the lease applied area.																
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>East</td> <td>291/1A</td> <td>Patta Land</td> <td>7.5m</td> </tr> <tr> <td>South</td> <td>291/1B, 291/1B2 & 291/1D</td> <td>Patta Land</td> <td>7.5m</td> </tr> <tr> <td>West</td> <td>Coimbatore Taluk</td> <td>Govt Land</td> <td>10m</td> </tr> </tbody> </table>	Direction	S.F.Nos.	Classification	Safety Distance	East	291/1A	Patta Land	7.5m	South	291/1B, 291/1B2 & 291/1D	Patta Land	7.5m	West	Coimbatore Taluk	Govt Land	10m
Direction	S.F.Nos.	Classification	Safety Distance																
East	291/1A	Patta Land	7.5m																
South	291/1B, 291/1B2 & 291/1D	Patta Land	7.5m																
West	Coimbatore Taluk	Govt Land	10m																
7.	Reserve forest	50m	There is no reserve forest within 50m radius of the lease applied area.																

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8.	Protected area / ECO sensitive area/Wild Life Sanctuary	10km	There is no ECO Sensitive area/Wildlife Sanctuary within the radius of 10km from 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. Skilled labour

Mine Foreman	:	1
Blaster/mate	:	1
Excavator – Operator & Driver	:	2
Jack hammer operator	:	6

b. Semi-skilled

Watchman	:	1
----------	---	---

c. Unskilled

Labour & Helper	:	3
Cleaner	:	1
Total	:	15

Allowing 10% absenteeism the man power would be around 14, 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 Pachapalayam which is about 2.0km 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 such eventuality is 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 3.0km Western 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
- ✓ 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 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-8

Description	Present area in (ha)	Area at the end of this Quarrying period (ha)
Quarrying Pit	0.60.9	0.60.9
Infrastructure	0.01.0	0.01.0
Roads	0.01.0	0.02.0
Green Belt	Nil	0.17.2
Unutilized Area	0.28.1	0.09.9
Grand Total	0.91.0	0.91.0

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 Climatic change.






10.3 Flora and Fauna:

TABLE-9

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, Karuvclam	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 850mm/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 – 10

S.No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Chinnakuyili	2.5km - NE	800
2.	Pachapalayam	2.0km - SE	700
3.	Chettipalayam	3.0km - W	900

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc are available at Chettipalayam located at a distance of 3.0km on the Western 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 Environment 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 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 Roughstone and Gravel quarrying operation. The entire quarried out materials will be utilized (100%).

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Mining Plan

Pachapalayam Roughstone and Gravel Quarry

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 56m 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 56m 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.50,000/-.

10.11 Programme of Greenbelt development (indicate extend, number, name of species to be afforested).

10m 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 – 11

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	55	80%	344	Neem/ Casuarina	44
II	55	80%	344	Neem/ Casuarina	44
III	55	80%	344	Neem/ Casuarina	44
IV	55	80%	344	Neem/ Casuarina	44
V	55	80%	344	Neem/ Casuarina	44

Nearly 1,720sq.m area is proposed to be used under Greenbelt by planting 55Nos 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.27,500/- for the period of five years.

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

Budget Provision for the entire quarrying period

TABLE -12

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.

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Mining Plan

Pachapalayam Roughstone and Gravel Quarry

A. Project cost/ investment		
i) Land cost	The Land value as per the Government Guideline is cost is calculated as follows, 0.91.0ha X Rs.19,87,000/ha = Rs.18,08,170/- (source : https://tntreginet.gov.in/portal/)	=Rs.18,08,170/-
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 cattles cost would be around	= Rs.50,000/-
iv) Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost would be around	= Rs.50,000/-
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.85,000/-
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.85,000/-
xi) Greenbelt etc:	Greenbelt program will be carried out in the boundary barriers and Panchayat roads the cost would be around	= Rs.27,500/-
	Total Project Cost	= Rs.33,05,670/-

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Mining Plan

Pachapalayam Roughstone and Gray of 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.33,05,670/-✓
B. EMP Cost	=	Rs. 3,80,000/-✓
Total Project Cost (A+B)	=	Rs.36,85,670/-✓

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.92,000/-**

Total Project cost	=	Rs.36,85,670/-
CSR Cost (2.5%)	=	Rs. 92,000/-
Total cost	=	Rs.37,77,670/-

(The Total cost of the project including EMP Cost is Rupees Thirty seven lakhs and seventy seven thousand and six hundred and seventy only).

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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 56m from below the ground level for the five year period, the proposed depth is well above the water table (summer in 65m and rainy seasons in 60m) 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 3.0km in Chettipalayam (W).

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Mining Plan

Pachapalayam Rough Stone 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 : 29.12.2018

This Mining Plan is Approved
subject to the conditions / stipulation
& indicated in the Mining Plan Approval
Letter No: 1160/Mines/2017, dt: 02/01/2019
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: 3883/LC/12 Dated 19.11.2012 and subjected to further fulfilment 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]
02/01/2019

[Signature]

ந.க.எண். 1160/கனிபயம்/2017



கோட்டாட்சியர் அலுவலகம்,
கோயம்புத்தூர்.
2.12.2018

கொருள்: கனிபயம் குவார்டன் கோயம்புத்தூர்
மாவட்டம் - குவார்டன் வட்டம் - பச்சாபாளையம்
கிராமம் - புல எண் 291/1B1A-ல் பொத்தம் 0.910
ஹெக்டேர் பரப்பளவுள்ள மட்டா பூமியில்
சாதாரணகற்கள் மற்றும் கிராவல் குவார்டர் செய்ய
திரு. D. ரமேஷ் உடையது - குவார்டர் குத்தகை
அனுமதி வழங்குவது - தொடர்பாக.

- பார்வை
1. திரு. D. ரமேஷ் தலை. G.R. துரைசாமி, 2/14(i), ஸ்ரீ ராகவேந்திரா அலின்பு, 2-வது வீதி, 3-வது பேஸ், விளாங்குறிச்சி ரோடு, கோயம்புத்தூர் என்பவரது விண்ணப்பம் நாள் 15.09.2017.
 2. இலங்கை இயக்குநர் திரு. ந.க.எண் மற்றும் நாள் 20.09.2017.
 3. வநவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு அலுவலகம் கடித ந.க.எண் 3517/2017/A2 நாள் 09.10.2017.
 4. இலங்கை இயக்குநர் மற்றும் உதவி இயக்குநர்(பொ), பூமியில் மற்றும் காங்கேடுறை கோயம்புத்தூர் தலைகளை அறிக்கை நாள் 04.09.2018.

பார்வை 1-ல் கோயம்புத்தூர் மாவட்டம், விளாங்குறிச்சி ரோடு, 3-வது பேஸ், 2-வது வீதி, ஸ்ரீ ராகவேந்திரா அலின்பு, 2/14(i) என்ற முகவரியில் வசிக்கும் திரு. G.R. துரைசாமி அவர்களின் மகன் திரு. D. ரமேஷ் என்பவர் குவார்டன் வட்டம், பச்சாபாளையம் கிராமம், புல எண் 291/1B1A-ல் பொத்தம் 0.910 ஹெக்டேர் பரப்பளவுள்ள மட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் குவார்டர் செய்ய, குத்தகை உரிமை கோர் விண்ணப்பித்துள்ளார்.

மேற்படி மனு தொடர்பாக, கோயம்புத்தூர் தெற்கு வநவாய் கோட்டாட்சியர் மற்றும் கோயம்புத்தூர், பூமியில் மற்றும் காங்கேடுறை இலங்கை இயக்குநர் மற்றும் உதவி இயக்குநர்(பொ), ஆலிப்பாள் புலத்தலைகளை, மேற்கொண்டு குவார்டன் வட்டம், பச்சாபாளையம் கிராமம், புல எண், 291/1B1A-ல் பொத்தம் 0.910 ஹெக்டேர் பரப்பளவுள்ள மட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் குவார்டர் செய்ய கீழ்க்கண்ட நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளார்கள்.



நிபந்தனைகள்

1. அருகிலுள்ள பட்டா நிலங்களுக்கான மக்களுக்கும், எவ்வித இடையூறும் மற்றும் கிராவல் குவாரி மேற்கொள்ள வேண்டாம்.
2. அருகில் உள்ள பட்டா நிலத்திற்கு 7.5 மீட்டர் மற்றும் புறம்போக்கு நிலத்திற்கு 10 மீட்டர் பாதுகாப்பு இடைவேளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
3. மேற்கேற்றக்கூடிய கிராண்ட் கற்கள் வெட்டியெடுக்க கூடாது.
4. குழந்தை தொழிலாளர்களை வேலைக்கு அமர்த்தல் கூடாது.
5. அருகிலுள்ள புறம்போக்கு நிலத்திற்கும் அனுமதி கோரும் புலத்திற்கும் இடையே கம்பிலேலி அமைத்து பாதுகாத்திட வேண்டும்.

அனுமதி கோரும் புல எண். 291/IB1A ஆனது பட்டா எண்.706-ன் படி சுமதி என்பவரின் மகன் மைனர் மகேந்திரன் என்பவர் பெயரில் தனிப்பட்டவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. மேற்படி புலத்தில் 5 ஆண்டுகளுக்கு சாதாரணகற்கள் மற்றும் கிராவல் வெட்டியெடுக்க மனுதாரர் திரு.பிரமேஷ் என்பவருக்கு மைனர் மகேந்திரன் சார்பாக அவரது கார்டியன் சுமதி என்பவர் எவ்விதமான ஆட்சேபமும் இல்லை என சம்மத கடிதம் மூலம் தெரிவித்துள்ளார். எனவே மனுதாரர் மேற்படி நிலத்தில் கல் குவாரி செய்ய தகுதியுடையவர் ஆவார்.

எனவே, கோயம்புத்தூர் தெற்கு வருவாய் கோட்டாட்சியர் மற்றும் கோயம்புத்தூர், புவியியல் மற்றும் சுரங்கத்தறை இணை இயக்குநர் மற்றும் உதவி இயக்குநர்(பொ) ஆசியோரது புலத்தணிக்கை அறிக்கையின் அடிப்படையில் சூலார் வட்டம், பச்சாள்ளையம் கிராமம், புல எண். 291/IB1A-ல் மொத்தம் 0.91.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூரியில் 5 (ஐந்து) ஆண்டுகளுக்கு சாதாரண கல் வெட்டியெடுக்கவும் மற்றும் 3 (மூன்று) ஆண்டுகளுக்கு கிராவல் வெட்டியெடுக்கவும் மேல் கண்ட நிபந்தனைகளுக்கு உட்பட்டு குவாரி குத்தகை வழங்குவதற்குரிய நிஸ்பர்பாக (Precise Area Communication) கருதப்படுகிறது.

மேலும், தமிழ்நாடு சிறுகலை சமூக விநியோகம், 1959-ன்
41 மற்றும் 42-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பான
சுரங்க திட்டத்தினை 90 நினைக்கல்களுள் சமர்ப்பிக்குமாறு
அனுமதி பெறவும் மனுதரரைய கோட்டுக் கொள்ளப்படுகிறது.



ஆர்.என்.
மாஸ்டர் ஆபீசியர்
கோயம்புத்தூர்.

பெறுதல்:
திரு. D.ரமேஷ்
ச/பெ. G.R. துறைசாரி,
2/14(i), ஸ்ரீ ராகவேந்திரா துவிண்டி,
2-வது வீதி, 3-வது பேஸ்,
விளாங்குறிச்சி ரோடு,
கோயம்புத்தூர்.

/உண்மை நகல்/உத்திரவுப்படி/

(Handwritten signature)
12/12/2018

மாஸ்டர் ஆபீசியருக்காக
கோயம்புத்தூர்.

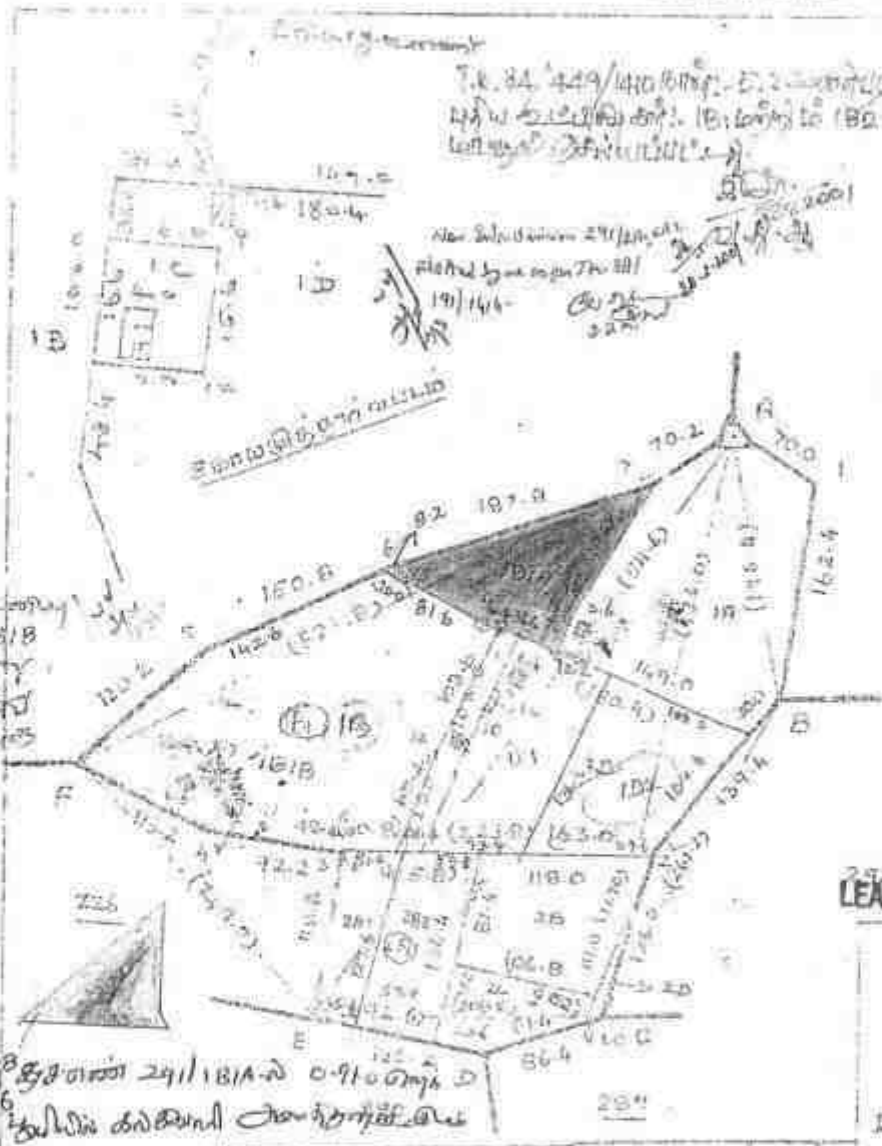
6/11/18

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சீரமைப்பு திட்டம்

பகுதி



34.4	34.4
37.2	37.2
27.2	32
28.9	154
23.2	350
245.4	60
241.0	30
231.4	30

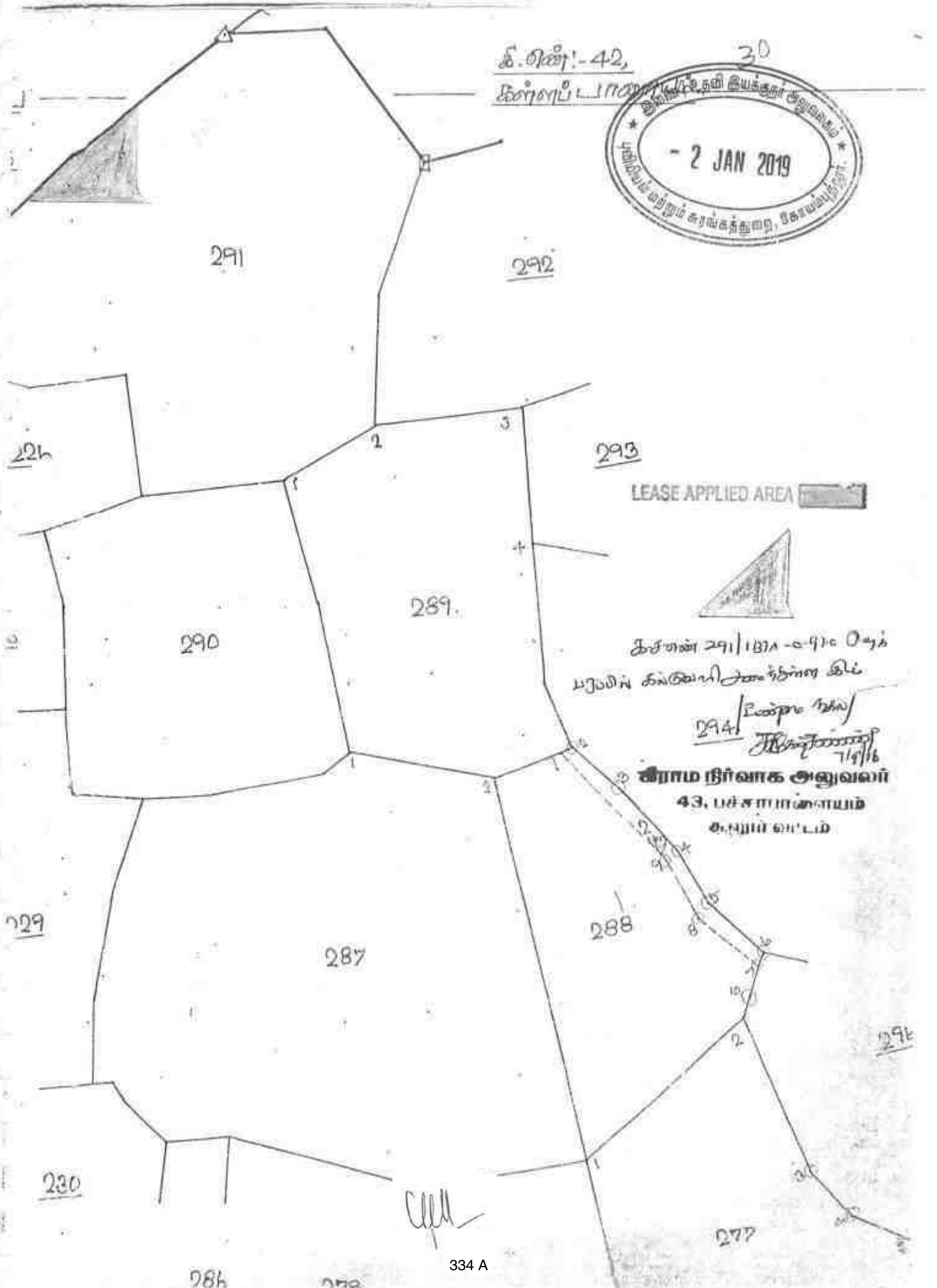
சீரமைப்பு திட்டம்
enforcement
1964



LEASE APPLIED AREA

142.0	2.0
71.2	9.5
E	(208.9)
D 19.4	84.4
	32.0 1.2
	32.0 4.4
	C
	(261.3)
	137.4 2.50
	E
	(106.6)
	34.8 43.4
	H

சீரமைப்பு திட்டம்	24.2	84.2	131	(4)	
சீரமைப்பு திட்டம்	211.2	29.2	5	30.4	116.0
சீரமைப்பு திட்டம்	156.7	7.2		74.6	286.4
சீரமைப்பு திட்டம்	731	16.2		73.2	424.4
சீரமைப்பு திட்டம்	181.4	13.4		39.4	376.4
சீரமைப்பு திட்டம்				570	4.0
சீரமைப்பு திட்டம்	131.6	50			
சீரமைப்பு திட்டம்	19.0	270			



ச.நாள்:- 42,
கோடுபட்டி 1700/1701/1702

30



LEASE APPLIED AREA

கூலாண் 291/137A-0-910 0-910
புலியர் கண்டலரி சாத்திரம் கி.பி.

294/ [Easpro 12th/]
[Handwritten signature]

சீராம நிர்வாக அலுவலர்
43, பச்சாபாளையம்
கோயம்புத்தூர்



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : துலூர்

வருவாய் கிராமம் : பச்சாபாளையம்

பட்டா எண் : 706

உரிமையாளர்கள் பெயர்

1. கா தா கமதி தாய் மைனர் மகேந்திரன்

		நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை
291	1B1A	--	--	0 - 91.00	1.82	--	--
				0 - 91.00	1.82		

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/025/00706/90563 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

2. இத் தகவல்கள் 28-08-2017 அன்று 05:01:27 PM 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	291	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	1B1A	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	291-1BP	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 91.00
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	1.82
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	706
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. ஐரூ போகமா	0	16. பெயர்	1.மைனர மகேந்திரன்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 40563 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

ANNEXURE - VII
- 2 JAN 2019



தமிழ்நாடு தமிழ்நாடு TAMIL NADU

₹. 20/-

42AB 767204

1385
1.8.17

D. Ramesh
Cbe

B. Meenakshi
STAMP VENDOR
DISTRICT REGISTRAR OFFICE CAMPUS,
(PARTY SHED)
COIMBATORE, TAMIL NADU,
R. Dis.No. 11795 / B1 / 2016

சுற்றுலா மற்றும்
மதுவிலக்கு
MAY 16
2017

சம்மதக் கடிதம்

கோயமுத்தூர் மாவட்டம், கதவு எண்: 2/14(1), 2-வது வீதி, பேஸ்-3, ஸ்ரீராகவேந்திரா அவென்பூ, விளாங்குறிச்சி ரோடு, கோயமுத்தூர் - 641035 என்ற விலாசத்தில் வசிக்கும் திரு. D. ரமேஷ் அவர்கள் மனைவி R. சுமதி ஆகிய நான் எழுதிக் கொடுக்கும் சம்மதக் கடிதம் கோயமுத்தூர் மாவட்டம், குலூர் வட்டம், பச்சாபாளையம் கிராமம் க.ச.எண். 291/1B1A என்ற பட்டா பூமியில் 0.91.0 ஹெக்டேர் பூமி எனது மகன் மைனர் (வயது 15) R. மகேந்திரனுக்கு பாத்தியப்பட்டு அவரது கார்டியனும், தாயாருமான எனது பராமரிப்பில் உள்ளது. மேற்படி பூமியை கோயமுத்தூர் மாவட்டம், கதவு எண்: 2/14(1), 2-வது வீதி, பேஸ்-3, ஸ்ரீராகவேந்திரா அவென்பூ, விளாங்குறிச்சி ரோடு, கோயமுத்தூர் - 641035 என்ற மாவட்டத்தில் வசிக்கும் திரு. G. R. துரைசாமி மகன் D. ரமேஷ் அவர்களுக்கு ஐந்து ஆண்டுகளுக்கு கல் குவாரிக்கு தேவையான கல் மற்றும் கிரேவல் எடுக்க எனக்கு எந்தவிதமான ஆட்சேபனையும் இல்லை என்பதை பட்டாதாரராகிய எனது மைனர் மகன் மகேந்திரனின் கார்டியன் என்கிற முறையில் இந்த பிரமாணத்தின் மூலம் தெரிவிக்கிறேன்.

12/9/2017
G. GOPINATH, B.L.
ADVOCATE & NOTARY PUBLIC
12, First Floor, Jawans Bhavan,
Huzur Road, Coimbatore - 641 014,
TamilNadu, India.
Cell : 98422 64420

NOTARY
G. GOPINATH, B.L.
NOTARIAL
NOTARIAL

Rm
பிரமாணதாரர்



2121010

சென்னை பல்கலைக் கழகம்

University of Madras

அறிவியல் புலம்
FACULTY OF SCIENCE

சென்னைப் பல்கலைக் கழகப் பேரவை..... 1994 ஆம் ஆண்டு.....

ஏப்ரல்..... மாதம் நடந்த..... கூடுதலியல்..... கோவிலு

..... பெ. தங்கராசு..... என்பவர்..... இவர்..... வகுப்பில்

தேர்ச்சி உபநிர்வாகி என்று தக்க தீர்மானங்கள் சான்றிதழ்படி அறிவியல் நிறைஞர் கள்ளூர் பல்கலைக் கழக அலங்காரப் பல்கலைக் கழக இலாசீலனாயி்ள் வழங்குகிறது.

The Senate of the UNIVERSITY OF MADRAS hereby makes known that..... P. Thangaraju..... has been admitted to the Degree of Master of Science, he/she 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



செயலகம், Chopaluk
சென்னை, Madras
No. 25-01-1099

[Signature]
புதிலாணி
Registrar

P.T. [Signature]
துணை வேங்க
Vice-Chancellor

GOVERNMENT OF INDIA
MINISTRY OF LABOUR AND REHABILITATION
OFFICE OF THE DIRECTOR GENERAL OF MINES SALES



Certificate of Practical experience granted by the Manager as candidate for a Manager's / Surveyor's / Foremen's / Over man's / Sirdar's / Mate's / Short term 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.

OR THENMALAI LIME STONE MINES
10/6/99
Agent (Mines)
(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

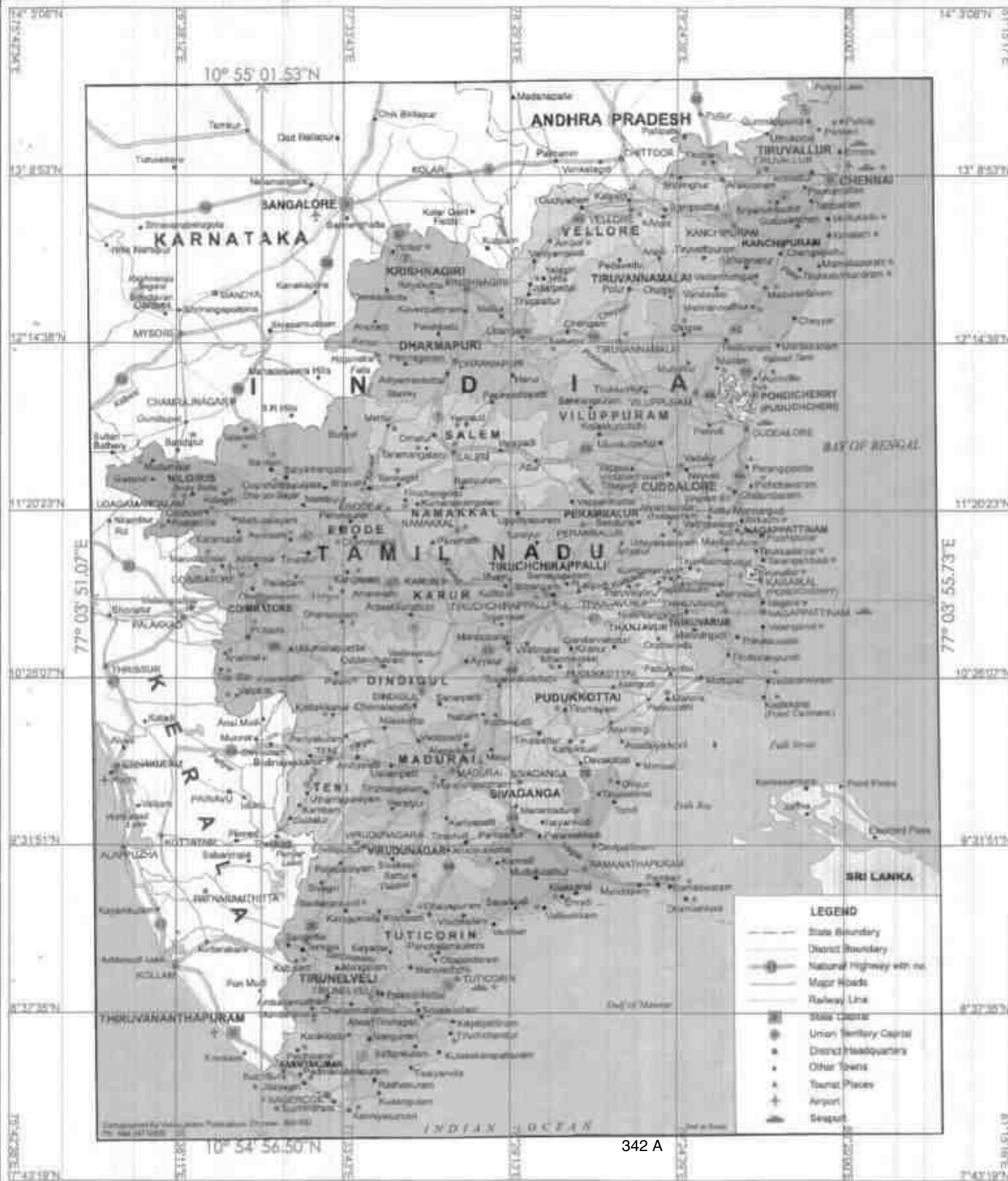


PLATE NO:1

DATE OF SURVEY : 14.12.2018

APPLICANT:

THIRU.D.RAMESH,
S/O.G.R.DURASAMY,
No.2/14(I),SRI RAGAVENDRA AVENUE,
2nd STREET,3rd PHASE,
VILANKURICHI ROAD,COIMBATORE.

**LOCATION OF QUARRY
LEASE APPLIED AREA:**

S.F.NO : 291/181A,
EXTENT : 0.91.0 Ha.
VILLAGE : PACHAPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

INDEX

Q. L.A. AREA : ●

TOPO SHEET NO. : 58 F/01

LATITUDE : 10° 54' 56.50"N to 10° 55' 01.53"N

LONGITUDE : 77° 03' 51.07"E to 77° 03' 55.73"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 LEASHP
AUTHENTICATED
BY STATE GOVERNMENT

[Signature]
T.H. GARGAL, M.Sc., Ph.D.,
QUALIFIED PERSON

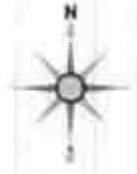
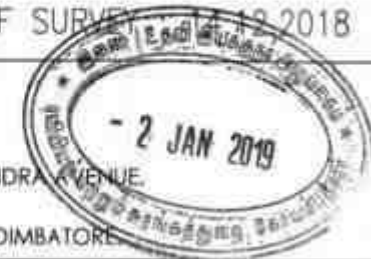


PLATE NO: I-A

DATE OF SURVEY: 12 2018



APPLICANT:

THIRU.D.RAMESH,
S/O.G.R.DURASAMY,
No.2/14(I),SRI RAGAVENDRA AVENUE,
2nd STREET,3rd PHASE,
VILANKURICHI ROAD,COIMBATORE

LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.NO : 291/1B1A,
EXTENT : 0.91.0 Ha.
VILLAGE : PACHAPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

INDEX

ROADS

- Hard surface,all weather more than two lanes wide.....
- Two lanes wide.....
- Less than two lanes wide.....
- Loose surface
- Graded,all weather.....
- Dry weather,or dirt.....
- Track;Trail.....

RAILROADS

- Normal gauge(5'.6").....
- Narrow gauge.....

BOUNDARIES

- International.....
- State.....
- Landplane airport.....
- Landing area.....
- Seaplane airport.....
- Seaplane anchorage.....
- Unclassified stream.....
- Buildings or landmark feature.....
- Mine.....
- Horizontal control point.....
- spot elevation in feet.....
- swamp;Orchard,vineyard.....
- Woods-brushwood.....

TOPO SKETCH OF QUARRY

LEASE APPLIED AREA FOR

10Km RADIUS

SCALE- 1:100000

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 LEASEMAP.
AUTHENTICATED
BY STATE GOVERNMENT

[Signature]
P.P.THENGARAJU,M.Sc,Ph.D.
QUALIFIED PERSON

152



10° 49' 31.13"N

TOPO SHEET NO. : 58 F/01

LATITUDE : 10°54'56.50"N to 10°55'01.53"N

LONGITUDE : 77°03'51.07"E to 77°03'55.73"E

10KM RADIUS :

Q.L.APPLIED AREA :

343A

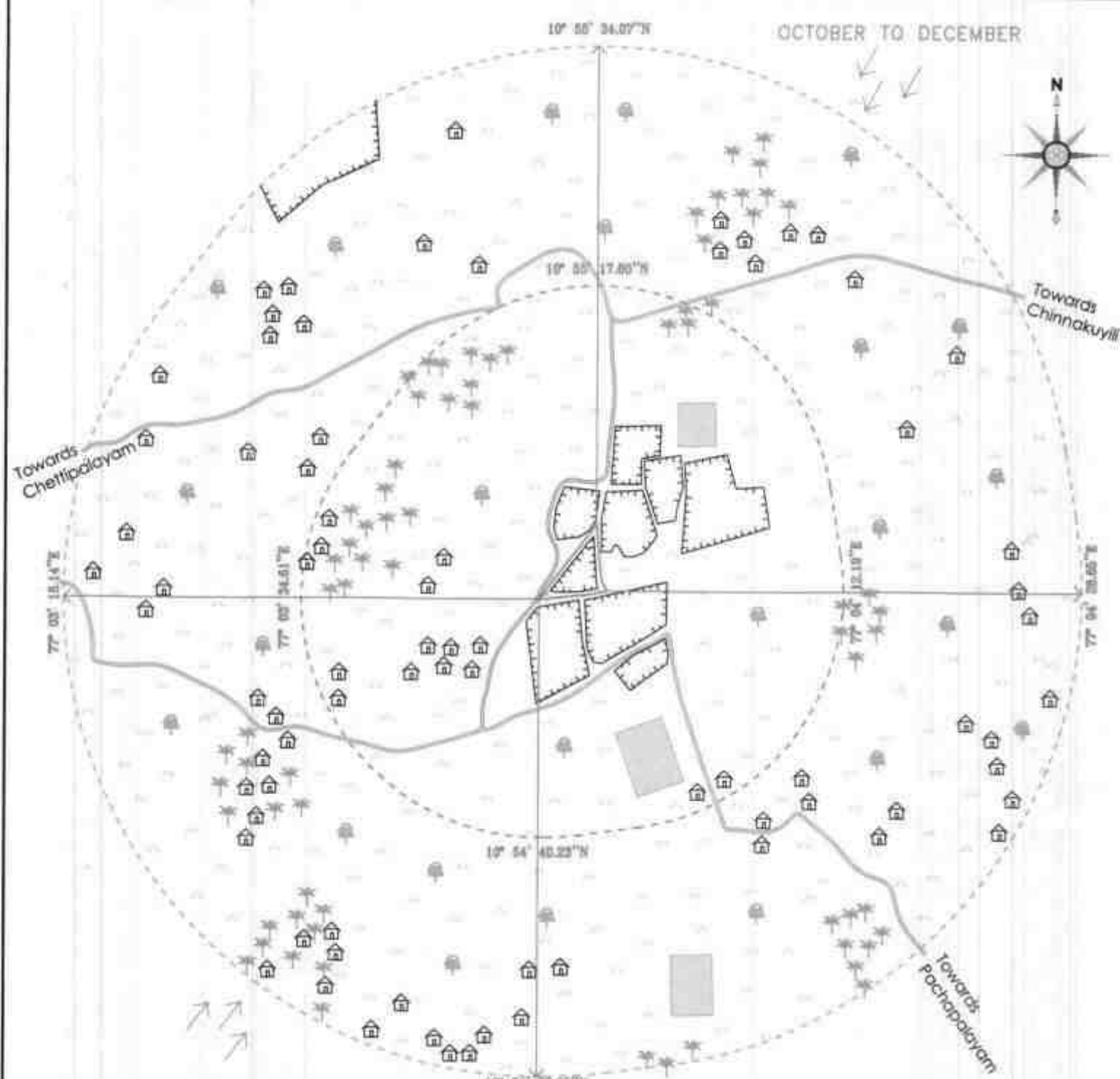


PLATE NO: I-B
 DATE OF SURVEY: 14.12.2018
 1 Km Radius
 500m
 O.L. Applied
 TOPO SHEET NO. : 58 F/01
 LATITUDE : 10° 54' 56.50\"/>

APPLICANT:
 THIRU.D.RAMESH,
 S/O.G.R.DURASAMY,
 No.2/14(I).SRI RAGAVENDRA AVENUE,
 2nd STREET,3rd PHASE,
 VILANKURICHI ROAD,COIMBATORE.

LOCATION OF QUARRY LEASE APPLIED AREA:
 S.F.NO : 291/1B1A,
 EXTENT : 0.91.0 Ha.
 VILLAGE : PACHAPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

INDEX

APPROACH ROAD	
VILLAGE ROAD	
HABITATION	
TREES	
AGRICULTURAL LAND	
PIT	
WIND DIRECTION	
CRUSHER PLANT	
EARTHEN ROAD	

TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 1KM RADIUS
 SCALE- 1:10,000

PREPARED BY:
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT
 D.P. THANGARAJU, M.Sc. Ph.D., QUALIFIED PERSON

JULY TO SEPTEMBER

LANDUSE PATTERN

DESCRIPTION	PERCENTAGE	INDEX
ROADS	(10%)	
HABITATION	(15%)	
TREES	(20%)	
AGRICULTURAL LAND	(40%)	
PIT\CRUSHER PLANT	(15%)	

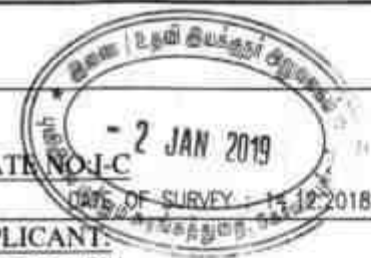


PLATE NO-J-C

DATE OF SURVEY - 15.12.2018

APPLICANT:
THIRU.D.RAMESH,
S/O.G.R.DURAIAMY,
No.2/14(I),SRI RAGAVENDRA AVENUE,
2nd STREET,3rd PHASE,
VILANKURICHI ROAD,COIMBATORE.

LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.NO : 291/1B1A,
EXTENT : 0.91.0 Ha.
VILLAGE : PACHAPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.



INDEX

Q.L.APPLIED AREA	
SH-163	
MAJOR ROAD	
VILLAGE ROAD	
APPROACH 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 LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT

[Signature]
D.R.THANGARAJAN,SC,PLD,
QUALIFIED PERSON

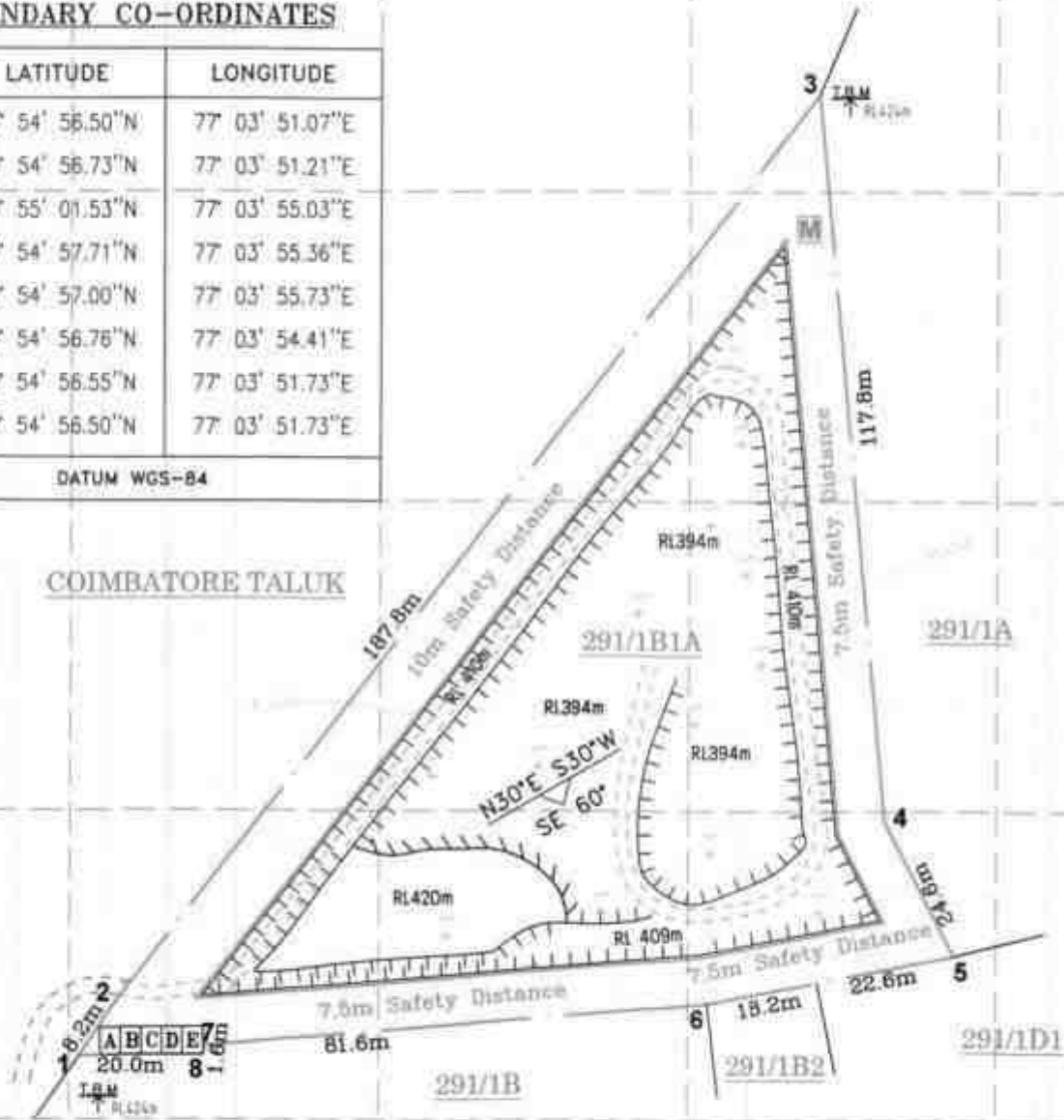
159

BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 54' 56.50"N	77° 03' 51.07"E
2	10° 54' 56.73"N	77° 03' 51.21"E
3	10° 55' 01.53"N	77° 03' 55.03"E
4	10° 54' 57.71"N	77° 03' 55.36"E
5	10° 54' 57.00"N	77° 03' 55.73"E
6	10° 54' 56.76"N	77° 03' 54.41"E
7	10° 54' 56.55"N	77° 03' 51.73"E
8	10° 54' 56.50"N	77° 03' 51.73"E

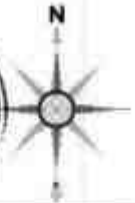
DATUM WGS-84

COIMBATORE TALUK



- SITE SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET
 - M - MAGAZINE

Present Pit Dimension (max)
=83mX76m(Avg)X30m(d)



DATE OF SURVEY : 14.12.2018

APPLICANT:
THIRU.D.RAMESH,
S/O.G.R.DURASAMY,
No.2/14(I),SRI RAGAVENDRA AVENUE,
2nd STREET,3rd PHASE,
VILANKURICHI ROAD,COIMBATORE.

LOCATION OF QUARRY LEASE APPLIED AREA:
S.F.NO : 291/1B1A,
EXTENT : 0.91.0 Ha,
VILLAGE : PACHAPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- CONTOUR
- QUARRY PIT
- QUARRY ROAD
- ROUGH STONE
- GRAVEL
- STRIKE AND DIP

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 LEASEMAP.
AUTHENTICATED
BY STATE GOVERNMENT

[Signature]
Dr. P. THANGARAJAN, M.Sc, Ph.D.,
QUALIFIED PERSON

BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 54' 58.50"N	77° 03' 51.07"E
2	10° 54' 58.73"N	77° 03' 51.23"E
3	10° 55' 01.53"N	77° 03' 55.03"E
4	10° 54' 52.71"N	77° 03' 55.36"E
5	10° 54' 52.00"N	77° 03' 55.73"E
6	10° 54' 56.76"N	77° 03' 54.41"E
7	10° 54' 56.55"N	77° 03' 51.73"E
8	10° 54' 56.50"N	77° 03' 51.73"E

DATUM WGS-84



COIMBATORE TALUK

Present Pit Dimension (max)
= 8.3m X 7.6m (Avg) X 2.9m (d)



SIT SERVICES

- A - OFFICE
- B - STORE ROOM
- C - FIRST AID ROOM
- D - WASH SHED
- E - TRAILER
- M - MANGALINE

I Yr EXCAVATION	II Yr PLANTATION
II Yr EXCAVATION	III Yr PLANTATION
III Yr EXCAVATION	IV Yr PLANTATION
IV Yr EXCAVATION	V Yr PLANTATION
V Yr EXCAVATION	

PLATE NO-III
DATE OF SURVEY : 14.12.2018

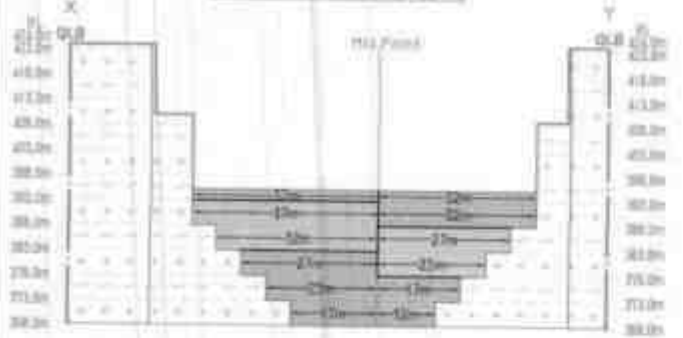
APPLICANT:
THIRU.D.RAMESH,
S/O.G.R.DURASAMY,
No.2/14(I),SRI RAGAVENDRA AVENUE,
2ND STREET,3RD PHASE,
VILANKURICHI ROAD,COIMBATORE.

LOCATION OF QUARRY
LEASE APPLIED AREA:
S.F.NO : 291/181A,
EXTENT : 0.91.0 Ha,
VILLAGE: PACHAPALAYAM,
TALUK : SULLUR,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

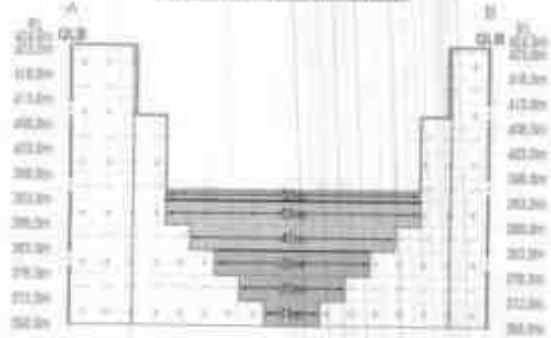
INDEX

Q.I. APPLIED AREA BOUNDARY	
7.5m & 10m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	
CONTOUR	
QUARRY PIT	
QUARRY ROAD	
ROUGH STONE	
GRAVES	
STRIKE AND DIP	

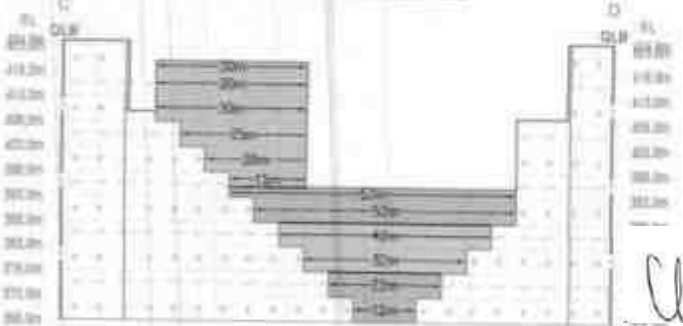
SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



PRESENT & POST LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	0.80.9	0.80.9
INFRASTRUCTURE	0.01.0	0.01.0
ROADS	0.01.0	0.02.0
III		0.17.2
AREA	0.28.1	0.09.9
TOTAL	0.91.0	0.81.0

TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS
SCALE 1 : 1000
SECTION HOR 1 : 1000, VER 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 LEASER'S AUTHENTICATED BY STATE GOVERNMENT

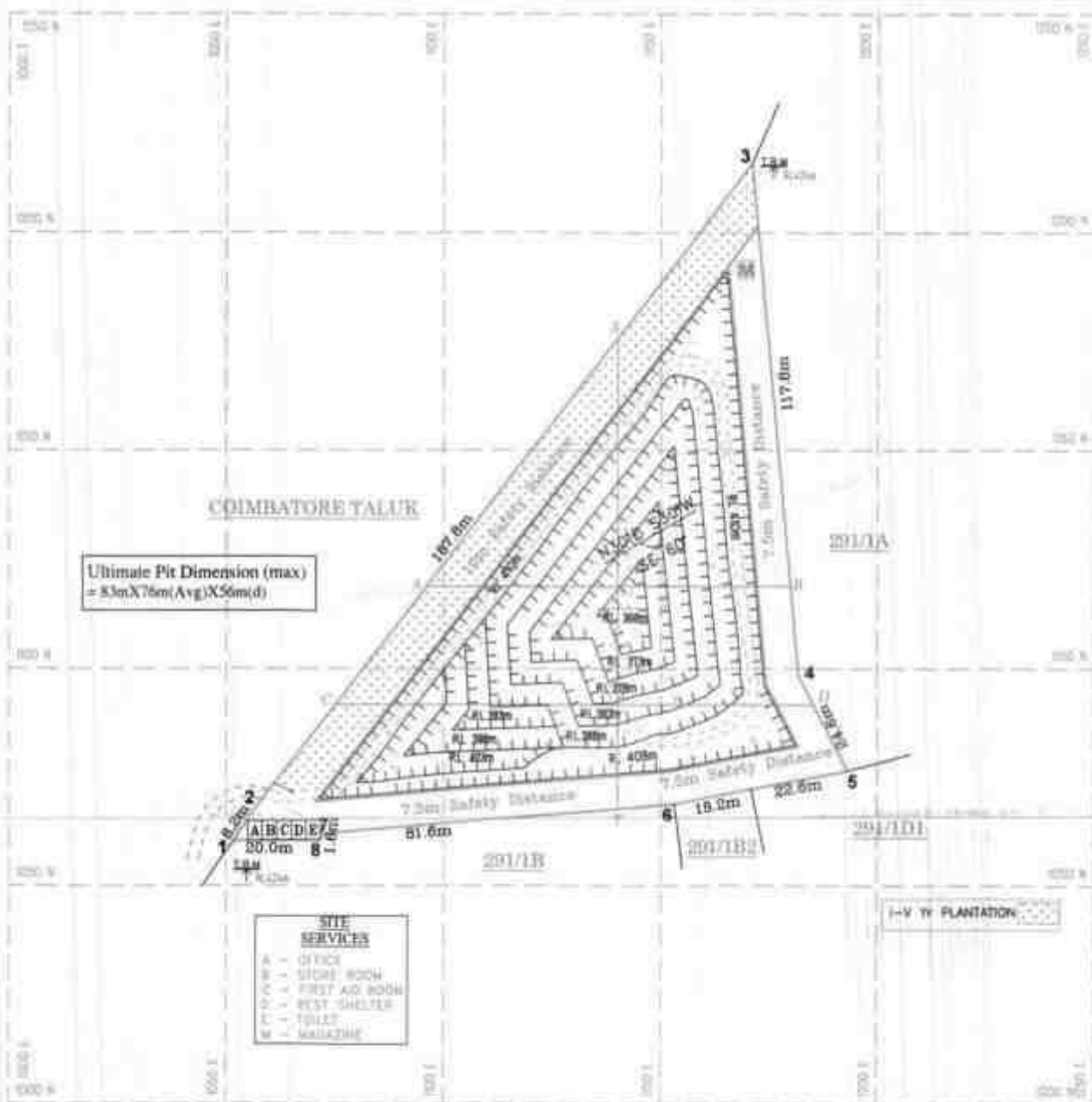
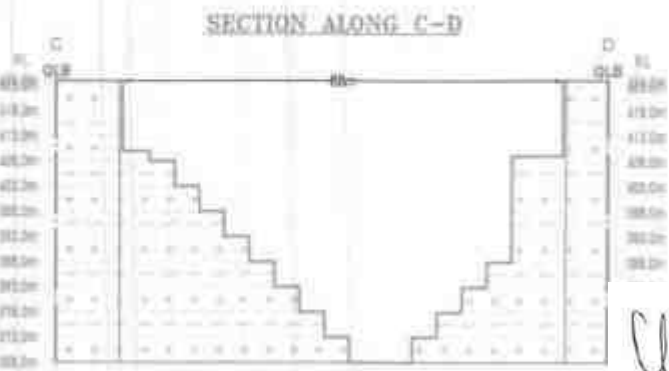
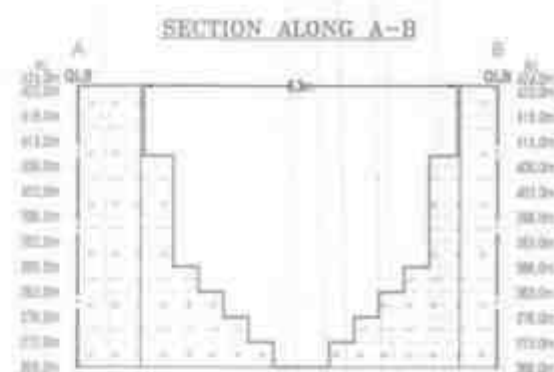
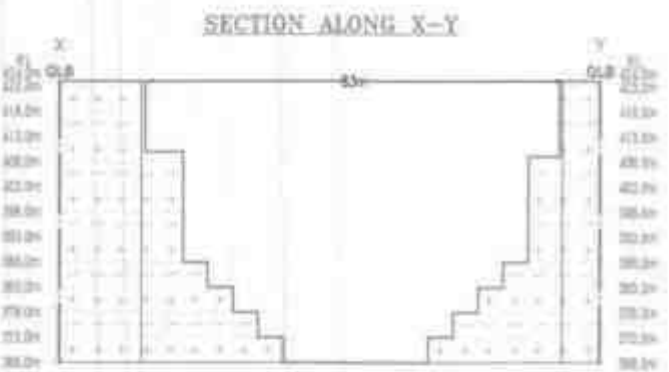


PLATE NO-IV
APPLICANT: THIRU.D.RAMESH
 S/O.G.R.DURAI RAO MY: 2 JAN 2019
 No.2/14(J) SRI RAJAVENDRA AVENUE
 2ND STREET 3RD PHASE
 VILANKURICHI ROAD, MANJURICHI

LOCATION OF QUARRY
LEASE APPLIED AREA:
 S.F.NO : 291/181A,
 EXTENT : 0.91.0 Ha,
 VILLAGE : PACHAPALAYAM,
 TALUK : SULUR,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

INDEX

Q.1. APPLIED AREA BOUNDARY	
7.5m & 10m SAFETY DISTANCE	
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APPROACH ROAD	
CONTOUR	
QUARRY PIT	
QUARRY ROAD	
ROUGH STONE	
GRAVE	
STRIKE AND DIP	



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
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1	10° 54' 56.76"N	77° 03' 54.41"E
1	10° 54' 56.55"N	77° 03' 51.73"E
1	10° 54' 56.50"N	77° 03' 51.73"E

DATUM WGS-84

CONCEPTUAL PLAN & SECTIONS
 SCALE 1 : 1000
 SECTION HOR 1 : 1000, VER 1 : 1000

PREPARED BY:
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, BELIEF AND FAITH, AUTHENTICATED BY STATE GOVERNMENT

MANJURICHI
 S/O.PHILIPARAJAN,S.C.P.H.S.
 QUARRY PERMIT

From:
Thriu.V.Sasiskumar,M.Sc.,
Assistant Director,
Dept of Geology and Mining,
Coimbatore.

To:
Tvl.Ultra Readymix Concerete Pvt.Ltd.,
No.25, Trichy Road,
Kannampalayam,
Sulur Taluk,
Coimbatore District - 641402

Rc.No.656/Mines/2023 Dated: 19.06.2023

Sir,

Sub : Mines and Minerals – Minor Mineral – Coimbatore District – Madukakrai Taluk – Oorttukuppai Village - S.F.Nos. 320 (P) and 332/2A (P) over an extent of 3.07.40 Hectares – Patta Land – Quarry lease granted for Roughstone and Gravel for a period of 5 Years from 22.12.2018 to 21.12.2023 in favour of Tvl.Ultra Readymix Concerete Pvt.Ltd., – Extension of lease provided under Rule 20(2)(a) of TNMMCR, 1959 for a further period of 5 years – Scheme of Mining submitted for approval – Approval accorded.

- Ref:**
1. Mining Plan Approval letter of the Assistant Director of Geology and Mining in RC.No.1129/Mines/2017 dated: 22.02.2018
 2. Environmental Clearance issued by DEIAA in letter No: DEIAA-CBE-IV/F.No.1129/1(a&b)/ EC.No.25/ 2018 Dated:04.10.2018.
 3. Proceeding of the District Collector, Coimbatore in Rc.No.1129/Mines/2017 Dated: 22.12.2018.
 4. Execution of Lease deed dated: 22.12.2018.
 5. G.O.(Ms).No.208 Industries (MMC.1) Department, dated: 21.09.2020.
 6. Your letter dated:16.06.2023 along with Scheme of Mining.
 7. Other Connected Records.

The District Collector, Coimbatore in the reference 3rd cited had granted a lease in favour of Tvl.Ultra Ready Mix Concrete (P) Ltd Company to quarry Rough stone and Gravel in an extent of 3.07.40 Hectares of patta lands in S.F.Nos. 320(P) and 332/2A(P) of Orattukuppai Village, Madukarai Taluk, Coimbatore District for period of 5 (Five) years on submission of Environmental Clearance issued by the DEIAA-CBE based on the approved Mining Plan. The lease deed was executed on 22.12.2018 and the period of lease is valid up to 21.12.2023.

2) The Government vide G.O. in the reference 5th cited have introduced a new Rule 20 to the Tamil Nadu Minor Mineral Concession Rules, 1959. The New Rule 20, sub rule 20(2)(a) stipulates the period of lease in respect of virgin quarry as 10 years to the maximum. The proviso clause of Rule 20(2)(a) stipulates as follows

"Provided that a lessee, who has already been granted quarrying lease for rough stone for a period of five years, may apply for extension of lease for a further period of five years in the Form prescribed in Appendix-VI along with the Approved Scheme of Mining obtained in terms of sub-rule(9) of Rule 41 to the Assistant Director of Geology and Mining at least 180 days before the expiry of the lease period;"

3) In order to apply for the extension of lease for a further period of 5 years as per Rule 20(2)(a) of TNMMCR 1959. Tvl.Ultra Readymix Concerete Pvt.Ltd., Sulur have submitted Scheme of Mining for approval in respect of the quarry lease already granted in an extent of 3.07.40 Hectares of patta lands in S.F.Nos.320(P) and 332/2A(P) of Orattukuppai Village, Madukarai Taluk, Coimbatore District to quarry Rough stone & Gravel for a period of Five years by the District Collector, Coimbatore in the reference 3rd cited

4) In the Scheme of Mining submitted for approval the followings are furnished among others:-

- a. Mining Plan in respect of the original lease was approved as per Rule 41(5) of TNMMCR, 1959 for a period of 5 years. The validity period of the Mining Plan is from 22.12.2018 to 21.12.2023.
- b. In the original Mining Plan the minable reserves of **Rough stone was estimated as 6,95,750 cbm and Gravel as 48,364 cbm.** During the Mining Plan period, that is from 22.12.2018 till date, the lessee had quarried and transported **2,58,748 Cbm** of Roughstone and **48,364 Cbm** of Gravel from the lease hold area. In view of this the **balance quantity of 4,37,002 cbm Rough stone** alone has to be considered as available for the next five years of lease. i.e in the extension lease period.
- c. Further, the Geological plan, Geomorphological and reserves details furnished in the Scheme of Mining are verified with ground realities and found to be correct. The details given in the Scheme of Mining has been verified in the field with reference to the dimension of the worked pits to ascertain the depth persistence of Roughstone and to assess the quantity already quarried and transported.

- a. The Scheme of Mining 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.
- b. The approval of the Scheme of Mining (including progressive mine closure plan) does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957, or any other law including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1986, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- c. This Scheme of Mining including progressive Mine Closure Plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- d. The dust emission at the time of quarrying and transportation shall be controlled by water spraying in the roads and quarrying pits in order to control Air Pollution in the leasehold area.
- e. Low Density explosives shall be used for quarrying Rough stone during the validity period of the Scheme of Mining in order to reduce the Noise Pollution in the leasehold area.
- f. Though the underground water would not contaminate due to quarrying as the water table in the subject area is below 50 meters. The stagnated water in the quarry pits should be drained and may be used to wet the roads and working portion of the pits in order to control Water and Air Pollutions.
- g. Progressive Mine Closure shall be carried out as and when required taking into account the depth persistence of the Rough stone occurring in the leasehold area.
- h. Afforestation shall be carried out along the boundary of the leasehold area, 7.5 meters safety distance area and other areas which are situated within the specific safety zone so that the climate of the area can be made as moderately conducive to the livelihood of the employees in the quarry site.
- i. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.

- j. Provisions made under Mines and Minerals (Development & Regulation) Act, 1957, MMDR Amendment Act, 2015 made there under shall be complied with.
- k. This approval of Scheme of Mining is restricted to the mining plan area only. The mining lease area is as shown on the statutory plan. The Assistant Director, Geology and Mining does not take any responsibility regarding correctness of the boundaries of the lease shown on the ground with reference to the lease map and other plans furnished by the lessee.
- l. If anything is found to be concealed as required by the Tamil Nadu Minor Mineral Concession Rules, 1959 and proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- m. Relaxation to be obtained under Rule 106(2) (a) and (b) of Metalliferous Mines Regulations, 1961 from the Director of Mines safety, if necessary.
- n. This Scheme of Mining is approved for the proposal contained therein and is applicable from the date of approval of the document for the quarrying activities to be carried out within the leasehold area.
- o. The earlier instances of irregular / illegal quarrying, if any, shall not be regularized through the approval of this document.
- p. The lessee shall remit the penalty / Cost of Mineral / other dues if any as arrived by the Assistant Director (G&M), Coimbatore District.
- q. The quarry labourers shall be registered with the Labour Board and shall be enrolled under the Insurance Scheme.
- r. Non adherence to any condition set-out above, the approval shall be deemed to have been withdrawn with immediate effect.

Approved Scheme of Mining is sent herewith for further necessary action.

Encl : Approved Scheme of Mining.

19/6/23
ASSISTANT DIRECTOR,
GEOLOGY AND MINING,
COIMBATORE. *19/6*

Copy to :
The State Environmental Impact Assessment Authority (SEIAA)
Pangal Building,
Saidapet,
Chennai - 600 015.

19/6/23



Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), Tamil Nadu)

To,

The ManagingPartner
ULTRA SAHARA SAND
Orattukuppai Village -641201

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/189987/2020 dated 28 Jul 2021. The particulars of the environmental clearance granted to the project are as below.

- | | |
|--|--|
| 1. EC Identification No. | EC22B001TN125185 |
| 2. File No. | 8186/2020 |
| 3. Project Type | New |
| 4. Category | B2 |
| 5. Project/Activity including Schedule No. | 1(a) Mining of minerals |
| 6. Name of Project | Ultra Sahara Sand, New Orattukuppai Rough stone and Gravel Quarry Project over an Extent of 2.37.0Ha of Patta land in S.F.Nos. 188 (P) & 190 (P) of Orattukuppai Village, Madukkarai Taluk, Coimbatore District, Tamil Nadu. |
| 7. Name of Company/Organization | ULTRA SAHARA SAND |
| 8. Location of Project | Tamil Nadu |
| 9. TOR Date | N/A |

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 26/08/2022

(e-signed)
Thiru.Deepak S.Bilgi
Member Secretary
SEIAA - (Tamil Nadu)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

This is a computer generated cover page.





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

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.8186/EC.No:5187/2020 dated:18.08.2022

Sir/Madam,

Sub: SEIAA-TN – Proposed Rough Stone and Gravel quarry over an extent of 2.37.0 Ha located at S.F. No, 188 (P) & 190 (P) Orattukuppai Village, Madukkarai Taluk, Coimbatore District by M/s. Ultra Sahara Sand – issue of Environmental Clearance – Regarding.

- Ref:**
1. Online Proposal No. SIA/TN/MIN/189987/2020, Dated: 26.12.2020
 2. Your Application for Environmental Clearance dated: 29.12.2020
 3. Minutes of the 253rd meeting of SEAC held on 25.02.2022
 4. Minutes of the 497th meeting of Authority held on 07.04.2022
 5. Project proponent reply dated: 31.04.2022
 6. Minutes of the 527th meeting of Authority held on 01.07.2022.
 7. Project proponent reply dated: 12.07.2022
 8. Minutes of the 539th meeting of Authority held on 18.08.2022

Details of Minor Mineral Activity:-

This has reference to your application first & second cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of minor minerals based on the particulars furnished in your application as shown below.

Sl. No	Details of the proposal	Data furnished
1.	Name of the Owner/Firm	M/s. Ultra-Sahara Sand No.191, Orattukuppai Village.

nah
18/08/2022
MEMBER SECRETARY
SEIAA-TN

		Chettipalaym, Coimbatore District-641 201
2.	Type of quarrying (Savudu/Rough Stone/Sand/Granite)	Rough Stone and Gravel
3.	S.F No. Of the quarry site with area break-up	188(P) & 190 (P)
4.	Village in which situated	Orattukuppai
5.	Taluk in which situated	Madukkarai
6.	District in which situated	Coimbatore
7.	Extent of quarry (in ha.)	2.37,0 ha Patta land
8.	Period of quarrying proposed	5 years
9.	Type of mining	Opencast Mechanized mining
10.	Production (Quantity in m ³)	1,94,880cu.m of Rough stone and 23,520cu.m of Gravel
11.	Depth of quarrying	37m below ground level
12.	Depth of water table	60m-65m
13.	Latitude & Longitude of all corners of the quarry site	10°55'35.79"N to 10°55'43.36"N 77°03'44.74"E to 77°03'49.80"E
14.	Topo Sheet No.	58 F/01
15.	Man Power requirement per day:	25 Nos.
16.	Precise area communication issued by the Assistant Director, Department of Geology & Mining with date	Na.Ka.No. 520/Kanimam/2020 Dated 21.11.2020
17.	Mining Plan approved by Assistant Director, Department of Geology and mining with date	Rc.No. 520/Mines/2020 Dated 08.12.2020.
18.	500m cluster letter issued by Assistant Director, Department of Geology & Mining,	Rc.No. 520/Mines/2020 Dated 10.12.2020
19.	Water requirement: Drinking & domestic purposes (in KLD) Dust suppression , Green Belt & Wet Drilling (in KLD)	3.0 KLD 0.5 KLD 1.0 KLD 1.5 KLD
20.	Power requirement	


MEMBER SECRETARY
SEIAA-TN

	Domestic Purpose Industrial Purpose	TNEB 1,59,824 ltrs of HSD for entire life of mine
21.	Whether any habitation within 300m distance	VAO letter dated 08.12.2020
22.	Project Cost	Rs.62.38 Lakh
23.	EMP cost	Capital cost - Rs.8.00 lakh Recurring cost - Rs. 10.01 lakh
24.	CER cost	Rs.5 lakh as per SEAC minutes
Validity: This Environmental Clearance is granted for the production in 1,94,880cu.m of Rough stone and 23,520cu.m of Gravel for the period of 5 Years from the date of execution of the mining lease.		

The Proponent has furnished affidavit in Hundred Rupees stamp paper dated: 09.09.2021 attested by the Notary stating that

I, We, M/s. Ultra Sahara Sand, Company at No.191, Orattukuppai Village, Chettipalayam, Coimbatore District, Tamil Nadu State – 641 201, solemnly declare and sincerely affirm that:

We have apply for getting Environment Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of Roughstone and Gravel Quarryover an extent 2.37.0ha of Patta landsin S.F.Nos.188 (P) & 190 (P)of Orattukuppai Village, Madukkarai Taluk, Coimbatore District.

1. We swear to state and confirm that within 10km area of the quarry site, we have applied for environment clearance, none of the following is situated.
 - a. Protected areas notified under the wild life (Protection) Act, 1972,
 - b. Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and Control of Pollution) Act, 1974,
 - c. Eco-Sensitive areas as notified,
 - d. Interstate boundaries within 10km radius from the boundary of the proposed site.
2. We will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

CER Activity	Project Cost (Rs. In Lakh)	CER Cost 2.0% of project cost (Rs in Lakh)
The applicant Indents to involve corporate environment responsibilities (CER) activity like	62.38	1.25


MEMBER SECRETARY
SEIAA-TN

Water Purifier and Medicine Storage rack to the Chettipalayam Dispensary and Water Purifier and Table facilities to the Government school at 2.0% from the total project cost.		
Total Cost Allocation	62.38	1.25

3. The total area of following quarries located within 500m radius from the periphery of our quarry site details as shown below:

Proposed Quarry

S.No.	Name and Address of the applicant	Village & Taluk	S.F. Nos.	Extent (in Hects)	Classification of land
1.	M/s. Ultra Sahara Sand	Orattukuppai Village, Madukkarai Taluk	188 (P) & 190 (P)	2.37.0	Subject area precise area communicated
2.	M/s. Ultra Sahara Sand	Orattukuppai Village, Madukkarai Taluk	191(P) & 198(p)	2.50.0	precise area communicated

Existing Quarry

S.No.	Name and Address of the lessee	Village	S.F. No's.	Extent (in Hects)	Remarks
1.	M/s.Ultra Readymix Concrete (P) Ltd	Orattukuppai Village,	196/1(P) 196/2(P) 196/3(P) 197/1(P) 197/2(P)	5.00.0	--

Abandoned Quarry

S.No.	Name and Address of the lessee	Village & Taluk	S.F. No's.	Extent (in Hects)	District Proc. Letter / Date	Lease Period
--- NIL ---						

- There will not be hindrance or disturbance to the people living during quarrying activities and transportation of the mineral.
- There is no approved habitation within 300m radius from the periphery of our quarry.
- We swear that afforestation will be carried out during the course of quarrying operation and maintained.
- The required insurance will be taken in the name of the laborers working in our quarry site.


MEMBER SECRETARY
SEIAA-TN

8. The approach road from the main road to quarry road will be constructed and maintained in a good condition for the haulage of Rough stone and machineries.
9. We will not engage any child labor in my quarry site and we aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in our quarry.
11. No permanent structures, temples etc., are located within 500m radius from the periphery of our quarry.

We ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of our knowledge.

Details of 500M radius Proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from the Assistant Director, Department of Geology & Mining, Coimbatore District in his Rc.No. 520/Mines/2020 Dated 10.12.2020 has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows:

Existing Quarry

S.No.	Name and Address of the lessee	Village	S.F. No's.	Extent (in Hects)	Lease period	Remarks
1.	M/s.Ultra Readymix Concrete (P) Ltd	Orattukuppai Village,	196/1(P) 196/2(P) 196/3(P) 197/1(P) 197/2(P)	5.00.0	22.01.2016 - 21.01.2021	--

Expired Quarry

S.No.	Name and Address of the lessee	Village & S.F. No's.	Extent (in Hects)	Lease Period
--- NIL ---				

Abandoned Quarry

S.No.	Name and Address of the lessee	Village & S.F. No's.	Extent (in Hects)	Lease Period
--- NIL ---				


MEMBER SECRETARY
SEIAA-TN

Proposed Quarry

S.No.	Name and Address of the applicant	Village & Taluk	S.F. Nos.	Extent (in Hects)	Classification of land
1.	M/s. Ultra Sahara Sand	Orattukuppai Village, Madukkarai Taluk	188 (P) & 190 (P)	2.37.0	Subject area precise area communicated
2.	M/s. Ultra Sahara Sand	Orattukuppai Village, Madukkarai Taluk	191(P) & 198(p)	2.50.0	precise area communicated

Future Proposed Quarry

S.No.	Name and Address of the lessee	Village & S.F. No's.	Extent (in Hects)	Lease Period
--- NIL ---				

Appraisal by SEAC:-

Proposed Rough Stone & Gravel Quarry over an extent of 2.37.0 Ha in SF.No.188 (P) & 190 (P), Orattukuppai Village, Madukkarai Taluk, Coimbatore District by M/s.Ultra Sahara Sand- For Environmental Clearance. (SIA/TN/MIN/189987/2020 Dt. 28.7.2021)

The proposal was placed in the 253rd EAC Meeting held on 11.3.2022. The project proponent gave a detailed presentation. The details of the project furnished by the proponent are given on the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, M/s.Ultra Sahara Sand has applied for Environmental Clearance for the Proposed Rough Stone & Gravel Quarry over an extent of 2.37.0 Ha in SF.No.188 (P) & 190 (P), Orattukuppai Village, Madukkarai Taluk, Coimbatore District Tamil Nadu.
2. The project/activity is covered under Category "B2" of Item 1(a) " Mining of mineral of the Schedule to the EIA Notification, 2006.
3. The production for 5 years not exceeds 194880 m³ of rough stone and 23520 m³ of Gravel with proposed depth - 37m.

Based on the presentation made by the proponent and the documents furnished, SEAC noted that as per Ministry of Environment, Forest and Climate Change Notification - S.O. 2269 (E) Dated: 1st July, 2016, the above subject proposed quarry does not fall under cluster situation as the Existing


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Quarry listed in AD mines Ir vide Rc.No.520/Mines/2020 Dated: 05.04.2021 had obtained Environmental Clearance as on 15th January 2016 – i.e. vide Environmental Clearance Order Lr.No.SEIAATN/F.No.3487/EC/1(a)/2528/2015 Dated: 18.12.2015. Therefore **Committee decided to recommend the proposal for the grant of Environmental Clearance** for production for 5 years not exceeds 194880 m3 of rough stone and 23520 m3 of Gravel with proposed depth – 37m, subject to the following specific conditions, in addition to normal conditions stipulated by MOEF &CC:

1. The proponent shall frame Environmental Protection policy and the same shall be furnished to TNPCB before obtaining CTO and copy of the same furnished to SEIAA-TN.
2. The proponent shall mandatorily appoint the required number of statutory officials and the competent persons in relevant to the proposed quarry size as per the provisions of Mines Act 1952 and Metalliferrous Mines Regulations, 1961.
3. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit before the commencement of the operation and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
4. Perennial maintenance of haulage road/village / Panchayat Road shall be done by the project proponent as required in connection with the concerned Govt. Authority.
5. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form of Short Term Permit (STP), Query license or any other name.
6. The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.



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7. The proponent shall ensure that the slope of dumps is suitably vegetated in scientific manner with the native species to maintain the slope stability, prevent erosion and surface run off. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps.
8. Perennial sprinkling arrangement shall be in place on the haulage road for fugitive dust suppression. Fugitive emission measurements should be carried out during the mining operation at regular intervals and submit the consolidated report to TNPCB once in six months.
9. The Project Proponent shall carry out slope stability study by a reputed academic/research institution such as NIRM, IIT, Anna University for evaluating the safe slope angle if the proposed dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC, Govt. of India, Chennai as well as SEIAA, Tamilnadu.
10. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site for all the machineries deployed and adequate noise level reduction measures undertaken accordingly. The report on the periodic monitoring shall be submitted to TNPCB once in 6 months.
11. Proper barriers to reduce noise level and dust pollution should be established by providing greenbelt along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
12. 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 Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
13. 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 **as given in the appendix**. 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.
14. The casualty of tree plants shall be replaced during successive year plantations.
15. **Noise and Vibration Related:** (i) The Proponent shall carry out only the Controlled Blasting operation using NONEL shock tube initiation system during daytime. Usage of other initiation systems such as detonating cord/fuse, safety fuse, ordinary detonators, cord relays, should be avoided in the blasting operation. The mitigation measures for control of ground vibrations and to arrest fly rocks should be implemented meticulously under the supervision of statutory


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competent persons possessing the I / II Class Mines Manager / Foreman / Blaster certificate issued by the DGMS under MMR 1961, appointed in the quarry. No secondary blasting of boulders shall be carried out in any occasions and only the Rock Breakers (or) other suitable non-explosive techniques shall be adopted if such secondary breakage is required. The Project Proponent shall provide required number of the security sentries for guarding the danger zone of 500 m radius from the site of blasting to ensure that no human/animal is present within this danger zone and also no person is allowed to enter into (or) stay in the danger zone during the blasting. (ii) Appropriate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs, (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone.

16. Ground water quality monitoring should be conducted once in every six months and the report should be submitted to TNPCB.
17. The operation of the quarry should not affect the agricultural activities & water bodies near the project site and a 50 m safety distance from water body should be maintained without carrying any activity. The proponent shall take appropriate measures for "Silt Management" and prepare a SOP for periodical de-siltation indicating the possible silt content and size in case of any agricultural land exists around the quarry.
18. The proponent shall provide sedimentation tank / settling tank with adequate capacity for runoff management.
19. The proponent shall ensure that the transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village Road and shall take adequate safety precautionary measures while the vehicles are passing through the schools / hospital. The Project Proponent shall ensure that the road may not be damaged due to transportation of the quarried rough stones; and transport of rough stones will be as per IRC Guidelines with respect to complying with traffic congestion and density.
20. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.
21. After mining operations are completed, the mine closure activities as indicated in the mine closure plan shall be strictly carried out by the Proponent fulfilling the necessary actions as assured in the Environmental Management Plan.


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22. The Project proponent shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition that is fit for the growth of fodder, flora, fauna etc.
23. The Project Proponent shall comply with the provisions of the Mines Act, 1952, MMR 1961 and Mines Rules 1955 for ensuring safety, health and welfare of the people working in the mines and the surrounding habitants.
24. The project proponent shall ensure that the provisions of the MMRD, 1956, the MCDR 2017 and Tamilnadu Minor Mineral Concession Rules 1959 are complied by carrying out the quarrying operations in a skillful, scientific and systematic manner keeping in view proper safety of the labour, structure and the public and public works located in that vicinity of the quarrying area and in a manner to preserve the environment and ecology of the area.
25. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be informed to the District AD/DD (Geology and Mining) District Environmental Engineer (TNPCB) and the Director of Mines Safety (DMS), Chennai Region by the proponent without fail.
26. The Project Proponent shall abide by the annual production scheduled specified in the approved mining plan and if any deviation is observed, it will render the Project Proponent liable for legal action in accordance with Environment and Mining Laws.
27. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance, as per the existing law from time to time.
28. All the conditions imposed by the Assistant/Deputy Director, Geology & Mining, concerned District in the mining plan approval letter and the Precise area communication letter issued by concerned District Collector should be strictly followed.
29. The recommendation for the issue of environmental clearance is subject 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).
30. 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 adhere EMP as committed.


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31. As accepted by the Project Proponent the revised CER cost is Rs. 5 lakhs and the amount shall be spent for tree planting, Construction of School compound wall and Terracotta painting with Environmental Awareness slogans at Panchayth Union Primary School- Orattukuppai.

Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	வில்வம்
2	<i>Adenaanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றிமணி
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>	Aathu	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>	Purnai	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, Manjalilavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவூளி
18	<i>Creteva adansonii</i>	Mavalingum	மாவிலங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சீறு உசா
21	<i>Diospyro sebenum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகளை
23	<i>Ficus amplissima</i>	Kalltchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்பூவரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயிலி
27	<i>Lannea coromandelica</i>	Odhiam	ஓதியம்
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>	Pisipattai	பிசிப்பட்டை
32	<i>Madhuca longifolia</i>	Illuppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழமரம்
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>	Vanni maram	வள்ளி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வெண்ணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	புலவு
47	<i>Puthranjiva roxburgii</i>	Karipala	கறிபாலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manipungan, Soapukai	மணிப்புங்கன் 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	தான்றி
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	வெப்பாலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காப்புளி

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 540th meeting of Authority held on 18.08.2022. After detailed discussions, the Authority noted as follows.

1. In the 253rd meeting of SEAC held on 25.02.2022, the SEAC has recommended the project proposal for grant of Environmental Clearance subject to the following conditions, in addition to standard conditions stipulated by the MoEF&CC:

- a. The proponent shall frame Environmental Protection policy and the same shall be furnished to TNPCB before obtaining CTO and copy of the same furnished to SEIAA-TN.

In view of the above, the proposal was placed before the 497th and 527th meeting of Authority held on 07.04.2022 & 01.07.2022, The Authority decided that the project proponent submit the Environmental Protection Policy (EPP) as recommended by SEAC to SEIAA. On


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receipt of the details from the project proponent, the proposal will be considered for a further course of action.s

Proponent has furnished the reply and the proposal was placed in the 540th meeting of Authority held on 18.08.2022. After detailed discussion, the Authority accepts the recommendation of SEAC and decided to grant Environmental Clearance subject to the conditions as recommended by SEAC in addition to the following condition.

1. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 accepted by the Project proponent, the revised CER cost is Rs. 5 lakh and the amount shall be spent for the activities detailed in the SEAC minutes before obtaining CTO from TNPCB.
2. The AD/DD, Dept. of Geology & Mining shall ensure operation of the proposed quarry after the submission slope stability study conducted through the reputed research & Academic Institutions such as NIRM, IITs, NITS Anna University, and any CSIR Laboratories etc.
3. The AD/DD, Dept. of Geology & Mining & Director General of Mine safety shall ensure strict compliance and implementation of bench wise recommendations/action plans as recommended in the scientific slope stability study of the reputed research & Academic Institutions as a safety precautionary measure to avoid untoward accidents during mining operation.
4. No trees in the area should be removed and all the trees numbered and protected. In case trees fall within the proposed quarry site the trees may be transplanted in the Greenbelt zone.
5. The proponent shall ensure that the activities in no way result in disturbance to forest and trees in vicinity.
6. The proponent shall ensure that the operations do not result in loss of soil biological properties and nutrients.
7. The activity should not result in CO₂ release and temperature rise and add to micro climate alternations.
8. The mining closure plan should be strictly adhered to with appropriate soil rehabilitation measures to ensure ecological stability of the area.
9. Reclamation/Restoration of the mine site should ensure that the Geotechnical, physical, chemical properties are sustainable that the soil structure composition is buildup, during the process of restoration.


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10. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife.
11. The proponent shall ensure that the activity does not disturb the biodiversity, the flora & fauna in the ecosystem.
12. The proponent shall ensure that the activity does not disturb the water bodies and natural flow of surface and ground water, nor cause any pollution, to water sources in the area.
13. The proponent shall ensure that the activities undertaken do not result in carbon emission, and temperature rise, in the area.
14. The proponent shall ensure that the mine closure plan is followed as per the mining plan and the mine restoration should be done with native species, and site restored to near original status.
15. The proponent shall ensure that Monitoring is carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads.
16. The proponent shall ensure that the area is ecologically restored to conserve the ecosystems and ensure flow of goods and services.
17. The proponent shall ensure that the activities do not disturb the agro biodiversity and agro farms.
18. The proponent shall ensure that the activity does not result in invasion by invasive alien species.
19. Actions to be taken to promote agro forestry, mixed plants to support biodiversity conservation in the mine restoration effort.
20. The proponent shall ensure that activity does not deplete the indigenous soil seed bank and disturb the mycorrhizal fungi, soil organism, soil community nor result in eutrophication of soil and water.
21. The activities should not disturb the soil properties and seed and plant growth. Soil amendments as required to be carried out, to improve soil health.
22. Bio remediation using microorganisms should be carried out to restore the soil environment to enable carbon sequestration.
23. The proponent shall ensure that all mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area.
24. The proponent shall ensure that the activities do not impact the water bodies/wells in the neighboring open wells and bore wells.


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25. The proponent shall ensure that the activities do not in any way affect the water quantity and quality in the open wells and bore wells in the vicinity or impact the water table and levels.
26. The proponent shall ensure that in the green belt development more indigenous trees species (Appendix as per the SEAC Minutes) to be planted.
27. The proponent shall ensure that the activities do not disturb the resident and migratory birds.
28. The proponent shall ensure the area is restored and rehabilitated with native trees as recommended in SEAC Minutes (in Appendix).
29. The proponent shall ensure that the mine restoration is done using mycorrhizal VAM, vermin-composting, Biofertilizers to ensure soil health and biodiversity conservation.
30. The proponent shall ensure that the topsoil is protected and used in planting activities in the area.
31. The proponent shall ensure that the activities do not disturb the river flow, nor affect the Odai, Water bodies, Dams in the vicinity.
32. The proponent shall ensure that the activities do not disturb the vegetation and wildlife in the adjoin reserve forests and areas around.
33. The proponent should ensure that there is no disturbance to the agriculture plantations, social forestry plantations, waste lands, forests, sanctuary or national parks. There should be no impact on the land, water, soil and biological environment and other natural resources due to the mining activities.
34. The proponent shall ensure that topsoil to be utilized for site restoration and Green belt alone within the proposed area.
35. The proponent shall ensure that the activities do not impact green lands/grazing fields of all types surrounding the mine lease area which are food source for the grazing cattle.

Part-A: Conditions to be Complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - I. The project has been accorded Environmental Clearance.
 - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - III. Environmental Clearance may also be seen on the website of the SEIAA.


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IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.


2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. **A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.**
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying should be as per approved mining plan.
15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.


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16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
19. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
20. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
21. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
22. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
 - v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
23. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
24. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.


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25. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
26. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
27. The following measures are to be adopted to control erosion of dumps:-
 - i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
28. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous & other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
29. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
30. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
31. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
32. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
33. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.


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34. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
35. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
36. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
37. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
39. Bunds to be provided at the boundary of the project site.
40. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
41. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
42. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
43. The Project Proponent shall provide solar lighting system to the nearby villages.
44. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
45. Safety equipments to be provided to all the employees.
46. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
47. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
48. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.


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49. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
50. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
51. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
52. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
53. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
54. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
55. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
56. All the commitment made by the project proponent in the proposal shall be strictly followed.
57. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
58. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, 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), 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).

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.


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2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.


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13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules,


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2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.


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Copy to:

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

Signature Not Verified

Digitally signed by Thiru. Deepak S. Bilgi
Member Secretary
Date: 8/26/2022 12:00:13 PM



Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), Tamil Nadu)

To,

The ManagingPartner
ULTRA SAHARA SAND
Orattukuppai Village -641201

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/189800/2020 dated 28 Jul 2021. The particulars of the environmental clearance granted to the project are as below.

- | | |
|--|--|
| 1. EC Identification No. | EC22B001TN181056 |
| 2. File No. | 8189/2020 |
| 3. Project Type | New |
| 4. Category | B2 |
| 5. Project/Activity including Schedule No. | 1(a) Mining of minerals |
| 6. Name of Project | M/s. Ultra Sahara Sand, New Orattukuppai Rough stone and Gravel Quarry Project over an Extent of 2.50.0Ha of Patta land in S.F.Nos. 191 (P) & 198 (P)of Orattukuppai Village, Madukkarai Taluk, Coimbatore District, Tamil Nadu. |
| 7. Name of Company/Organization | ULTRA SAHARA SAND |
| 8. Location of Project | Tamil Nadu |
| 9. TOR Date | N/A |

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 21/09/2022

(e-signed)
Thiru.Deepak S.Bilgi
Member Secretary
SEIAA - (Tamil Nadu)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

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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

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.8189/EC.No: 5200/2022 dated:18.08.2022

Sir/Madam,

Sub: SEIAA-TN – Proposed Rough Stone and Gravel quarry over an extent of 2.50.0 Ha located at S.F. No, 191(P) & 198(P) Orattukuppai Village, Madukkarai Taluk, Coimbatore District by M/s. Ultra Sahara Sand – issue of Environmental Clearance – Regarding.

- Ref:**
1. Online Proposal No. SIA/TN/MIN/189800/2020, Dated: 26.12.2020
 2. Your Application for Environmental Clearance dated: 29.12.2020
 3. Minutes of the 253rd meeting of SEAC held on 25.02.2022
 4. Minutes of the 497th Authority meeting held on 07.04.2022
 5. Project proponent reply dated: 31.04.2022
 6. Minutes of the 527th Authority meeting held on 01.07.2022.
 7. Project proponent reply dated: 12.07.2022.
 8. Minutes of the 540th Authority meeting held on 18.08.2022.

Details of Minor Mineral Activity:-

This has reference to your application first & second cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of minor minerals based on the particulars furnished in your application as shown below.


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Sl. No	Details of the proposal	Data furnished
1.	Name of the Owner/Firm	M/s. Ultra-Sahara Sand No.191, Orattukuppai Village, Chettipalaym, Coimbatore District-641 201
2.	Type of quarrying (Savudu/Rough Stone/Sand/Granite)	Rough Stone and Gravel
3.	S.F No. Of the quarry site with area break-up	191(P) & 198 (P)
4.	Village in which situated	Orattukuppai
5.	Taluk in which situated	Madukkarai
6.	District in which situated	Coimbatore
7.	Extent of quarry (in ha.)	2.50.0 ha Patta land
8.	Period of quarrying proposed	5 years
9.	Type of mining	Opencast Mechanized mining
10.	Production (Quantity in m ³)	3,38,300 cu.m of Rough stone and 37,208cu.m of Gravel
11.	Depth of quarrying	37m below ground level
12.	Depth of water table	60m-65m
13.	Latitude & Longitude of all corners of the quarry site	10°55'26.28"N to 10°55'34.55"N 77°03'37.26"E to 77°03'46.48"E
14.	Topo Sheet No.	58 F/01
15.	Man Power requirement per day:	43 Nos.
16.	Precise area communication issued by the Assistant Director, Department of Geology & Mining with date	Na.Ka.No. 521/Kanimam/2020 Dated 18.11.2020
17.	Mining Plan approved by Assistant Director, Department of Geology and mining with date	Rc.No. 521/Mines/2020 Dated 08.12.2020
18.	500m cluster letter issued by Assistant Director, Department of Geology & Mining,	Rc.No. 521/Mines/2020 Dated 10.12.2020


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19.	Water requirement: Drinking & domestic purposes (in KLD) Dust suppression , Green Belt & Wet Drilling (in KLD)	3.5 KLD 1.0 KLD 1.5 KLD 1.0 KLD
20.	Power requirement Domestic Purpose Industrial Purpose	TNEB 2,94,104 ltrs of HSD for entire life of mine
21.	Whether any habitation within 300m distance	VAO letter dated 06.08.2021
22.	Project Cost	Rs.109.99 Lakh
23.	EMP cost	Rs. 3.80 Lakh
24.	CER cost	Rs.7.5 lakh as per SEAC minutes
Validity:		
This Environmental Clearance is granted for the production in 3,38,300cu.m of Rough stone and 37,208cu.m of Gravel for the period of 5 Years from the date of execution of the mining lease.		

The Proponent has furnished affidavit in Hundred Rupees stamp paper attested by the Notary stating that

We, **M/s. Ultra Sahara Sand, Company at No.191, Orattukuppai Village, Chettipalayam, Coimbatore District, Tamil Nadu State - 641 201**, solemnly declare and sincerely affirm that:

We have apply for getting Environment Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of **Roughstone and Gravel Quarry** over an extent **2.50.0ha** of **Patta lands** in **S.F.Nos.191 (P) & 198 (P)** of **Orattukuppai Village, Madukkarai Taluk, Coimbatore District.**

We swear to state and confirm that within 10km area of the quarry site, we have applied for environment clearance, none of the following is situated.

- Protected areas notified under the wild life (Protection) Act, 1972,
- Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and Control of Pollution) Act, 1974,
- Eco-Sensitive areas as notified,


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- d. Interstate boundaries within 10km radius from the boundary of the proposed site.
2. We will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities. The project proponent the revised CER cost is Rs.7.5 lakhs and amount shall be spent in school in consultation with concerned at Panchayat Union Primary School – Orattukuppai.

Sl. No.	Description	CER Cost INR
1	Construction of New Girls & Boys toilet with 24/7 water facility.	5,00,000/-
2	Tree plantation (see appendix) in school in consultation with concerned at Panchayth Union Primary School – Orattukuppai.	2,50,000/-
TOTAL		Rs. 7,50,000/-

3. The total area of following quarries located within 500m radius from the periphery of our quarry site details as shown below:

Proposed Quarry

S.No.	Name and Address of the applicant	Village & Taluk	S.F. Nos.	Extent (in Hects)	Classification of land
1.	M/s. Ultra Sahara Sand	Orattukuppai Village, Madukkarai Taluk	191(P) & 198(p)	2.50.0	precise area communicated
2.	M/s. Ultra Sahara Sand	Orattukuppai Village, Madukkarai Taluk	188 (P) & 190 (P)	2.37.0	Subject area precise area communicated

Existing Quarry

S.No.	Name and Address of the lessee	Village	S.F. No's.	Extent (in Hects)	Remarks
1.	M/s.Ultra Readymix Concrete (P) Ltd	Orattukuppai Village,	196/1(P) 196/2(P) 196/3(P) 197/1(P) 197/2(P)	5.00.0	--

Abandoned Quarry


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S.No.	Name and Address of the lessee	Village & Taluk	S.F. No's.	Extent (in Hects)	District Proc. Letter / Date	Lease Period
--- NIL ---						

4. There will not be hindrance or disturbance to the people living during quarrying activities and transportation of the mineral.
5. There is no approved habitation within 300m radius from the periphery of our quarry.
6. We swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the laborers working in our quarry site.
8. The approach road from the main road to quarry road will be constructed and maintained in a good condition for the haulage of Rough stone and machineries.
9. We will not engage any child labor in my quarry site and we aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in our quarry.
11. No permanent structures, temples etc., are located within 500m radius from the periphery of our quarry.

We ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of our knowledge.

Details of 500M radius Proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from the Assistant Director, Department of Geology & Mining, Coimbatore District in his Re.No. 520/Mines/2020 Dated 10.12.2020 has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows:

Existing Quarry

S.No.	Name and Address of the lessee	Village	S.F. No's.	Extent (in Hects)	Remarks
1.	M/s.Ultra Readymix Concrete (P) Ltd	Orattukuppai Village,	196/1(P) 196/2(P) 196/3(P) 197/1(P) 197/2(P)	5.00.0	--


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Expired and Abandoned Quarry

S.No.	Name and Address of the lessee	Village & Taluk	S.F. No's.	Extent (in Hects)	District Proc. Letter / Date	Lease Period
--- NIL ---						

Proposed Quarry

S.No.	Name and Address of the applicant	Village & Taluk	S.F. Nos.	Extent (in Hects)	Classification of land
1.	M/s. Ultra Sahara Sand	Orattukuppai Village, Madukkarai Taluk	191(P) & 198(p)	2.50.0	precise area communicated
2.	M/s. Ultra Sahara Sand	Orattukuppai Village, Madukkarai Taluk	188 (P) & 190 (P)	2.37.0	Subject area precise area communicated

Future Proposed Quarry

S.No.	Name and Address of the lessee	Village & Taluk	S.F. No's.	Extent (in Hects)	District Proc. Letter / Date	Lease Period
--- NIL ---						

Appraisal by SEAC:-

Proposed Rough Stone & Gravel Quarry over an extent of 2.50.0 Ha in SF.No. 191 (P) & 198 (P), Orattukuppai Village, Madukkarai Taluk, Coimbatore District by M/s.Ultra Sahara Sand-
For Environmental Clearance .

(SIA/TN/MIN/189800/2020 Dt.28.7.2021)

The proposal was placed in the 253rd EAC Meeting held on 11.3.2022. The project proponent gave a detailed presentation. The details of the project furnished by the proponent are given on the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, M/s.Ultra Sahara Sand has applied for Environmental Clearance for the Proposed Rough Stone & Gravel Quarry over an extent of 2.50.0 Ha in SF.No. 191 (P) & 198 (P), Orattukuppai Village, Madukkarai Taluk, Coimbatore District Tamil Nadu.
2. The project/activity is covered under Category "B2" of Item 1(a) " Mining of mineral of


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the Schedule to the EIA Notification, 2006.

3. The production for 5 years not exceeds 359870 m³ of rough stone and 37208 m³ of Gravel with proposed depth – 47m.

Based on the presentation made by the proponent and the documents furnished, SEAC noted that as per Ministry of Environment, Forest and Climate Change Notification – S.O. 2269 (E) Dated: 1st July, 2016, the above subject proposed quarry does not fall under cluster situation as the Existing Quarry listed in AD mines Ir vide Rc.No.521/Mines/2020 Dated: 10.12.2020 had obtained Environmental Clearance as on 15th January 2016 – i.e. vide Environmental Clearance Order Lr.No.SEIAATN/F.No.3487/EC/1(a)/2528/2015 Dated: 18.12.2015. Therefore Committee decided to **recommend the proposal for the grant of Environmental Clearance** for production for 5 years not exceeds 359870 m³ of rough stone and 37208 m³ of Gravel with proposed depth – 47m, subject to the following specific conditions, in addition to normal conditions stipulated by MOEF &CC:

1. The proponent shall frame Environmental Protection policy and the same shall be furnished to TNPCB before obtaining CTO and copy of the same furnished to SEIAA-TN.
2. The proponent shall mandatorily appoint the required number of statutory officials and the competent persons in relevant to the proposed quarry size as per the provisions of Mines Act 1952 and Metalliferous Mines Regulations, 1961.
3. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit before the commencement of the operation and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
4. Perennial maintenance of haulage road/village / Panchayat Road shall be done by the project proponent as required in connection with the concerned Govt. Authority.
5. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant


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of EC or granted by State Govt. in the form of Short Term Permit (STP), Query license or any other name.

6. The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.
7. The proponent shall ensure that the slope of dumps is suitably vegetated in scientific manner with the native species to maintain the slope stability, prevent erosion and surface run off. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps.
8. Perennial sprinkling arrangement shall be in place on the haulage road for fugitive dust suppression. Fugitive emission measurements should be carried out during the mining operation at regular intervals and submit the consolidated report to TNPCB once in six months.
9. The Project Proponent shall carry out slope stability study by a reputed academic/research institution such as NIRM, IIT, Anna University for evaluating the safe slope angle if the proposed dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC, Govt. of India, Chennai as well as SEIAA, Tamilnadu.
10. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site for all the machineries deployed and adequate noise level reduction measures undertaken accordingly. The report on the periodic monitoring shall be submitted to TNPCB once in 6 months.
11. Proper barriers to reduce noise level and dust pollution should be established by providing greenbelt along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
12. 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 Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
13. 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 **as given in the appendix**.


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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.

14. The casualty of tree plants shall be replaced during successive year plantations.
15. **Noise and Vibration Related:** (i) The Proponent shall carry out only the Controlled Blasting operation using NONEL shock tube initiation system during daytime. Usage of other initiation systems such as detonating cord/fuse, safety fuse, ordinary detonators, cord relays, should be avoided in the blasting operation. The mitigation measures for control of ground vibrations and to arrest fly rocks should be implemented meticulously under the supervision of statutory competent persons possessing the I / II Class Mines Manager / Foreman / Blaster certificate issued by the DGMS under MMR 1961, appointed in the quarry. No secondary blasting of boulders shall be carried out in any occasions and only the Rock Breakers (or) other suitable non-explosive techniques shall be adopted if such secondary breakage is required. The Project Proponent shall provide required number of the security sentries for guarding the danger zone of 500 m radius from the site of blasting to ensure that no human/animal is present within this danger zone and also no person is allowed to enter into (or) stay in the danger zone during the blasting. (ii) Appropriate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs, (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone.
16. Ground water quality monitoring should be conducted once in every six months and the report should be submitted to TNPCB.
17. The operation of the quarry should not affect the agricultural activities & water bodies near the project site and a 50 m safety distance from water body should be maintained without carrying any activity. The proponent shall take appropriate measures for "Silt Management" and prepare a SOP for periodical de-siltation indicating the possible silt content and size in case of any agricultural land exists around the quarry.
18. The proponent shall provide sedimentation tank / settling tank with adequate capacity for runoff management.
19. The proponent shall ensure that the transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village Road and shall take adequate safety precautionary measures while the vehicles are passing through the schools / hospital. The Project Proponent shall ensure that the road may not be damaged due to transportation of the quarried


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rough stones; and transport of rough stones will be as per IRC Guidelines with respect to complying with traffic congestion and density.

20. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.
21. After mining operations are completed, the mine closure activities as indicated in the mine closure plan shall be strictly carried out by the Proponent fulfilling the necessary actions as assured in the Environmental Management Plan.
22. The Project proponent shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition that is fit for the growth of fodder, flora, fauna etc.
23. The Project Proponent shall comply with the provisions of the Mines Act, 1952, MMR 1961 and Mines Rules 1955 for ensuring safety, health and welfare of the people working in the mines and the surrounding habitants.
24. The project proponent shall ensure that the provisions of the MMRD, 1956, the MCDR 2017 and Tamilnadu Minor Mineral Concession Rules 1959 are complied by carrying out the quarrying operations in a skillful, scientific and systematic manner keeping in view proper safety of the labour, structure and the public and public works located in that vicinity of the quarrying area and in a manner to preserve the environment and ecology of the area.
25. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be informed to the District AD/DD (Geology and Mining) District Environmental Engineer (TNPCB) and the Director of Mines Safety (DMS), Chennai Region by the proponent without fail.
26. The Project Proponent shall abide by the annual production scheduled specified in the approved mining plan and if any deviation is observed, it will render the Project Proponent liable for legal action in accordance with Environment and Mining Laws.
27. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance, as per the existing law from time to time.
28. All the conditions imposed by the Assistant/Deputy Director, Geology & Mining, concerned District in the mining plan approval letter and the Precise area communication letter issued by concerned District Collector should be strictly followed.


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29. The recommendation for the issue of environmental clearance is subject 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).
30. 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 adhere EMP as committed.
31. As accepted by the Project Proponent the revised CER cost is Rs. 7.5 lakhs and the amount shall be spent for activities of (1) construction of new Girls & boys toilet with 24/7 water facility and (2) tree plantation (see Appendix) in school in consultation with concerned at Panchayth Union Primary School- Orattukuppai before obtaining CTO from TNPCB

Appendix - I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	வில்வம்
2	<i>Adenaanthera pavonina</i>	Manjaci	மஞ்சாடி, ஆனைக்குன்றிமணி
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>	Aathu	ஆத்தி
7	<i>Bauhinia tomentos</i>	Iruvathi	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuna	காட்டுமர
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	புனை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon swietenia</i>	Purasamaram	புரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கொங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவூளி
18	<i>Creteva adansonii</i>	Mavalingum	மாவிளங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உவா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சிறு உவா
21	<i>Diospyro sebenum</i>	Karungali	கருங்காலை
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kalitchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்பூவரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயிலி மரம், ஆயிலி
27	<i>Lannea coromandelica</i>	Odhiam	ஓதியம்
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	வில்லா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	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>	Nura	நுரை
37	<i>Morinda citrifolia</i>	Vellai Nura	வெள்ளை நுரை
38	<i>Phoenix sylvestre</i>	Eachai	ஈச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	பங்கம்


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40	<i>Premna mollissima</i>	Murnai	முன்னை
41	<i>Premna serratifolia</i>	Narumunnai	நறு முன்னை
42	<i>Premna tomentosa</i>	Malaipoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Vanri maram	வள்ளி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வெண்ணாங்கு
46	<i>Pterospermum xylocarpium</i>	Polavu	பூலவு
47	<i>Puthranjiva roxburghii</i>	Karipala	கறிபாலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Maripungan, Soapukai	மணிபுரங்கள் 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	தான்றி
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	வால்சுரா
60	<i>Wrightia tinctoria</i>	Veppalai	வெப்பாலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காய்ப்புளி

Appendix-II
Display Board
(Size 6' x5' with Blue Background and White Letters)

-----கரங்கம்

கரங்கங்களில் சூவாரி செயல்பாடுகளுக்கான கற்றுத்தழல் அணுகுறி கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு வழங்கப்பட்டுள்ளது. தேதி: 08.08.2022. கற்றுத்தழல் அணுகுறி: தேதி வரை செல்லத்தக்கதாக உள்ளது.

பகமை பகுதி வளர்ச்சி	சூவாரியின் எல்லைவரை கற்றி வேலி அமைக்க வேண்டும்.
மேம்பாட்டுக்கான கரங்கத் திட்டம்	கரங்கப்பண்புகளில் ஆழம் தளர்த்தி திறந்திட்டு மீட்டிக்க மிகாமல் இருக்க வேண்டும். காற்றில் மாசு ஏற்படாதவாறு கரங்க பணிகளை மேற்கொள்ள வேண்டும்.
நடப்பட்டுள்ள பராமரிக்கப்பட வேண்டிய கரங்க வளர்ச்சி	வாகனங்கள் செல்லும் பாதையில் மாசு ஏற்படாத அளவிற்கு தண்ணீரை முறையாக தண்ணீர் வாரிகளின் மூலமாக அகலப்படுத்து தேவிக் வேண்டும். இளரச்சல் அளவையும் தூசி மாசுபட்டையும் குறைப்பதற்காக சூவாரியின் எல்லைவரை கற்றி அடத்தியான பகமை பகுதியை ஏற்படுத்த வேண்டும்.
கரங்கத்தில் வெடி வைக்கும்பொழுது நடவடிக்கைகளை உள்விடாக செயல்படுத்தப்பட வேண்டும்.	இலஅதிரிவுகள் ஏற்படாதவாறும் மற்றும் கற்கள் பறக்காதவாறும் பாதுகாப்பு நடவடிக்கைகளை உள்விடாக செயல்படுத்தப்பட வேண்டும்.
கரங்கத்தில் இருந்து ஏற்படும் இளரச்சல் அளவு 85 டி.சிபிஎஸ் (85A) அளவிற்கு மேல் ஏற்படாதவாறு தகுந்த கட்டுப்பாடுகளை மேற்கொள்ள வேண்டும்.	
கரங்க சட்ட விதிகள் 1998 கீழ் கரங்கத்தில் உள்ள பணியாளர்களுக்கு தகுந்த பாதுகாப்பு கருவிகள் வழங்குவதோடு காகதாரமுள்ள கழிப்பறை வசதிகளை செய்ய தர வேண்டும்.	
கிராமம் அல்லது பஞ்சாயத்து வட்டியாக வாகனங்கள் செல்லும் சாலைவரை தொடர்ந்து நன்றி பராமரிக்க வேண்டும்.	
கரங்கப்பணிகளால் அருகில் உள்ள விவசாயப் பணிகள் மற்றும் நீரிணைகள் பாதிக்கப்படக் கூடாது.	
நீரிணைகள் பாதிக்கப்படாமல் இருப்பதை உறுதி செய்யும் வகையில் நிலத்தடி நீர் தரத்தினை தொடர்ந்து கண்காணிக்க வேண்டும்.	
கரங்கத்திலிருந்து களம் பொருட்களை எடுத்துச் செல்வது கிராம மக்களுக்கு எந்தத் சிரமத்தினையும் ஏற்படுத்தாதவாறு பாதுகாப்போடும் மற்றும் கற்றுத்தழல் பாதிக்கவாத வண்ணம் வாகனங்களை இயக்க வேண்டும்.	
கரங்கப்பணிகள் முடிக்கப்பட்டவுடன் கரங்க மூடல் திட்டத்தில் உள்ளவாறு கரங்கத்தினை மூட வேண்டும்.	
கரங்க நடவடிக்கைகளை முடித்தபின்னர் கரங்கப் பகுதி மற்றும் கரங்க நடவடிக்கைகளால் இடைபுற ஏற்படக்கூடிய வேறு எந்தப் பகுதியையும் மறுகட்டுமானம் செய்ய தரவரங்கம் விலங்குகள் ஆகியவற்றின் வளர்ச்சிக்கு ஏற்ற வகையில் பகமைப்பகுதியை உருவாக்க வேண்டும்.	
(முழுமையான நிபந்தனைகளை அறிய பாறியேஷ் (http://parish.nic.in) என்கிற இணையதளத்தைப் பார்க்கவும். மேலும் எந்தவித கற்றுத்தழல் சார்ந்த புகார்களுக்கு சென்னைவில் உள்ள கற்றுத்தழல் மற்றும் வள அமைச்சகத்தின் ஒருங்கிணைந்த வட்டார அலுவலகம்: 044 - 2822325 (அல்லது) துரிதப்பாடு மாசு கட்டுப்பாடு வாரியத்தின் மாவட்ட கற்றுத்தழல் செயலாளரை அணுகவும்.	


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Discussion by SEIAA and the Remarks:-

The proposal was placed in the 540th meeting of Authority held on 18.08.2022. After detailed discussions, the Authority noted as follows.

1. In the 253rd meeting of SEAC held on 11.03.2022, the SEAC has recommended the project proposal for grant of Environmental Clearance subject to the following conditions, in addition to standard conditions stipulated by the MoEF&CC:
 - a. The proponent shall frame Environmental Protection policy and the same shall be furnished to TNPCB before obtaining CTO and copy of the same furnished to SEIAA-TN.

In view of the above, the proposal was placed before the 497th and 527th meeting of Authority held on 07.04.2022 & 01.07.2022, The Authority decided that the project proponent submit the Environmental Protection Policy (EPP) as recommended by SEAC to SEIAA. On receipt of the details from the project proponent, the proposal will be considered for a further course of actions.

Proponent has furnished the reply and the proposal was placed in the 540th meeting of Authority held on 17.08.2022. After detailed discussion, the Authority accepts the recommendation of SEAC and decided to grant Environmental Clearance subject to the conditions as recommended by SEAC in addition to the following condition.

1. Restricting the ultimate depth of mining upto 37m BGL and quantity of 338300 cu.m of Rough Stone & 37208 cu.m of Gravel are permitted for mining over a period of five years considering the environmental impacts due to the mining, safety precautionary measures of the working personnel and following the principle of the sustainable mining.
2. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 accepted by the Project proponent, the revised CER cost is Rs. 7.5 lakhs and the amount shall be spent for the activities detailed in the SEAC minutes before obtaining CTO from TNPCB.
3. No trees in the area should be removed and all the trees numbered and protected. In case trees fall within the proposed quarry site the trees may be transplanted in the Greenbelt zone.


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4. The proponent shall ensure that the activities in no way result in disturbance to forest and trees in vicinity.
5. The proponent shall ensure that the operations do not result in loss of soil biological properties and nutrients.
6. The activity should not result in CO₂ release and temperature rise and add to micro climate alternations.
7. The mining closure plan should be strictly adhered to with appropriate soil rehabilitation measures to ensure ecological stability of the area.
8. Reclamation/Restoration of the mine site should ensure that the Geotechnical, physical, chemical properties are sustainable that the soil structure composition is buildup, during the process of restoration.
9. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife.
10. The proponent shall ensure that the activity does not disturb the biodiversity, the flora & fauna in the ecosystem.
11. The proponent shall ensure that the activity does not disturb the water bodies and natural flow of surface and ground water, nor cause any pollution, to water sources in the area.
12. The proponent shall ensure that the activities undertaken do not result in carbon emission, and temperature rise, in the area.
13. The proponent shall ensure that the mine closure plan is followed as per the mining plan and the mine restoration should be done with native species, and site restored to near original status.
14. The proponent shall ensure that Monitoring is carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads.
15. The proponent shall ensure that the area is ecologically restored to conserve the ecosystems and ensure flow of goods and services.
16. The proponent shall ensure that the activities do not disturb the agro biodiversity and agro farms.
17. The proponent shall ensure that the activity does not result in invasion by invasive alien species.
18. Actions to be taken to promote agro forestry, mixed plants to support biodiversity conservation in the mine restoration effort.


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19. The proponent shall ensure that activity does not deplete the indigenous soil seed bank and disturb the mycorrhizal fungi, soil organism, soil community nor result in eutrophication of soil and water.
20. The activities should not disturb the soil properties and seed and plant growth. Soil amendments as required to be carried out, to improve soil health
21. Bio remediation using microorganisms should be carried out to restore the soil environment to enable carbon sequestration.
22. The proponent shall ensure that all mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area.
23. The proponent shall ensure that the activities do not impact the water bodies/wells in the neighboring open wells and bore wells.
24. The proponent shall ensure that the activities do not in any way affect the water quantity and quality in the open wells and bore wells in the vicinity or impact the water table and levels.
25. The proponent shall ensure that in the green belt development more indigenous trees species (Appendix as per the SEAC Minutes) to be planted.
26. The proponent shall ensure that the activities do not disturb the resident and migratory birds.
27. The proponent shall ensure the area is restored and rehabilitated with native trees as recommended in SEAC Minutes (in Appendix).
28. The proponent shall ensure that the mine restoration is done using mycorrhizal VAM, vermin-composting, Biofertilizers to ensure soil health and biodiversity conservation.
29. The proponent shall ensure that the topsoil is protected and used in planting activities in the area.
30. The proponent shall ensure that the activities do not disturb the river flow, nor affect the Odai, Water bodies, Dams in the vicinity.
31. The proponent shall ensure that the activities do not disturb the vegetation and wildlife in the adjoin reserve forests and areas around.
32. The proponent should ensure that there is no disturbance to the agriculture plantations, social forestry plantations, waste lands, forests, sanctuary or national parks. There should be no impact on the land, water, soil and biological environment and other natural resources due to the mining activities.
33. The proponent shall ensure that topsoil to be utilized for site restoration and Green belt alone within the proposed area.


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34. The proponent shall ensure that the activities do not impact green lands/grazing fields of all types surrounding the mine lease area which are food source for the grazing cattle.

Part-A: Conditions to be Complied before commencing mining operations:-

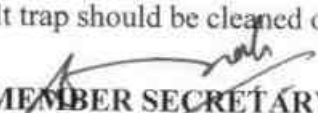
1. **The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that**
 - I. **The project has been accorded Environmental Clearance.**
 - II. **Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.**
 - III. **Environmental Clearance may also be seen on the website of the SEIAA.**
 - IV. **The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.**
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. **A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.**
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.


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10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying should be as per approved mining plan.
15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
19. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
20. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
21. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
22. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.


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- iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
 - v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
23. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
24. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
25. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
26. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
27. The following measures are to be adopted to control erosion of dumps:-
- i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
28. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous& other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
29. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
30. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
31. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of


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- all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
32. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
 33. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
 34. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
 35. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
 36. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
 37. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
 38. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
 39. Bunds to be provided at the boundary of the project site.
 40. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
 41. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
 42. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
 43. The Project Proponent shall provide solar lighting system to the nearby villages.


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44. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
45. Safety equipments to be provided to all the employees.
46. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
47. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
48. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
49. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
50. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
51. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
52. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
53. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
54. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
55. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
56. All the commitment made by the project proponent in the proposal shall be strictly followed.
57. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
58. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A.


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No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, 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), 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).

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the


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workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their


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amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.


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SEIAA-TN

Copy to:

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

Signature Not Verified

Digitally signed by Thiru. Deepak S. Bilgi
Member Secretary
Date: 9/21/2022 7:55:38 PM
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TEST REPORT

Report No	EHS360/TR/2022-23/001	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/001
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – Core Zone– Project Area 10°52'52.07"N 77° 3'0.01"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	46.9	20.5	6.5	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	47.7	20.1	6.3	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	45.5	20.4	6.9	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	46.4	21.9	7.2	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	45.3	21.1	7.1	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	46.0	20.5	5.5	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	45.5	20.8	5.2	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	46.8	20.5	5.7	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	45.9	20.3	5.3	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	45.2	20.6	7.9	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	46.4	21.1	5.1	26.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	46.2	20.8	6.4	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	46.6	20.8	6.9	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	45.0	21.1	5.3	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	45.3	21.6	5.8	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	46.7	21.8	5.2	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	45.0	21.5	5.9	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	46.9	21.3	7.4	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	45.7	20.1	5.8	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	45.6	20.8	6.5	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	46.5	22.6	6.9	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	45.3	22.1	5.2	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	46.2	21.5	6.8	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	45.6	21.2	6.4	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	46.1	20.6	6.8	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	47.2	21.8	4.4	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/001	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/001
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – Core Zone– Project Area 10°54'57.19"N 77° 3'55.78"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
04.03.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	68.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	66.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	69.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	69.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	69.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/002	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/002
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Core Zone– Project Area - 10°55'3.55"N 77° 3'58.18"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	45.3	19.2	6.5	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	43.1	20.0	5.3	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	42.5	18.2	5.0	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	42.1	19.3	4.5	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	43.2	18.1	6.3	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	43.8	20.4	6.1	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	42.6	20.3	4.2	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	41.8	20.4	7.6	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	42.1	19.3	5.2	26.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	43.6	21.3	6.3	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	45.2	20.1	5.0	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	44.3	20.3	5.5	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	45.1	19.5	6.6	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	43.5	19.3	4.2	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	42.1	19.0	4.3	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	43.1	20.3	5.1	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	43.2	20.2	5.8	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	44.1	21.1	5.0	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	45.3	20.6	4.3	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	44.5	19.2	4.1	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	42.1	19.0	6.0	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	45.1	20.2	6.6	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	44.3	21.2	5.5	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	42.2	21.1	4.3	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	43.3	20.1	5.2	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	41.0	21.2	4.6	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<100	<400

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/002	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/002
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Core Zone– Project Area - 10°55'3.55"N 77° 3'58.18"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
04.03.2024	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	63.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	60.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	62.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	69.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/003	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/003
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 – Near Existing Quarry – 10°55'15.15"N 77° 4'2.51"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	43.5	20.1	5.5	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	44.2	21.5	5.4	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	43.2	21.2	6.3	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	42.1	21.1	5.4	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	44.2	20.1	5.0	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	41.3	20.2	5.2	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	43.3	21.2	5.1	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	45.2	22.1	4.8	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	44.1	20.0	4.2	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	43.2	20.1	6.1	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	46.2	22.3	5.6	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	42.3	21.5	5.6	26.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	44.2	21.6	4.4	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	43.1	21.5	5.0	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	45.2	22.2	6.3	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	44.2	21.1	5.2	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	43.3	20.1	6.4	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	46.2	21.2	6.6	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	44.1	22.2	6.3	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	43.3	20.2	6.5	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	43.6	21.3	6.5	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	44.5	21.5	5.3	26.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	45.2	20.4	5.4	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	44.2	21.5	5.2	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	43.1	20.1	6.6	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	44.5	21.2	6.1	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<100	<400

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/003	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/003
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 – Near Existing Quarry – 10°55'15.15"N 77° 4'2.51"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
04.03.2024	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	63.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/004	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/004
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 – Pachapalayam – 10°54'7.24"N 77° 4'30.69"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	46.7	21.7	6.6	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	45.1	21.6	6.2	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	45.9	20.1	6.6	25.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	46.8	21.9	6.8	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	46.6	20.6	5.3	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	46.1	21.4	4.9	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	46.8	20.9	5.5	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	46.0	21.4	6.1	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	44.6	21.9	6.0	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	45.8	21.5	5.3	26.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	44.8	21.7	6.7	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	45.2	21.5	5.6	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	46.6	21.3	6.3	26.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	45.1	20.0	6.9	27.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	44.8	20.9	4.6	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	45.0	20.6	4.9	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	46.7	21.4	4.5	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	46.6	20.8	4.2	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	44.7	20.1	6.7	26.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	47.6	21.0	6.6	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	45.8	22.9	5.3	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	46.1	21.0	5.6	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	46.6	22.6	6.5	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	45.7	21.3	4.8	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	44.1	22.1	4.6	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	45.6	20.8	4.4	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<100	<400

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/004	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/004
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 – Pachapalayam – 10°54'7.24"N 77° 4'30.69"E		

Date	Period. hrs	SPM (µg/m³)	As (ng/m³)	C6H6 (µg/m³)	BaP (ng/m³)	Pb (µg/m³)	Ni (ng/m³)
04.03.2024	7:00-7:00	69.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	69.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	69.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	68.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	69.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	66.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	69.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	69.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	69.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/005	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/005
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Sakthi Nagar - 10°56'7.54"N 77° 1'26.62"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	44.5	20.1	6.4	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	43.4	21.5	6.3	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	46.6	20.2	6.9	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	45.7	19.2	5.1	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	45.6	20.7	5.3	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	44.5	19.5	6.4	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	45.9	18.4	7.1	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	44.8	19.3	6.6	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	45.5	19.1	7.2	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	44.9	20.5	5.5	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	43.1	19.8	5.6	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	44.6	20.3	6.8	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	44.8	19.5	6.6	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	43.5	20.4	4.4	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	43.4	18.8	5.6	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	42.3	21.3	6.9	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	44.6	19.8	5.3	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	43.4	19.5	8.6	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	43.3	20.2	5.3	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	44.4	20.7	5.8	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	43.4	21.3	5.6	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	42.9	20.6	6.0	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	42.6	18.2	6.2	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	43.1	19.7	4.8	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	42.2	20.3	4.6	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	42.3	19.6	5.4	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<805	<80	<100	<400

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/005	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/005
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Sakthi Nagar- 10°56'7.54"N 77° 1'26.62"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
04.03.2024	7:00-7:00	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	69.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	68.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	69.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	68.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	69.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	69.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	69.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/006	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/006
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 –Myleripalayam- 10°52'8.09"N 77° 1'25.61"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	45.6	20.3	5.6	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	45.8	21.6	5.1	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	46.5	21.8	6.2	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	46.6	20.0	4.8	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	47.0	21.7	4.5	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	45.9	20.3	5.4	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	46.1	19.9	5.6	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	47.6	20.7	6.1	26.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	47.8	21.9	6.6	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	45.6	19.1	5.8	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	46.0	19.4	6.4	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	48.6	18.8	6.3	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	46.8	19.6	5.5	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	44.6	20.8	5.3	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	45.7	20.7	5.6	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	46.1	19.0	6.1	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	47.0	19.6	6.4	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	47.8	18.7	6.2	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	48.2	19.1	7.7	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	48.3	20.3	5.5	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	46.6	20.6	6.5	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	46.7	20.2	7.6	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	44.2	19.4	6.2	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	46.9	19.9	5.7	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	47.5	18.5	5.4	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	45.9	19.4	6.2	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<100	<400

Note: BDL: Below Detection Limit ; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by




Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/006	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District..		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/006
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 –Myleripalayam- 10°52'8.09"N 77° 1'25.61"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
04.03.2024	7:00-7:00	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/007	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/007
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 7 - Papampatti – 10°57'25.73"N 77° 6'3.06"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	44.9	18.3	6.1	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	45.7	17.9	6.2	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	46.5	18.5	5.1	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	45.4	19.1	4.2	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	45.3	19.6	4.1	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	44.0	20.1	5.2	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	45.5	18.7	5.4	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	45.8	19.5	6.0	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	46.9	20.9	6.4	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	46.2	19.0	6.3	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	46.4	19.9	4.4	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	45.2	18.7	5.5	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	45.6	19.4	5.8	26.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	44.0	18.6	5.5	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	44.3	19.4	7.4	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	43.7	18.6	6.9	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	46.0	19.5	6.3	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	44.9	18.9	6.6	26.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	46.7	20.9	6.9	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	45.6	21.3	6.3	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	45.5	20.6	6.1	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	44.3	19.8	6.8	26.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	43.2	20.1	5.4	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	45.6	20.9	5.5	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	45.9	20.8	5.9	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	44.1	19.1	5.3	26.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/007	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/007
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 7 - Papampatti – 10°57'25.73"N 77° 6'3.06"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
04.03.2024	7:00-7:00	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	68.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 009	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 009
Sample Description	Ambient Noise	Sample Collected Date	30.05.2024

Location	N1 – Core Zone - 10°54'57.62"N 77° 3'55.66"E			N2 – Core Zone –10°55'3.67"N 77° 3'57.86"E		
	Min	Max	Result	Min	Max	Result
Parameter	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	38.6	41.3	40.2	35.6	40.3	38.6
07:00-08:00	37.5	41.5	39.9	35.7	41.5	39.5
08:00-09:00	39.2	41.8	40.7	36.9	45.2	42.8
09:00-10:00	39.4	41.8	40.8	35.8	43.2	40.9
10:00-11:00	39.2	43.5	41.9	36.8	40.7	39.2
11:00-12:00	40.2	42.2	41.3	35.8	38.8	37.6
12:00-13:00	41.5	43.3	42.5	38.8	39.7	39.3
13:00-14:00	41.8	42.2	42.0	39.7	40.9	40.3
14:00-15:00	42.8	43.8	43.3	40.2	41.8	41.1
15:00-16:00	43.5	44.1	43.8	42.5	43.3	42.9
16:00-17:00	41.3	43.2	42.4	45.5	48.1	47.0
17:00-18:00	43.5	43.9	43.7	43.2	46.6	45.2
18:00-19:00	45.9	46.6	46.3	45.5	47.3	46.5
19:00-20:00	46.7	47.9	47.3	45.5	46.8	46.2
20:00-21:00	41.2	44.8	43.4	41.2	45.5	43.9
21:00-22:00	42.1	43.5	42.9	42.1	42.9	42.5
22:00-23:00	36.4	38.8	37.8	37.5	38.5	38.0
23:00-00:00	36.4	37.7	37.1	37.9	38.1	38.0
00:00-01:00	36.7	39.2	38.1	36.1	38.8	37.7
01:00-02:00	32.8	38.3	36.4	36.4	37.2	36.8
02:00-03:00	32.2	38.1	36.1	36.2	36.9	36.6
03:00-04:00	34.8	38.5	37.0	35.5	37.7	36.7
04:00-05:00	34.6	36.9	35.9	35.4	36.8	36.2
05:00-06:00	34.1	36.5	35.5	35.1	36.5	35.9
Result	Day Means		42.4	Day Means		41.8
	Night Means		36.6	Night Means		36.8

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 010	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 010
Sample Description	Ambient Noise	Sample Collected Date	30.05.2024

Location	N3 – Near Existing Quarry- 10°55'14.94"N 77° 4'2.64"			N4 – Pachapalayam - 10°54'7.07"N 77° 4'31.19"E		
	Min	Max	Result	Min	Max	Result
Parameter	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Time						
06:00-07:00	31.9	42.5	39.9	31.3	43.5	40.7
07:00-08:00	33.7	45.2	42.5	36.4	44.5	42.1
08:00-09:00	35.1	46.9	44.2	35.8	45.9	43.3
09:00-10:00	36.2	47.2	44.5	31.2	46.7	43.8
10:00-11:00	34.2	49.2	46.3	31.7	47.5	44.6
11:00-12:00	35.9	49.8	47.0	32.9	41.2	38.8
12:00-13:00	32.7	46.4	43.6	36.4	43.1	40.9
13:00-14:00	33.2	45.8	43.0	35.9	42.9	40.7
14:00-15:00	31.4	44.2	41.4	37.2	48.6	45.9
15:00-16:00	36.8	39.6	38.4	36.9	44.7	42.4
16:00-17:00	35.7	40.4	38.7	35.1	46.3	43.6
17:00-18:00	32.3	38.2	36.2	33.8	41.7	39.3
18:00-19:00	33.4	40.5	38.3	31.7	39.1	36.8
19:00-20:00	31.9	41.7	39.1	32.9	40.7	38.4
20:00-21:00	35.7	40.3	38.6	33.7	41.3	39.0
21:00-22:00	33.4	43.9	41.3	35.1	44.7	42.1
22:00-23:00	38.4	42.7	41.1	32.9	40.3	38.0
23:00-00:00	32.9	39.5	37.3	33.7	41.4	39.1
00:00-01:00	34.5	40.3	38.3	32.9	40.2	37.9
01:00-02:00	33.1	41.9	39.4	31.9	37.7	35.7
02:00-03:00	32.9	38.3	36.4	33.8	38.4	36.7
03:00-04:00	32.9	40.7	38.4	33.7	36.7	35.5
04:00-05:00	33.6	41.5	39.1	31.5	35.9	34.2
05:00-06:00	31.2	40.2	37.7	31.9	36.5	34.8
Result	Day Means		41.4	Day Means		41.2
	Night Means		38.1	Night Means		36.3

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

Verified by




Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 011	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 011
Sample Description	Ambient Noise	Sample Collected Date	30.05.2024

Location	N5 – Sakthi Nagar– 10°56'7.19"N 77° 1'26.39"E			N6 – Myleripalayam (Govt School) – 10°52'8.00"N 77° 1'25.24"E		
	Min	Max	Result	Min	Max	Result
Parameter	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Time						
06:00-07:00	33.9	40.5	38.3	32.3	42.5	39.9
07:00-08:00	36.1	43.6	41.3	31.9	45.2	42.4
08:00-09:00	33.2	44.9	42.2	35.3	45.9	43.3
09:00-10:00	34.7	43.2	40.8	36.2	44.7	42.3
10:00-11:00	31.6	40.9	38.4	32.7	45.6	42.8
11:00-12:00	32.5	41.2	38.7	33.2	45.2	42.5
12:00-13:00	36.2	43.2	41.0	31.2	46.8	43.9
13:00-14:00	35.9	44.8	42.3	38.1	46.1	43.7
14:00-15:00	31.9	39.1	36.8	32.7	44.5	41.8
15:00-16:00	33.6	41.4	39.1	36.9	45.7	43.2
16:00-17:00	31.5	39.2	36.9	33.7	41.7	39.3
17:00-18:00	32.8	40.7	38.3	36.2	43.5	41.2
18:00-19:00	32.6	40.3	38.0	37.5	44.9	42.6
19:00-20:00	32.7	41.7	39.2	36.1	42.6	40.5
20:00-21:00	33.9	42.5	40.1	33.2	41.3	38.9
21:00-22:00	34.2	43.1	40.6	36.9	43.5	41.3
22:00-23:00	36.1	45.9	43.3	35.2	42.9	40.6
23:00-00:00	33.8	41.7	39.3	34.2	43.6	41.1
00:00-01:00	31.9	40.3	37.9	36.9	42.8	40.8
01:00-02:00	33.1	41.9	39.4	37.5	41.7	40.1
02:00-03:00	32.9	33.9	33.4	33.8	35.8	34.9
03:00-04:00	31.3	34.8	33.4	31.6	36.6	34.8
04:00-05:00	33.8	36.5	35.4	33.7	37.7	36.1
05:00-06:00	31.9	38.5	36.3	31.4	39.7	37.3
Result	Day Means		39.7	Day Means		41.8
	Night Means		36.5	Night Means		37.9

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]
Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 012	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 012
Sample Description	Ambient Noise	Sample Collected Date	30.05.2024

Location	N7 – Papampatti– 10°57'25.50"N 77° 6'3.11"E			N8 – Edayarpalayam –10°55'20.00"N 77° 6'25.15"E			
	Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	31.7	36.8	35.0	32.9	35.5	34.4	
07:00-08:00	32.9	39.7	37.5	31.3	39.7	37.3	
08:00-09:00	32.7	43.8	41.1	32.6	41.6	39.1	
09:00-10:00	33.6	43.7	41.1	33.7	42.8	40.3	
10:00-11:00	38.5	46.3	44.0	34.6	44.6	42.0	
11:00-12:00	34.3	47.5	44.7	36.2	45.8	43.2	
12:00-13:00	32.7	48.1	45.2	38.2	46.2	43.8	
13:00-14:00	36.9	49.7	46.9	36.4	45.1	42.6	
14:00-15:00	35.8	44.2	41.8	36.9	43.4	41.3	
15:00-16:00	36.2	43.7	41.4	34.6	42.9	40.5	
16:00-17:00	34.9	42.9	40.5	32.7	40.7	38.3	
17:00-18:00	33.7	41.7	39.3	36.9	43.2	41.1	
18:00-19:00	32.6	40.2	37.9	32.1	40.6	38.2	
19:00-20:00	31.5	39.1	36.8	34.9	43.2	40.8	
20:00-21:00	33.9	41.7	39.4	32.6	40.7	38.3	
21:00-22:00	35.4	43.4	41.0	33.7	41.3	39.0	
22:00-23:00	36.7	42.9	40.8	34.3	36.4	35.5	
23:00-00:00	33.5	42.5	40.0	32.6	42.8	40.2	
00:00-01:00	36.4	40.7	39.1	35.8	40.2	38.5	
01:00-02:00	31.9	34.8	33.6	33.6	38.8	36.9	
02:00-03:00	32.7	36.6	35.1	31.2	37.1	35.1	
03:00-04:00	33.9	35.5	34.8	32.4	35.7	34.4	
04:00-05:00	31.5	35.8	34.2	31.6	39.5	37.1	
05:00-06:00	32.7	36.7	35.1	33.9	36.6	35.5	
Result	Day Means		40.8	Day Means		39.7	
	Night Means		36.0	Night Means		36.8	

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

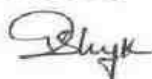
- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 013	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 013
Sample Description	Soil 1	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 KG	Sample Received On	31.05.2024
Sample Condition	Good	Test Commenced On	31.05.2024
Sampling Location	Core Zone		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.35
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.5 %
04	Bulk Density	By Cylindrical Method	1.05 g/cm ³
05	Porosity	By Gravimetric Method	44.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018 APHA 23 rd Edn 2019 4500 CI B IS 2720 Part 27 : 1977 (Reaff:2015) IS 10158 : 1982 (Reaff: 2019)	38.5 mg/kg
07	Magnesium as Mg		27.3 mg/kg
08	Chloride as Cl		41.3 mg/kg
09	Soluble Sulphate as SO ₄		0.0010 %
10	Total Phosphorus as P		3.15 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	389.5 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.59 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.92 %

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Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 013	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 013
Sample Description	Soil 1	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 KG	Sample Received On	31.05.2024
Sample Condition	Good	Test Commenced On	31.05.2024
Sampling Location	Core Zone		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	30.9 %
	Sand		28.7 %
	Silt		40.4 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	13.2 mg/kg
16	Zinc as Zn		3.5 mg/kg
17	Boron as B		2.22 mg/kg
18	Potassium as K		27.8 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		2.51
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.02 mg/kg
23	Iron as Fe		7.26 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

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Authorised Signatory

[Signature]
Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 014	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 014
Sample Description	Soil 2	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 KG	Sample Received On	31.05.2024
Sample Condition	Good	Test Commenced On	31.05.2024
Sampling Location	Soil – 2 – Near Existing Quarry		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.06
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	415 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.3 %
04	Bulk Density	By Cylindrical Method	1.17 g/cm ³
05	Porosity	By Gravimetric Method	48.9 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	43.6 mg/kg
07	Magnesium as Mg		41 mg/kg
08	Chloride as Cl		20.89 mg/kg
09	Soluble Sulphate as SO ₄		0.0022 %
10	Total Phosphorus as P		2.59 mg/kg
11	Total Nitrogen as N	APHA 23 rd Edn 2019 4500 Cl B	524 mg/kg
12	Organic Matter	IS 2720 Part 27 : 1977 (Reaff:2015)	1.86 %
13	Organic Carbon	IS 10158 : 1982 (Reaff: 2019)	1.08 %

*****End of Report*****

Page 1 of 1

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Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 014	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District..		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 014
Sample Description	Soil 2	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 KG	Sample Received On	31.05.2024
Sample Condition	Good	Test Commenced On	31.05.2024
Sampling Location	Soil – 2 – Near Existing Quarry		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	30.9 %
	Sand		30.7 %
	Silt		38.4 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	14.6 mg/kg
16	Zinc as Zn		5.51 mg/kg
17	Boron as B		2.07 mg/kg
18	Potassium as K		51.3 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		2.23
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.06 mg/kg
23	Iron as Fe		4.55 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****



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Authorised Signatory

[Signature]

Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 015	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 015
Sample Description	Soil 3	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 KG	Sample Received On	31.05.2024
Sample Condition	Good	Test Commenced On	31.05.2024
Sampling Location	Soil – 3 Pachapalayam		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.43
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	367 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	45.7 %
04	Bulk Density	By Cylindrical Method	1.12 g/cm ³
05	Porosity	By Gravimetric Method	47.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	38.5 mg/kg
07	Magnesium as Mg		28.4 mg/kg
08	Chloride as Cl		25.5 mg/kg
09	Soluble Sulphate as SO ₄		0.0023 %
10	Total Phosphorus as P		3.01 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	490.3 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.22 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.29 %

*****End of Report*****

Page 1 of 1

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Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 015	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 015
Sample Description	Soil 3	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 KG	Sample Received On	31.05.2024
Sample Condition	Good	Test Commenced On	31.05.2024
Sampling Location	Soil – 3 Pachapalayam		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	34.5 %
	Sand		28.3 %
	Silt		37.2 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	7.59 mg/kg
16	Zinc as Zn		3.06 mg/kg
17	Boron as B		4.01 mg/kg
18	Potassium as K		36.6 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		2.65
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.55 mg/kg
23	Iron as Fe		1.06 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****



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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 016	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 016
Sample Description	Soil 4	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 KG	Sample Received On	31.05.2024
Sample Condition	Good	Test Commenced On	31.05.2024
Sampling Location	Soil – 4 – Sakthi Nagar		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.25
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	459 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	46.2. %
04	Bulk Density	By Cylindrical Method	1.12 g/cm ³
05	Porosity	By Gravimetric Method	48.8 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018 APHA 23 rd Edn 2019 4500 Cl B IS 2720 Part 27 : 1977 (Reaff:2015) IS 10158 : 1982 (Reaff: 2019)	57.3 mg/kg
07	Magnesium as Mg		35.1 mg/kg
08	Chloride as Cl		24.5 mg/kg
09	Soluble Sulphate as SO ₄		0.0028 %
10	Total Phosphorus as P		5.62 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	461.3 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.33 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.35 %

*****End of Report*****



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[Signature]

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[Signature]

Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 016	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 016
Sample Description	Soil 4	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 KG	Sample Received On	31.05.2024
Sample Condition	Good	Test Commenced On	31.05.2024
Sampling Location	Soil – 4 – Vadasithur- 10°50'23.00"N 77° 4'57.67"E		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	32.5 %
	Sand		30.8 %
	Silt		36.7 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	8.25 mg/kg
16	Zinc as Zn		12.9 mg/kg
17	Boron as B		1.26 mg/kg
18	Potassium as K		30.4 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		4.12
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.98 mg/kg
23	Iron as Fe		5.6 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

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Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 017	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 017
Sample Description	Soil 5	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 KG	Sample Received On	31.05.2024
Sample Condition	Good	Test Commenced On	31.05.2024
Sampling Location	Soil – 5 – Myleripalayam		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.54
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	400 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.5 %
04	Bulk Density	By Cylindrical Method	1.03 g/cm ³
05	Porosity	By Gravimetric Method	46.8 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018 APHA 23 rd Edn 2019 4500 Cl B IS 2720 Part 27 : 1977 (Reaff:2015) IS 10158 : 1982 (Reaff: 2019)	60.2 mg/kg
07	Magnesium as Mg		33 mg/kg
08	Chloride as Cl		34.7 mg/kg
09	Soluble Sulphate as SO ₄		0.0017 %
10	Total Phosphorus as P		3.98 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	426 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.00 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.16 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 017	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 017
Sample Description	Soil 2	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 KG	Sample Received On	31.05.2024
Sample Condition	Good	Test Commenced On	31.05.2024
Sampling Location	Soil – 5 – Myleripalayam		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	32.9 %
	Sand		33.2 %
	Silt		33.9 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	18.7 mg/kg
16	Zinc as Zn		3.06 mg/kg
17	Boron as B		5.8 mg/kg
18	Potassium as K		26.1 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		4.26
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.05 mg/kg
23	Iron as Fe		8.9 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 018	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 018
Sample Description	Soil 6	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 KG	Sample Received On	31.05.2024
Sample Condition	Good	Test Commenced On	31.05.2024
Sampling Location	Soil – 6 Papampatti		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.05
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	555 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	44.7 %
04	Bulk Density	By Cylindrical Method	1.02 g/cm ³
05	Porosity	By Gravimetric Method	47.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018 APHA 23 rd Edn 2019 4500 Cl B IS 2720 Part 27 : 1977 (Reaff:2015) IS 10158 : 1982 (Reaff: 2019)	47.6 mg/kg
07	Magnesium as Mg		21.4 mg/kg
08	Chloride as Cl		60.6 mg/kg
09	Soluble Sulphate as SO ₄		0.0017 %
10	Total Phosphorus as P		6.19 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	480.7 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.76 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.02 %

*****End of Report*****

Page 1 of 1

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Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 018	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 018
Sample Description	Soil 6	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 KG	Sample Received On	31.05.2024
Sample Condition	Good	Test Commenced On	31.05.2024
Sampling Location	Soil – 6 Papampatti		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	30.9 %
	Sand		31.5 %
	Silt		37.6 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	23.3 mg/kg
16	Zinc as Zn		5.1 mg/kg
17	Boron as B		1.19 mg/kg
18	Potassium as K		30.7 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		1.96
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.06 mg/kg
23	Iron as Fe		3.54 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

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[Signature]



Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 019	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/019
Sample Description	Surface Water (SW-1)	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	31.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	31.05.2024
Sampling Location	Singanallur Lake		

S.No.	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	10 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.59
4	Conductivity @ 25°C	IS 3025 Part 14:2013	920 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	4.3 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	543 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	213.77 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	40.2 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	27.6 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	200 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	112 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	41.5 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.41 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.37 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	12 mg/l

*****End of Report*****

Page 1 of 1

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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/019	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/019
Sample Description	Surface Water (SW-1)	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	31.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	31.05.2024
Sampling Location	Singanallur Lake		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	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)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	11.7 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	40 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.3 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	1.28 mg/l
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	13.3 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	400 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	155 MPN/100ml

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Authorised Signatory

 Name: Santhosh Kumar A
 Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 020	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/020
Sample Description	Ground Water (WW-1)	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	31.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	31.05.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.79
4	Conductivity @ 25°C	IS 3025 Part 14:2013	900 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	531 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	211.92 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	35.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	30.0 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	189.4 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	100 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	37.6 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.21 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.3 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	7.2 mg/l

*****End of Report*****



Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 020	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/020
Sample Description	Ground Water (WW-1)	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	31.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	31.05.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	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)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	BDL (DL:0.0005 mg/l)
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	188 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A.
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 021	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/021
Sample Description	Ground Water (WW-2)	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	31.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	31.05.2024
Sampling Location	Papampatti		

S.No.	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.19
4	Conductivity @ 25°C	IS 3025 Part 14:2013	978 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	577 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	207.58 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	35.9 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	28.7 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	210 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	124 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	38.1 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.31 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.20 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	4.13 mg/l

*****End of Report*****



Verified by



Authorised Signatory

Name: Santhosh Kumar A.
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 021	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/021
Sample Description	Ground Water (WW-2)	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	31.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	31.05.2024
Sampling Location	Papampatti		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	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)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	177 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

Page 1 of 1

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A S K

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 022	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/022
Sample Description	Ground Water (WW-3)	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	31.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	31.05.2024
Sampling Location	Myleripalayam		

S.No	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.62
4	Conductivity @ 25°C	IS 3025 Part 14:2013	1132 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	668 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	231.77 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	39.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	32.4 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	220 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	150 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	62.4 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.29 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.21 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	7.6 mg/l

*****End of Report*****



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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 022	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/022
Sample Description	Ground Water (WW-3)	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	31.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	31.05.2024
Sampling Location	Myleripalayam		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	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)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	200 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

TC-9583

Report No	EHS360/TR/2022-23/ 023	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/023
Sample Description	Ground Water (BW-1)	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	31.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	31.05.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.47
4	Conductivity @ 25°C	IS 3025 Part 14:2013	827 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	488 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	198.44 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	32.4 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	28.6 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	170 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	71.5 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	37 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.17 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.19 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	4.51 mg/l

*****End of Report*****



Verified by



Authorised Signatory

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Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 023	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/023
Sample Description	Ground Water (BW-1)	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	31.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	31.05.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	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)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	183 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

Page 1 of 1

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Authorised Signatory

A S K

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 024	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/024
Sample Description	Ground Water (BW-2)	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	31.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	31.05.2024
Sampling Location	Pachapalayam		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.67
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	1007 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	595 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	208.43 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	34.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	30.0 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	190 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	130.5 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	55.1 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.25 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.31 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	10.3 mg/l

*****End of Report*****



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TEST REPORT

Report No	EHS360/TR/2022-23/ 024	Report Date	03.06.2024
Site Location	M/s. Pachapalayam & Kallapalayam Rough Stone And Gravel Quarries S.F.Nos. 291/1a, 291/1b1a, 263/1a(P), 264/1(P) And 320(P), Pachapalayam & Kallapalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/024
Sample Description	Ground Water (BW-2)	Sample Collected Date	30.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	31.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	31.05.2024
Sampling Location	Pachapalayam		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	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)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	140 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

Page 1 of 1



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[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

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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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