

**DRAFT OF ENVIRONMENTAL IMPACT ASSESSMENT
AND
ENVIRONMENT MANAGEMENT PLAN
FOR OBTAINING**

Environmental Clearance under EIA Notification – 2006

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

“B1” CATEGORY- MINOR MINERAL- CLUSTER- NONFOREST LAND- FRESH QUARRY

CLUSTER EXTENT = 8.87.10hectares

Rough Stone and Gravel Quarry

At

**Kammarajapuram Village, Walajabad Taluk, Kancheepuram District,
Tamil Nadu State.**

TOR File No. 13267 and ToR Identification No. TO25B0108TN5329454N, Dated: 05.03.2026

NAME AND ADDRESS OF THE PROPOSED PROJECT PROPONENT

Name and address	Extent & S.F.No.	Production in m³ & Tons
S. ASHOK KUMAR, S/o. Sekar, No. 83, V.V. Kovil Street, Walajabad Taluk, Kancheepuram District - 631605.	3.48.0ha & S.F.No's. 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C	Rough Stone- 5,81,360m ³ & 15,98,740MT Gravel- 1,42,240m ³ & 2,84,480MT Depth- 50m (BGL)

**ENVIRONMENTAL CONSULTANT
GEO TECHNICAL MINING SOLUTIONS**



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NABET ACC. NO: NABET/EIA/23-26/RA 0319

Valid till: 31.12.2026

ENVIRONMENTAL LAB

EKDANT ENVIRO SERVICES (P) LIMITED

NABL Accredited and Recognised Laboratory

No. R7/1,avk Tower, North Main Road, Anna Nagar,

West Exten, Chennai – 600 101

NABL Certificate Number: TC- 11742,

Valid Until: 31/05/2025,

Baseline Study Period- January to March- 2026

APRIL- 2026

TERMS OF REFERENCE (ToR) COMPLIANCE

ToR File No.13267

ToR Identification No. TO25B0108TN5329454N, dated. 05/03/2026

Kammarajapuram Village Rough Stone and Gravel Quarry

Specific Terms of Reference s for (Mining of Minerals)

1. SEAC Conditions - Site Specific

S. No		Terms of Reference	Remarks
1.1	1	The PP shall submit the proof/photographic evidence of poultry farm removal as committed during the meeting, during the submission of EIA report.	Evidence will be submitted in final presentation.
	2	A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of required statutory personnel, appropriate environmental management, system of maintaining the haul roads and village/panchayat roads, authorized blasting operation, Monitoring system of the environmental & other statutory compliances & its reporting methodology, etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal:	The Cluster Management Committee (CMC) will be formed and affidavit for the same will be submitted during final presentation.
	(i)	Copy of the agreement forming CMC.	
	(ii)	The Organization chart of the Committee with defining the role of the members	

	(iii)	The 'Standard Operating Procedures' (SOP) executing the planned activities.	
3		The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/video graphic evidence along with the EIA report.	The evidence of CCTV installation will be submitted in final appraisal presentation.

2. Seac Standard Conditions

S.No	Terms of Reference		Remarks
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:	It is a fresh quarry lease.
		(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.	The VAO certificate is attached as Annexure IV.
	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	There are no any permanent structures or occupants or any residential sheds in 500m radius of the project site.
	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.	Detailed hydrological study is conducted and discussed in section 3.4.4 under chapter III in the EIA report page 46-54.
	5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	The details of Bio diversity is included in chapter III of final EIA report 69-82.
	6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc, up	Not Applicable, no forest land involved.

		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.	It is a newly proposed fresh quarry lease.
	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.	This is a fresh lease; conceptual slope stability report will rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 45 ⁰ bench angles.
	9	The PP shall furnish the affidavit stating that the blasting operation in the proposed	The affidavit for blasting will be submitted in final EIA report.

		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.	A conceptual design of blasting has been given in Section 2.7.1 under Chapter II in the EIA report page 16-18.
	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 proponent has no any other quarries.
	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?	It is a fresh quarry lease, hence not applicable.
	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/Toposheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	All corner coordinates of the mine lease area have been superimposed on a high-resolution Google Earth Image, as shown in Figure 2.2 under Chapter II in the EIA report page 12.
	16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.	The drone video will be submitted during final presentation.
	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.	Green Belt & Wire Fencing Photos will be submitted in final EIA report.

	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 Resources and Reserves of Rough Stone were calculated based on cross-section method by plotting sections to cover the maximum lease area for the proposed project. The details reserve estimation has been shown in Table 2.5 under Chapter II in the EIA report page 11.
	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.	Details of manpower required for this project have been given in Table 2.15 under Chapter II in the EIA report page 23.
	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	The hydrogeological study is discussed in the Section 3.4.4 under Chapter III in the EIA report page 46-54.

		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.	The baseline data were collected for the environmental components including land, soil, water, air, noise, biology, socio-economy, and traffic and the results have been discussed Chapter III in the EIA report page 25-98.
	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.	Results of cumulative impact study due to mining operations are given in Section 7.4 under Chapter VII in the EIA report page 131-136.
	23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	As part of rainwater harvesting measures, the rain water from garland drainage system will be diverted to nearby check dams after treating the water in settling tanks.
	24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies,	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory

		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.	routes of fauna, water bodies, human settlements and other ecological features have been discussed in Section 3.2.3 under Chapter III in the EIA report page 29-34. The details of surrounding sensitive ecological features have been provided in Table 3.39 under Chapter III in the EIA report page 97. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Table 2.9 under Chapter II in the EIA report page 19.
	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.	This condition is not applicable to this project because no dumps have been proposed outside the lease area.
	26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.

27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	As part of rainwater harvesting measures, the rain water from garland drainage system will be diverted to nearby check dams after treating the water in settling tanks.
28	Impact on local transport infrastructure due to the Project should be indicated.	Details regarding the impact of the project on traffic are given in Section 3.9 under Chapter III in the EIA report page 95-96.
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.	A detailed tree survey was carried out within 300 m radius and the results have been discussed in Section 3.7 under Chapter III in the EIA report page 73-77.
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	A progressive mine closure plan has been discussed in section 4.10 of chapter-IV, page-118-120. The budget details for the progressive mine closure plan are shown in Table 10.1 under Chapter X in the EIA report page 145.
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 EIA coordinator and the FAE for ecology and biodiversity visited the study area and educated the local students about the importance of protecting the biological environment.
32	The purpose of green belt around the project is to capture the fugitive	A detailed greenbelt development plan has been provided in table 4.14

		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.	under Chapter IV in the EIA report page 115.
	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.	The FAE of ecology and biodiversity has advised the project proponent that saplings of one year old raised in the eco-friendly bags should be purchased and planted with the spacing of 3 m between each plant around the proposed project area as per the advice of local forest authorities/botanist. The same is discussed in section-7.7.4 of chapter -VII, page no-135.
	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.	A disaster management plan for the project has been provided in Section 7.3 under Chapter VII in the EIA report page 129-130.
	35	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of	A risk assessment plan for the project has been provided in Section 7.2

		the proposed quarry (or) till the end of the lease period.	under Chapter VII in the EIA report page 127-129.
	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 and preventive measures have been discussed in detail in Section 4.8 under Chapter IV in the EIA report 117- 118.
	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 are anticipated due to this project. Details of CSR and CER activities have been discussed in Sections 8.6 and 8.7 under Chapter VIII in the EIA report page 138-139.
	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.	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 23 people directly and added as Chapter VIII in the EIA report page 137.
	39	Details of litigation pending against the project, if any, with direction /order	No litigation is pending in any court against this project.

		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.	The benefits of the project are included as Chapter VIII in the EIA report page 137-139.
	41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF& CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is a fresh quarry lease.
	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.	A detailed environment management plan has been prepared following the suggestion made by SEAC and included as Chapter X in the EIA report page 141-149. The sworn affidavit stating to abide the EMP for the entire life of mine will be submitted during final presentation.
	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	This EIA report has been prepared keeping in mind that fact concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may

		besides attracting penal provisions in the Environment (Protection) Act, 1986.	lead to withdrawal of these terms of reference besides attracting penal provisions in the Environment (Protection) Act, 1986.
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3.Seiaa Specific Conditions:

S.No	Terms of Reference	Remarks
3.1	After detailed discussions, the Authority accepts the recommendation of SEAC-I and decided to grant Terms of Reference (ToR) along with Public Hearing for the quantity of 5,81,360 m³ of rough stone and 1,42,240 m³ of Gravel up to the depth of 50m BGL and the annual peak production should not exceed 75,555 m³ of rough stone and 86,080 m³ of gravel per the approved mining plan, 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-I & normal conditions & SEIAA Standard conditions.	Proponent thanking the authorities for granting the ToR with public hearing and will undertake the combined EIA study and separate EMP as per recommendations.

4.Seiaa Standard Conditions

S.No	Terms of Reference	Remarks
Cluster Management Committee		
4.1	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.	A cluster management committee including all the proponents of the rough stone quarrying projects within the cluster of 500 m radius will be constituted for the effective implementation of green belt

			development plan, water sprinkling, blasting, etc.
	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 members of the cluster management committee will be instructed to carry out EMP in coordination.
	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	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 Section 2.7 under Chapter II in the EIA report page 16-22.
	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.	Risk management plan will be prepared with respect to natural calamities; however, quarrying will be suspended during raining conditions.
	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	It will be advised to the cluster management committee to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in

		devised shall be given in detail in the EIA report.	implementing the environmental policy devised will 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.	A proper action plan regarding the restoration will be followed by the committee.
	8	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity.	The information on the health of the workers and the local people will be monitored regularly and updated periodically.
	Agriculture & Agro-Biodiversity		
	9	Impact on surrounding agricultural fields around the proposed mining Area.	There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly, as shown in Section 4.6.4 under Chapter IV in the EIA report page 116.
	10	Impact on soil flora & vegetation around the project site.	The details on flora have been provided in Section 4.6 under Chapter IV in the EIA report page 114-115. 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.
11	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	Details of vegetation in the lease area have been provided in Section 3.7.4 under Chapter III in the EIA report page 71-77. Details about transplantation of plants have been provided in Section 4.6 under Chapter IV in the EIA report page 114-115.
12	The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	The ecological details have been provided in Section 4.2,4.6 under Chapter IV in the EIA report page 101, 114-117 and measures have been provided.
13	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	All the essential environmental protective measures will be followed by the proponent to manage the surrounding environment and restore the ecosystem, as discussed in Chapter IV in the EIA report page 99-120.
14	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	The impact of project on the land environment has been discussed in Section 4.6.4 under Chapter IV in the EIA report page 116.
Forests		
15	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	The project proponent shall do barbed wire fencing work and develop a green belt around the

			lease area to prevent wildlife from entering the site.
16	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.		The impacts of the project on ecology and biodiversity have been discussed in Section 4.6 under Chapter IV in the EIA report page 114-116.
17	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.		The impacts of the project on standing trees and the existing trees have been discussed in Section 4.6 under Chapter IV in the EIA report page 114-116.
18	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.		The Protected areas, National Parks, Corridors and Wildlife pathways near project site within 10 km radius has been provided in Table 3.39 under Chapter III in the EIA report page 97.
Water Environment			
19	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be		The detailed hydro-geology study is discussed in section 3.4.4 under chapter III in the EIA report page 46-54.

		provided, covering the entire mine lease period.	
	20	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 IV in the EIA report page 102-103.
	21	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.	Discussed under Chapter IV in the EIA report page 99-120.
	22	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	An analysis for food chain in aquatic ecosystem has been discussed in Section 3.7 under Chapter III in the EIA report page 81.
	23	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	The impacts of the proposed project on the surrounding environment have discussed in Chapter IV in the EIA report page 99-120.
	24	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	The impact of the proposed project on aquatic plants and animals in water bodies has been discussed in Section 3.7 under Chapter IV in the EIA report page 81.
	25	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The impact of mining on soil environment has been discussed in Section 4.2 under Chapter IV in the EIA report page 101-103.

	26	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	The impacts on water bodies, streams, lakes have been discussed in Section 4.3 under Chapter IV in the EIA report page 102-103.
	27	The EIA shall include the impact of mining activity on the following:	
		a. Hydrothermal / Geothermal effect due to destruction in the Environment.	a. The average geothermal gradient of earth is 25 ⁰ C/km. As the proposed depth of mining is 50m BGL, the temperature will increase by 1.25 ⁰ C at the ultimate depth of mining.
		b. Bio-geochemical processes and its foot prints including environmental stress.	b. No, Bio-geochemical processes and its foot prints including environmental stress are anticipated and at the end of life of mine the proposed quarry shall be left as an artificial reservoir structure and allowed to collect rain water and shall enrich the ecosystem.
		c. Sediment geochemistry in the surface streams	c. There are no surface water flow nearby the lease area. So, there will be no effect on sediments.
	Energy		
	28	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	The measures taken to control noise, air, water, and dust have been given under Chapter IV in the EIA report page 102-113.
	Climate Change		
	29	The Environmental Impact Assessment shall study in detail the carbon emission and also	The carbon emission to mitigate carbon emission have been

		suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	discussed in Section 4.6 under Chapter IV in the EIA report page 114-115.
	30	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features.	Discussed in Chapter IV in the EIA report page 99-120.
	31	Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.	There is no emission impact to local livelihood from this quarry project. All the vehicles used for transportation of the quarry materials will be maintained regularly to keep the GHGs emissions within statutory limits.
	Mine Closure Plan		
	32	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	A progressive mine closure plan has been attached with the approved mining plan report in Annexure III. The budget details for the progressive mine closure plan are shown in Table 10.1 under Chapter X in the EIA report page 145.
	EMP		
	33	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication	A detailed Environment Management plan has been given under Chapter X in the EIA report page 141-149.

	order issued and the scope for achieving SD'S	
34	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	A detailed Environment Management plan has been given in Tables 10.1 & 10.2 under Chapter X in the EIA report page 142-149.
Risk Assessment		
35	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	The risk assessment and management plan for this project has been provided in Section 7.2 under Chapter VII in the EIA report page 127-129.
Disaster Management Plan		
36	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	The disaster management plan for this project has been provided in Section 7.3 under Chapter VII in the EIA report page 129-130.
Others		
37	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.	The VAO certificate is attached in the attached in the Annexure IV.

	38	As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	The concerns raised during the public consultation will be submitted in the final EIA report.
	39	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	The plastic waste management has been given in Section 7.5 under Chapter VII in the EIA report page 136.

Standard Terms of Reference for (Mining of minerals)

1.

S.No	Terms of Reference	Remarks
1.1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. This is a fresh quarry lease.

1.2	A copy of the document in support of the fact that the proponent is the rightful lessee of the mine should be given.	The proposed site for quarrying is a private land in the name of proponent as in approved mining plan, page-13.
1.3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	All the documents are in the name of the lessee.
1.4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	All corner coordinates of the mine lease area have been superimposed on a high-resolution Google Earth Image, as shown in Figure 2.2 under Chapter II in the EIA report page 12.
1.5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Toposheets of Survey of India have been used for showing sampling locations of air, soil, water, and noise, as shown in Chapter III in the EIA report page 28.
1.6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should	The lease area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.

	have approval from State land use board or the concerned authority.	
1.7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the. prescribed operating process/ procedures to bring into focus any infringement/ deviation/ violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report	The Environmental Policy is discussed in the Section 10.1 under Chapter X in the EIA report page 141-142.
1.8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided	It is an opencast quarrying operation proposed to operate in Manual method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 45° 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.
1.9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	The study area considered for this study is of 5 km radius for air, soil, water, and noise level sample collections, while the study area is 10 km radius for ecology and biodiversity studies and all data contained in the EIA report such as waste generation etc., is for the life of the mine / lease period.
1.10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	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 have been discussed in Section 3.2 under Chapter III in the EIA report page 32-33. The details of surrounding sensitive ecological features have been provided in Table 3.39 under Chapter III in the EIA report page 97. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Table 2.9 under Chapter II in the EIA report page 19.
1.11	Details of the land for any over burden dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	It is not applicable as no dumps have been proposed outside the lease area. The entire quarried out rough stone will be transported to the needy customers.
1.12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the	It is not applicable as there is no forest land involved within the proposed project area.

	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.	The details have been discussed in Table 3.39 under Chapter III in the EIA report page 97.
1.13	Status of forestry clearance for the broken- up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	It is not applicable, as the proposed project area does not involve any forest land.
1.14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006 as there are neither forests nor forest dwellers / 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.

1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	There is no any reserve forest in the study area. The details of reserve forest is discussed in the Table 3.39 under Chapter III in the EIA report page 97.
1.16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	There is no any wildlife/protected area within 10 km radius from the periphery of the project area. Information regarding the same has been given in Table 3.39 under Chapter III in the EIA report page 97.
1.17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/ (existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km radius from the periphery of the project area. Information regarding the same has been given in Table 3.39 under Chapter III in the EIA report page 97.
1.18	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET	A detailed biological study was carried out in both core and buffer zones and the results have been discussed in Section 3.7 under Chapter III in the EIA report page 69-81.

	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.	
1.19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared. in 'Critically Polluted' Area and does not come under 'Aravalli Range.
1.20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished.	Not Applicable The project doesn't attract the C.R.Z. Notification, 2018.

	(Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	
1.21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspect should be discussed in the Report	Not Applicable. There are no approved habitations of SCs/STs and other weaker sections in the lease area. Therefore, R&R Plan / Compensation Plan for the Project Affected People (PAP) are not provided.
1.22	One season (non-monsoon) [i.e., March-May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and	Baseline data were collected for the period of January 2026 – March 2026 as per CPCB notification and MoEF & CC Guidelines. Primary baseline data and the results have been included in Sections 3.1-3.9 under Chapter III in the EIA report page 25-97.

	flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	
1.23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map	Air quality modelling for prediction of incremental GLCs of pollutants was carried out using AERMOD view 11.2.0. The model results have been given in Section 4.4 under the Chapter IV in the EIA report page 103-109.

1.24	The water requirement for the project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the project should be indicated.	The water requirement for the project, its availability and source have been provided in Table 2.12 under Chapter II in the EIA report page 21.
1.25	Necessary clearance from the competent Authority for drawl of requisite quantity of water for the project should be provided.	Not Applicable. Water for dust suppression, greenbelt development and domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily requirement basis. Drinking water will be sourced from the approved water vendors.
1.26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Part of the working pit will be allowed to collect rain water during the spell of rain. The water thus collected will be used for greenbelt development and dust suppression. The mine closure plan has been prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during droughts.
1.27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact studies and mitigation measures of water environment including surface water and ground water have been discussed in Section 4.3 under Chapter IV in the EIA report page 102-103.
1.28	Based on actual monitored data, it may clearly be shown whether working will	The ground water table is found at the depth of 65-60m below ground level. The ultimate

	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.	depth of quarry is 50m BGL. Therefore, the mining activity will not intersect the ground water table. Data regarding the occurrence of groundwater table have been provided in table 3.10-3.14 under Chapter III in the EIA report page 48-49.
1.29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out	Not Applicable. There are no streams, seasonal or other water bodies passing within the project area. Therefore, no modification or diversion of water bodies is anticipated
1.30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	The highest elevation of the project area is 80m AMSL. Ultimate depth of the mine is 50m BGL. Depth to the water level in the area is 65-60m below the ground level.
1.31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up. From on commencement of the	Greenbelt development plan has been given in Section 4.6 under Chapter IV in the EIA report page 114-115.

	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.	
1.32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	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 have been provided in Section 3.9 under Chapter III in the EIA report page 95-96.
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Infrastructure & other facilities will be provided to the mine workers after the grant of quarry lease and the same has been

		discussed in Section 2.7.7 under Chapter II in the EIA report page 21.
1.34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Progressive mine closure plan has been prepared for this project and is given in Section 2.7.5 under chapter IV in the EIA report page 19.
1.35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational health impacts of the project and preventive measures detail have been explained in Section 4.8 under Chapter IV in the EIA report page 117-118.
1.36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No public health implications are anticipated due to this project. Details of CSR and CER activities have been discussed in Sections 8.6 and 8.7 under Chapter VIII in the EIA report page 138-139.
1.37	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 23 people directly as discussed in Section 8.1 under Chapter VIII 137.

1.38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	A detailed Environment Management Plan has been prepared and provided in Table 10.1 & 10.2 under Chapter X in the EIA report page 142-149.
1.39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	The outcome of public hearing will be submitted during the final EIA report.
1.40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given	No litigation is pending in any court against this project.
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost is Rs.2,64,77,805 /- CER Cost is Rs. 5,00,000/- In order to implement the environmental protection measures, an amount of Rs. 28.50lakhs as capital cost and recurring cost as Rs. 24.22 Lakhs as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the overall EMP cost for 10 years will be Rs. 333.01 Lakhs as shown

		in Tables 10.1 & 10.2 under Chapter X, pp.142-149.
1.42	A disaster management plan shall be prepared and included in the EIA/EMP Report.	The disaster management plan for this project has been provided in Section 7.3 under Chapter VII in the EIA report page 129-130.
1.43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Benefits of the project details have been given as Chapter VIII in the EIA report pages 137-139.
1.44	Besides the above, the below mentioned general points are also to be followed	
a)	All documents to be properly referenced with index and continuous page numbering	All the documents have been properly referenced with index and continuous page numbering
b)	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated	List of tables and source of the data collected have been mentioned.
c)	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.	Original Baseline monitoring reports will be submitted in final EIA report.
d)	Where the documents provided are in a language other than English, an English translation should be provided.	All the documents provided here are in English language.
e)	The Questionnaire for environmental appraisal of mining projects as devised	The questionnaire will be submitted in final EIA report.

	earlier by the Ministry shall also be filled and submitted.	
f)	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) dated 4 th August, 2009 have been followed while preparing this EIA report.
g)	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.	No changes are made in the basic scope and the project parameters.
h)	As per the circular no. J 11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	It is a new lease area; the condition is not applicable.

i)	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	All the plans including surface & geological plans, and progressive closure plan have been included in Annexures.
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STANDARD TERMS OF REFERENCE

1.	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. This is a fresh quarry lease.
2.	A copy of the document in support of the fact that the proponent is the rightful lessee of the mine should be given.	The proposed site for quarrying is a private land in the name of proponent as in approved mining plan.
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.	All the documents are in the name of lessee.
4.	All corner coordinates of the mine lease area, superimposed on a High-	All corner coordinates of the mine lease area have been superimposed on a high- resolution

	Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Google Earth Image, as shown in Figure 2.2 under Chapter II in the EIA report page 12.
5.	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Toposheets of Survey of India have been used for showing sampling locations of air, soil, water, and noise, as shown in Chapter III in the EIA report page 28.
6.	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The lease area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
7.	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the. prescribed operating process/ procedures to bring into focus any infringement/ deviation/ violation of the environmental or forest	The Environmental Policy is discussed in the Section 10.1 under Chapter X in the EIA report page 141-142

	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	It is an opencast quarrying operation proposed to operate in Manual method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 45° bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
9.	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	The study area considered for this study is of 5 km radius for air, soil, water, and noise level sample collections, while the study area is 10 km radius for ecology and biodiversity studies and all data contained in the EIA report such as waste generation etc., is for the life of the mine / lease period.
10.	Land use of the study area delineating forest area, agricultural land, grazing	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife

	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.	sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features have been discussed in Section 3.2.3 under Chapter III in the EIA report page 32-34. The details of surrounding sensitive ecological features have been provided in Table 3.39 under Chapter III in the EIA report page 97. Land use plan of the project area showing pre- operational, operational and post- operational phases are discussed in Table 2.9 under Chapter II in the EIA report page 19.
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.	It is not applicable as no dumps have been proposed outside the lease area. The entire quarried out rough stone will be transported to the needy customers.
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	It is not applicable as there is no forest land involved within the proposed project area. The details have been discussed in Table 3.39 under Chapter III in the EIA report page 97.

	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.	It is not applicable as the proposed project area does not involve any forest land.
14.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006 as there are neither forests nor forest dwellers / 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.
15.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	There is no any reserve forest in the study area. The details of reserve forest are discussed in the Table 3.39 under Chapter III in the EIA report page 97.
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.	There is no any wildlife/protected area within 10 km radius from the periphery of the project area. Information regarding the same has been given in Table 3.39 under Chapter III in the EIA report page 97.

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.	There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/ Elephant Reserves within 10 km radius from the periphery of the project area. Information regarding the same has been given in Table 3.39 under Chapter III in the EIA report page 97.
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	A detailed biological study was carried out in both core and buffer zones and the results have been discussed in Section 3.7 under Chapter III in the EIA report page 69-83.

	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 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared. in 'Critically Polluted' Area and does not come under 'Aravalli Range.
20.	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable The project doesn't attract the C.R.Z. Notification, 2018.
21.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the	Not Applicable. There are no approved habitations of SCs/STs and other weaker sections in the lease area. Therefore, R&R Plan / Compensation Plan for the Project Affected People (PAP) are not provided.

	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 aspect should be discussed in the Report	
22	One season (non-monsoon) [i.e., March-May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the predominant downwind direction and location of sensitive receptors. There should be at least one monitoring station	Baseline data were collected for the period of December 2025- February 2026 as per CPCB notification and MoEF & CC Guidelines. Primary baseline data and the results have been included in Sections 3.1-3.9 under Chapter III in the EIA report page 25-97.

	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 modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map	Air quality modelling for prediction of incremental GLCs of pollutants was carried out using AERMOD view 11.2.0. The model results have been given in Section 4.4 under the Chapter IV in the EIA report page 103-109.
24.	The water requirement for the project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the project should be indicated.	The water requirement for the project, its availability and source have been provided in Table 2.12 under Chapter II in the EIA report page 21.
25.	Necessary clearance from the competent Authority for drawl of requisite quantity of water for the project should be provided.	Not Applicable. Water for dust suppression, greenbelt development and domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily

		requirement basis. Drinking water will be sourced from the approved water vendors.
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.	Part of the working pit will be allowed to collect rain water during the spell of rain. The water thus collected will be used for greenbelt development and dust suppression. The mine closure plan has been prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during droughts.
27.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact studies and mitigation measures of water environment including surface water and ground water have been discussed in Section 4.3 under Chapter IV in the EIA report page 102-103.
28.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The ground water table is found at the depth of 65-60m below ground level. The ultimate depth of quarry is 50m BGL. Therefore, the mining activity will not intersect the ground water table. Data regarding the occurrence of groundwater table have been provided in Section 3.4.4 under Chapter III in the EIA report page 46-54.

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	Not Applicable. There are no streams, seasonal or other water bodies passing within the project area. Therefore, no modification or diversion of water bodies is anticipated
30.	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	The highest elevation of the project area is 80m AMSL. Ultimate depth of the mine is 50m (BGL). Depth to the water level in the area is 65-60m below the ground level.
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. From 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.	Greenbelt development plan has been given in Section 4.6 under Chapter IV in the EIA report page 114-115.
32.	Impact on local transport infrastructure due to the Project should be indicated.	Traffic density survey was carried out to analyses the impact of transportation in the

	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.	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 have been provided in Section 3.9 under Chapter III in the EIA report page 95-96.
33.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Infrastructure & other facilities will be provided to the mine workers after the grant of quarry lease and the same has been discussed in Section 2.7.7 under Chapter II in the EIA report page 21.
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.	Progressive mine closure plan has been prepared for this project and is given in Section 4.10 under chapter IV in the EIA report 119-120 and budgetary details discussed in table 2.10 in the EIA report page 19.
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	Occupational health impacts of the project and preventive measures detail have been explained in Section 4.8 under Chapter IV in the EIA report page 117-118.

	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.	No public health implications are anticipated due to this project. Details of CSR and CER activities have been discussed in Sections 8.6 and 8.7 under Chapter VIII in the EIA report page 138-139.
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.	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 23 people directly as discussed in Section 8.1 under Chapter VIII page 137.
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.	A detailed Environment Management Plan has been prepared and provided in Table 10.1 & 10.2 under Chapter X in the EIA report page 142-149.
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	The outcome of public hearing will be submitted during the final EIA report.

	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	No litigation is pending in any court against this project.
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost is Rs.2,64,77,805/- CER Cost is Rs. 5,00,000/- In order to implement the environmental protection measures, an amount of Rs. 28.50 Lakhs as capital cost and recurring cost as Rs. 24.22 Lakhs as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the overall EMP cost for 10 years will be Rs. 333.01 Lakhs as shown in Tables 10.1 & 10.2 under Chapter X, pp.142-149.
42.	A disaster management plan shall be prepared and included in the EIA/EMP Report.	The disaster management plan for this project has been provided in Section 7.3 under Chapter VII in the EIA report page 129-130.
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.	Benefits of the project details have been given as Chapter VIII in the EIA report page 137-139.
44	Besides the above, the below mentioned general points are also to be followed:	
a)	Executive Summary of the EIA/EMP Report.	Executive summary has been enclosed as a separate booklet.

b)	All documents to be properly referenced with index and continuous page numbering.	All the documents have been properly referenced with index and continuous page numbering.
c)	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of tables and source of the data collected have been mentioned.
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.	Original Baseline monitoring reports will be submitted in the final EIA report.
e)	Where the documents provided are in a language other than English, an English translation should be provided.	All the documents provided here are in English language.
f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The questionnaire will be submitted in the final EIA report.
g)	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) dated 4 th August, 2009 have been followed while preparing this EIA report.

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	No changes are made in the basic scope and the project parameters.
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.	As it is a new lease area, the condition is not applicable.
j)	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	All the plans including surface & geological plans, and progressive closure plan have been included in Annexures.

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CHAPTER I

INTRODUCTION

1.0 PREAMBLE

Environmental Impact Assessment (EIA) study is a process used to identify the environmental, social and economic impacts of a project prior to decision- making. EIA systematically examines both beneficial and adverse consequences of the proposed project and ensure that these impacts are considered during the project designing. According to the Ministry of Environment and Forests, Govt. of India, EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments the projects are categorized into A, B1 & B2 to determine the level of scrutiny and process. The mining projects whose extent is ≥ 5 ha or the cluster of quarries (if homogeneous mineral) within 500m radius extent is greater than 5ha falls under Category- B1. These projects require preparation and submission of an EIA report after public consultation to SEIAA to obtain environmental clearance as per the Office Memorandum F.No. L-11011/175/2018-IA-II (M), Dated: 12.12.2018.

1.1 PURPOSE OF THE REPORT

The purpose of the report is to evaluate the project's potential environmental, social and economic effects of the before it is implemented adhering to the guidelines outlined in the MoEF & CC Notification, S.O. 996 (E) dated 10.04.2015 and MoEF & CC Office Memorandum dated 29.08.2017.

1.2 ENVIRONMENTAL CLEARANCE

The Environmental Clearance process for the project will comprise of four stages. These stages are screening, scoping, public consultation & appraisal.

Screening

The project had applied in PARIVESH 2.0 proposal no. SIA/TN/MIN/562475/2026, Dated: 02.01.2026 to obtain terms of reference.

Scoping

The mechanism for issuing online system generated Standard ToR as well as reference to SEAC has been enabled on the PARIVESH Portal on the acceptance of the complete application online. The concerned Member Secretary of SEAC shall refer the project to the concerned SEAC for prescribing additional ToR as per the circular F.No. IA 3-22/15/2022-IA-III [Computer No 178038] Dated: 6th May 2022.

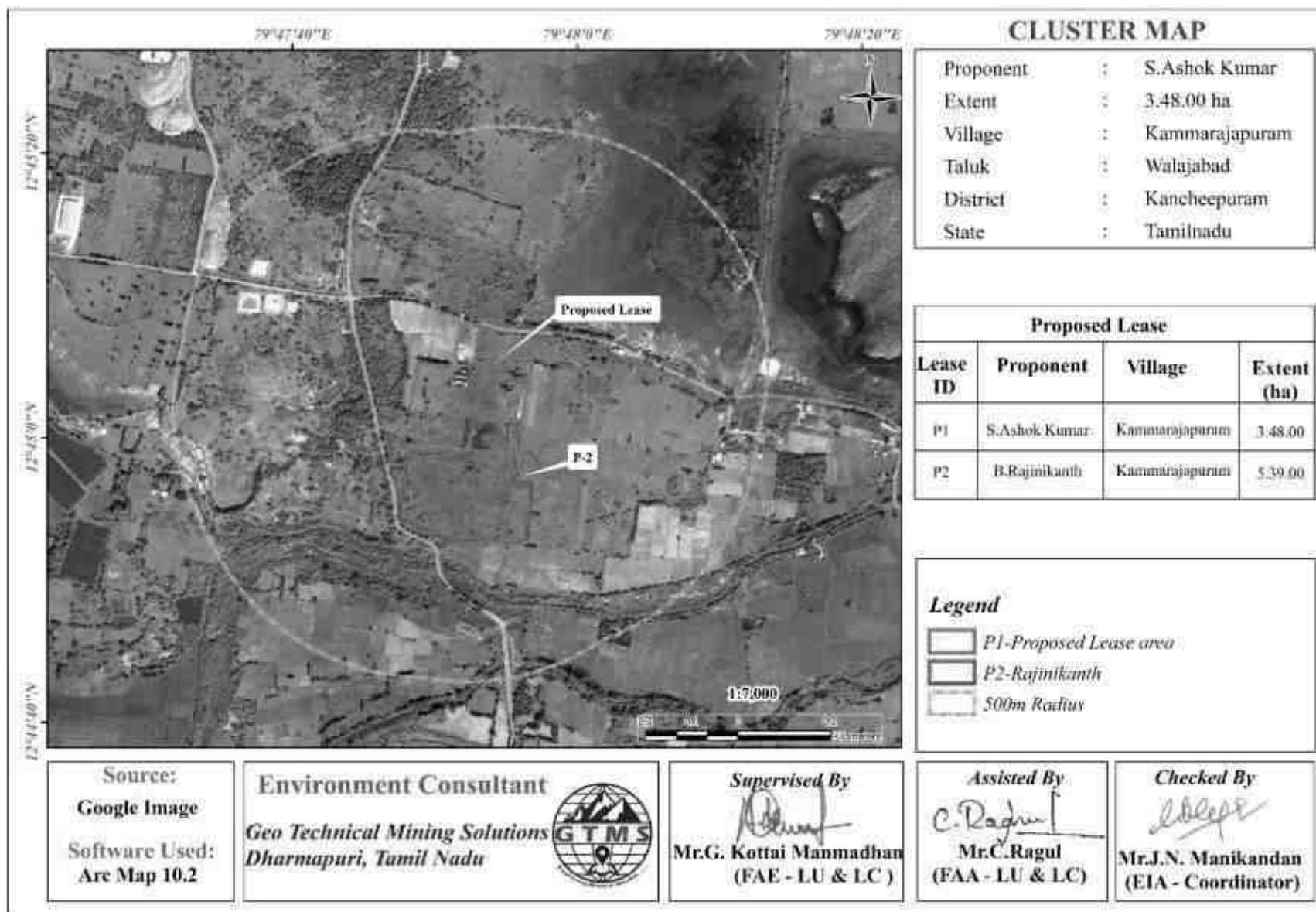


Figure 1.1 Location of the proposed rough stone and gravel quarries in the cluster of 500m radius

Public Consultation

In this stage, an application along with the draft EIA and EMP report will be made to the Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) and request to conduct Public Hearing as per EIA notification 2006. The outcome of the public hearing meeting will be updated in the final EIA report.

Appraisal

In this stage, the final EIA report will submit in PARIVESH 2.0 to SEIAA, TN. Based on the recommendations of SEAC the SEIAA, TN will grant EC or castoff.

1.3 TERMS OF REFERENCE (ToR)

The total extent of quarries within the 500m radius is greater than 5ha. The details of the quarries within the cluster are given in Table 1.1.

Table 1.1 Details of quarries within the cluster of 500m radius

Proposed Quarries					
Code	Name of the Owner	S.F. No	Village & Taluk	Extent (ha)	Status
1	S. Ashok Kumar	290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C	Kammarajapuram & Walajabad	3.48.0ha	Applied
2	B.Rajinikanth	287/ 1A1, 287/1A2, 287/1A3, 287 / 1B1, 287 / 1B2, 287 /2, 287 /3, 288/ 1A, 288/ 1B, 288/ 1C, 288/ 1D, 288/ 1E, 288/ 1F, 288/ 1G, 288/ 1H, 288/ 2, 288/ 3A, 288/ 3B, 288/ 4A, 288/ 4B	Kammarajapuram & Walajabad	5.39.00ha	Applied
Total Cluster Extent				8.87.0ha	---

Source: AD Letter: Roc.No. 342/Mines/2025, Dated:03.12.2025

The file was appraised in 675th SEAC meeting on 04.02.2025 and issued terms of reference (ToR) identification no **TO25B0108TN5329454N** on **05.03.2026** by SEIAA, TN.

1.4 POST ENVIRONMENT CLEARANCE MONITORING

- The project proponent shall prominently advertise in the newspapers indicating that the project has been accorded environmental clearance and the details of the website where it is displayed.
- The project proponent will submit a half-yearly compliance report of the stipulated environmental conditions to Regional Office, MoEF & CC & SEIAA on 1st June and 1st December of every year.

1.5 TRANSFERABILITY OF ENVIRONMENTAL CLEARANCE

The prior environmental clearance granted for a project or activity may be transferred as per the provisions of para 11 of the Environmental Impact Assessment Notification, 2006 and its subsequent amendments and the office memorandum File No. IA3-22/19/2023-IA.III [E226246] Dated: 3rd November 2023.

1.6 IDENTIFICATION OF THE PROJECT PROPONENT

The details of the project proponent are given in Table 1.2 below.

1.2 Details of Project Proponent

Name of the Project Proponent	S. Ashok Kumar
Address	S/o. Sekar, No.83, V.V. Kovil Street, Walajabad Taluk, Kancheepuram District - 631605.
Status	Owner

1.7 BRIEF DESCRIPTION OF THE PROJECT

The method adopted for rough stone excavation is open cast semi mechanized method involving formation of benches with 5m height and 5m width and the overall bench slope is less than 65°. The quarry operation involves shallow jackhammer drilling, slurry blasting, excavation, loading and transportation.

The overall extent of the project site is 3.48.0ha and it is located in Kammarajapuram Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu.

The proposed project deals with excavation of rough stone which is primarily used in construction projects. The increasing demand for rough stone fuelled by a booming construction industry presents a valuable opportunity. This project will not only meet the rising demand for rough stone but also create jobs for the surrounding villages.

1.8 SCOPE OF THE STUDY

The main scope of the EIA study is to quantify the cumulative impact of the quarries in the cluster and formulate the effective mitigation measures. The baseline monitoring study has been carried out during the period of **January to March- 2026** for various environmental components such as land, soil, air, water, noise, ecology, etc. to assess the anticipated impacts of the cluster on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

1.9 Legislation Applicable to Mining of Mineral Sector

A few important legislations are given below:

- ❖ The Mines Act, 1952
- ❖ The Mines and Mineral (Development and Regulation) Act, 1957
- ❖ Mines Rules, 1955
- ❖ Mineral Concession Rules, 1960
- ❖ Mineral Conservation and Development Rules, 1988
- ❖ State Minor Mineral Concession Rules, 1960
- ❖ Granite Conservation and Development Rule, 1999
- ❖ The Water (Prevention and Control of pollution) Act, 1974
- ❖ The Air (Prevention and Control of pollution) Act, 1981
- ❖ The Environment (Protection) Act, 1986
- ❖ The Forest (Conservation) Act, 1988
- ❖ The Wildlife (Protection) Act, 1972.

CHAPTER II

PROJECT DESCRIPTION

2.0 GENERAL INTRODUCTION

The open cast mining method, also known as open-pit mining has been proposed to extract the mineral deposit. It is the most commonly used surface mining method all over the world and is generally suitable for mining low-grade mineral deposits that are found close to the surface of the earth and distributed uniformly over a large area. Open pits are also termed quarries when the pits are used for the extraction of building materials and dimension stones.

Opencast mining starts with the development of benches, the widths of which will be determined in such a way to accommodate the use of heavy machinery. The walls of open pits will be dug at an angle that will be decided based on well-established industry standards to provide safety. In some cases where the walls are composed of weak material such as soil and highly weathered rocks, dewatering holes will be drilled horizontally to relieve the water pressure to avoid wall collapse inside the mine site.

The required mine-related infrastructures will be established close to the open pit. The mining infrastructures may include an administration building, a maintenance garage, and a warehouse. The materials mined from open pits will be brought to the surface using trucks. The waste rocks will be piled up in a suitable location, usually close to the open pit. The structure produced by the waste rock pile is known as a waste dump. The dimension of the waste dump will be determined based on industrial safety standards to prevent the rocks from falling into the surrounding area.

2.1 DESCRIPTION OF THE PROJECT

The proponent **Mr. S. Ashok Kumar** is involved in the mining and its auxiliary activities. The proponent had applied for quarry lease on 11.07.2025 to extract rough stone & gravel. The precise area communication letter was issued by Deputy Director(i/c) of Geology and Mining, Kancheepuram vide (Roc.No.342/Mines/2025, Dated 27.11.2025). The mining plan thus prepared was approved by Deputy Director(i/c) Department of Geology and Mining, Kancheepuram (Roc.No.342/Mines/2025, Dated 03.12.2025). The project area and the proposed excavation details were given in Table 2.1.

2.2 HISTORY OF THE PROJECT

It's a fresh quarry lease.

Table 2.1 Proposed project area and excavation details

Name of the Quarry	S. Ashok Kumar, Rough Stone and Gravel Quarry	
Type of Land	Patta Land	
Extent	3.48.0ha	
S.F. No	290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C	
Toposheet No	57- P/13 & 57- P/14	
Highest Elevation	80m AMSL	
Latitude	12°44'59.17"N to 12°45'5.56"N	
Longitude	79°47'48.19"E to 79°47'56.83"E	
Proposed depth for Ten Years	50m BGL	
Geological Resources	Rough stone in m ³ & Tons	Gravel in m ³ & Tons
	1563345 & 4299199	173705 & 347410
Mineable Reserves	581360 & 1598740	142240 & 284480
Proposed production for 10 years	581360 & 1598740	142240 & 284480
Method of Mining	Open cast mechanized mining method	
Topography	Flat Topography	
Machinery requirements	Jack hammer	3
	Excavator	2
	Compressor	2
	Tipper	6
Proposed Manpower Deployment	23 Nos	
Project Cost	Rs. 2,64,77,805/-	
Proposed Water Requirement	3.5 KLD	

2.3 LOCATION AND ACCESSIBILITY

The proposed quarry project is located in Kammarajapuram Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu as shown in Figure 2.1.

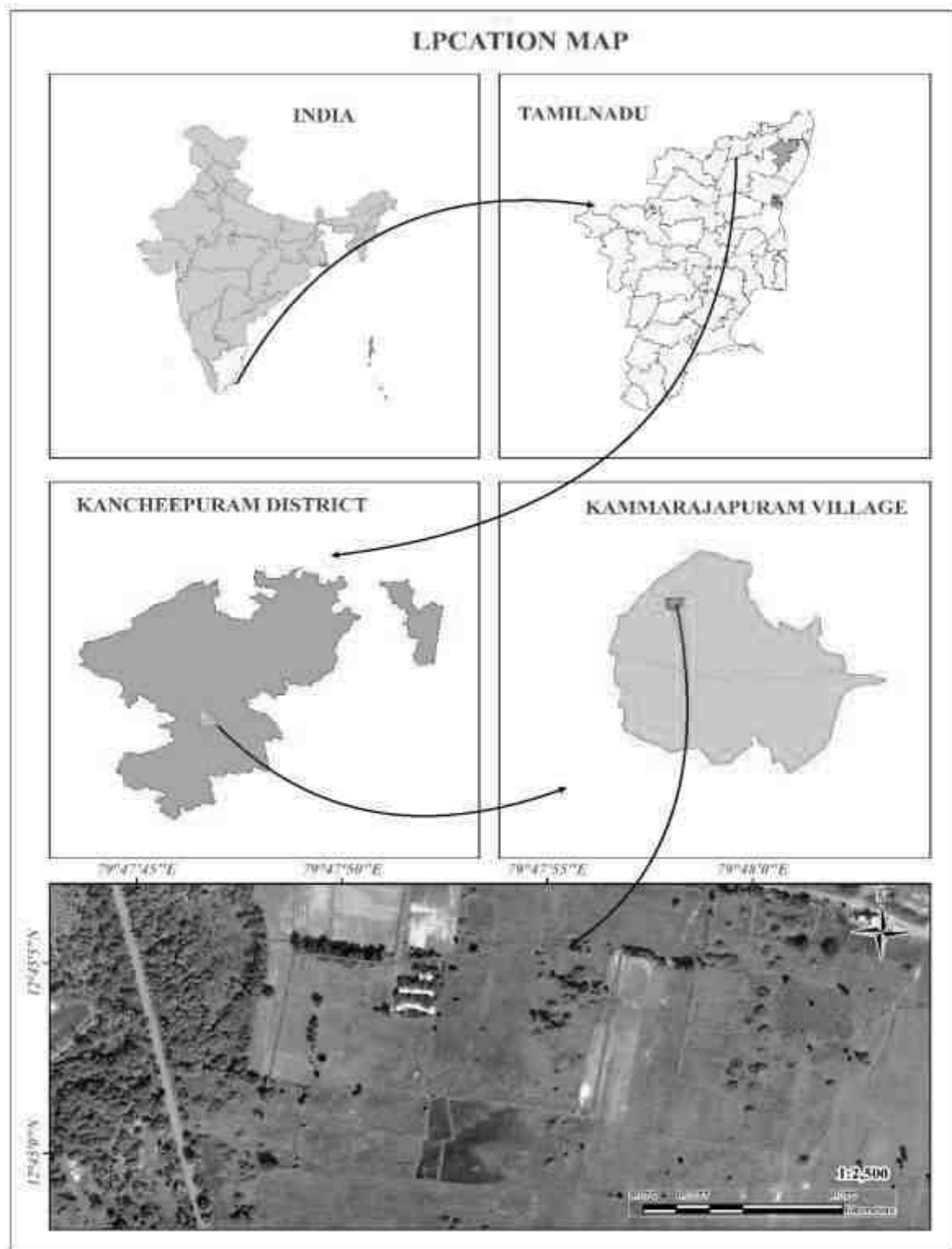


Figure 2.1 Key Map Showing Location of Project Site

The aerial distance between the project site boundary to reach the site access the NH-132A Kancheepuram- Chengalpattu Road, Walajabad bus stand & travel distance is around 4.98km from Avalur bus stand. Kambarajapuram road bus stop 1.47km- West in the project area. Accessibility details to the proposed project site have been given in Table 2.2.

Table 2.2 Site Connectivity to the Project Area

Type of Features	Name/ Location	Distance (km)	Direction
National Highway	NH-44	11.64	South
Nearest Roadways	MDR- 132B Kancheepuram - Chengalpatu	4.81	NE
Nearest Town	Walajabad	5.47	N
Nearest Airport	Chennai	46.04	NE
Nearest Villages	Thammanur	1.26km	NE
	Kammarajapuram	1.13km	East
	Vallimedu	1.07Km	South
	Asoor	1.58km	West

2.4 LEASEHOLD AREA

The details of the field survey number, subdivision and their extent and the overall extent of the proposed project site is given in Table 2.3.

Table 2.3 Lease hold area details

S.No	Survey No	Sub Division	Total Extent in Hect	Patta No.	Village and Name of the Land Owner	Mine lease Applied S.F.No.	Mine lease Applied area out of total area in hect.
1	290	1A	0.39.00	1468	Ashokkumar S/o Sekar	290/1A	0.39.00
2	290	2B1	0.30.50			290/2B1	0.30.50
3	291	1A	0.14.00	1292	Vinayagam S/o. Krishna Nayakkar	291/1A	0.14.00
4	291	1B	0.13.50			291/1B	0.13.50
5	291	1C1	0.21.50			291/1C1	0.21.50
6	291	1C2	0.6.00	1294	Tirumalai S/o. Krishna Nayakkar	291/1C2	0.6.00
7	291	1D1	0.16.50	1292	Vinayagam S/o. Krishna Nayakkar	291/1D1	0.16.50
8	291	1D2	0.6.00	1294	Tirumalai S/o. Krishna Nayakkar	291/1D2	0.6.00
9	291	2A	0.17.50			291/2A	0.17.50
10	291	2B	0.19.00			291/2B	0.19.00
11	291	2D	0.16.50			291/2D	0.16.50
12	292	1A	0.44.50	1468	Ashokkumar S/o Sekar	292/1A	0.44.50
13	292	1B	0.44.50			292/1B	0.44.50
14	292	2A	0.19.50			292/2A	0.19.50
15	292	2B	0.20.00			292/2B	0.20.00
16	292	2C	0.19.50			292/2C	0.19.50
Total			3.48.00				3.48.00

The proposed project is site specific. There is no mineral beneficiation or processing proposed inside the project area. There is no forest land involved in the proposed area and is

devoid of major vegetation and trees. The overall extent of the project area is 3.48.0Ha as per the precise area communication letter vide Roc.No.342/Mines/2025, Dated: 27.11.2025 issued by Dept of Geology and Mining, Kancheepuram District, Tamil Nadu. The breakup of the existing land use for mining and ancillary feature is given in Table 2.3.

Table 2.3a Present Land use pattern of the project area

Sl. No.	Land Use	Present area (Hect.)
1.	Area under Mining	Nil
2	Infrastructure	Nil
3	Roads	Nil
4	Unutilized	3.48.0
5	Greenbelt + Earth bund+ Dump	Nil
	Grand Total	3.48.0

2.4.1 Geo Coordinates

The proposed lease area is flat topography. The maximum elevation (80m) was observed north side of the site. The boundary corner and the intermediate stone geographic coordinates is given in Table 2.4 and shown in Figure 2.2.

The quarries within the cluster of 500m radius as per the letter Roc.No.342/Mines/2025, Dated: 03.12.2025 is enclosed as Annexure II.

Table 2.4 Geographic coordinates of the Project area

PILLAR ID	LATTITUDE	LONGITUDE
1	12°45'5.39"N	79°47'56.83"E
2	12°45'1.09"N	79°47'56.04"E
3	12°45'1.25"N	79°47'55.46"E
4	12°45'1.45"N	79°47'52.55"E
5	12°45'0.36"N	79°47'52.73"E
6	12°45'0.34"N	79°47'52.48"E
7	12°44'59.17"N	79°47'52.32"E
8	12°44'59.44"N	79°47'49.39"E
9	12°45'5.39"N	79°47'56.83"E
10	12°45'0.70"N	79°47'48.68"E
11	12°45'1.80"N	79°47'48.77"E
12	12°45'1.78"N	79°47'48.19"E
13	12°45'5.28"N	79°47'48.84"E
14	12°45'4.98"N	79°47'51.00"E
15	12°45'5.18"N	79°47'52.85"E
16	12°45'5.56"N	79°47'55.18"E

2.5 GEOLOGY

The rock present in the project site is charnockite exhibits layered, medium to coarse grained hornblende biotite, orthopyroxene charnockite gneiss. The Charnockite Group occupies a major part of the south-west portion of this district with small bands of

garnetiferous quartzo- feldspathic gneiss, Granite gneiss and dolerite dykes. The order of superposition of the proposed lease area is

Age	Group	Rock Formation
Recent to Sub recent	----	Top Soil (1m Thick)
Archean to Lower Proterozoic	Migmatite complex	Pegmatite and Quartz/ Veins Dolerite dyke Peninsular gneisses and Migmatites
Archean	Charnockite Group	Charnockite, Garnetiferous quartzo-feldspathic, Biotite gneisses

The topsoil available at a depth of 0-3m, weathered rock is obtained the average of 1-3m and a rough stone starts from 3m to 50m.

2.6 QUANTITY OF RESERVES

The resources and reserves of rough stone were calculated based on cross-section method by plotting sections to cover the maximum lease area for the proposed project. Based on the availability of geological resources, the mineable reserves are calculated by considering excavation system of bench formation and leaving essential safety margins, as shown in Figure 2.5 and deducting the locked-up reserves during bench formation (also called as Bench Loss). The mineable reserves are calculated up to the depth of 50m (BGL) considering there is no waste/ overburden/ side burden (100% Recovery anticipated) for the proposed project. The results of geological resources and reserves is given in Table 2.5 and the approved year wise development plan is enclosed as Figure 2.2, 2.3, 2.4 & 2.4a.

Table 2.5 Estimated Resources and Reserves of the Project

Resource Type	Rough Stone in m ³ & Tons	Gravel in m ³ & Tons
Geological Resource in (m ³ & Ts)	1563345 & 4299198	173705 & 347410
Mineable Reserves in (m ³ & Ts)	581360 & 1598740	142240 & 284480
Proposed production for 10 years (m ³ & Ts)	581360 & 1598740	142240 & 284480

Source: Approved Mining Plan & ToR

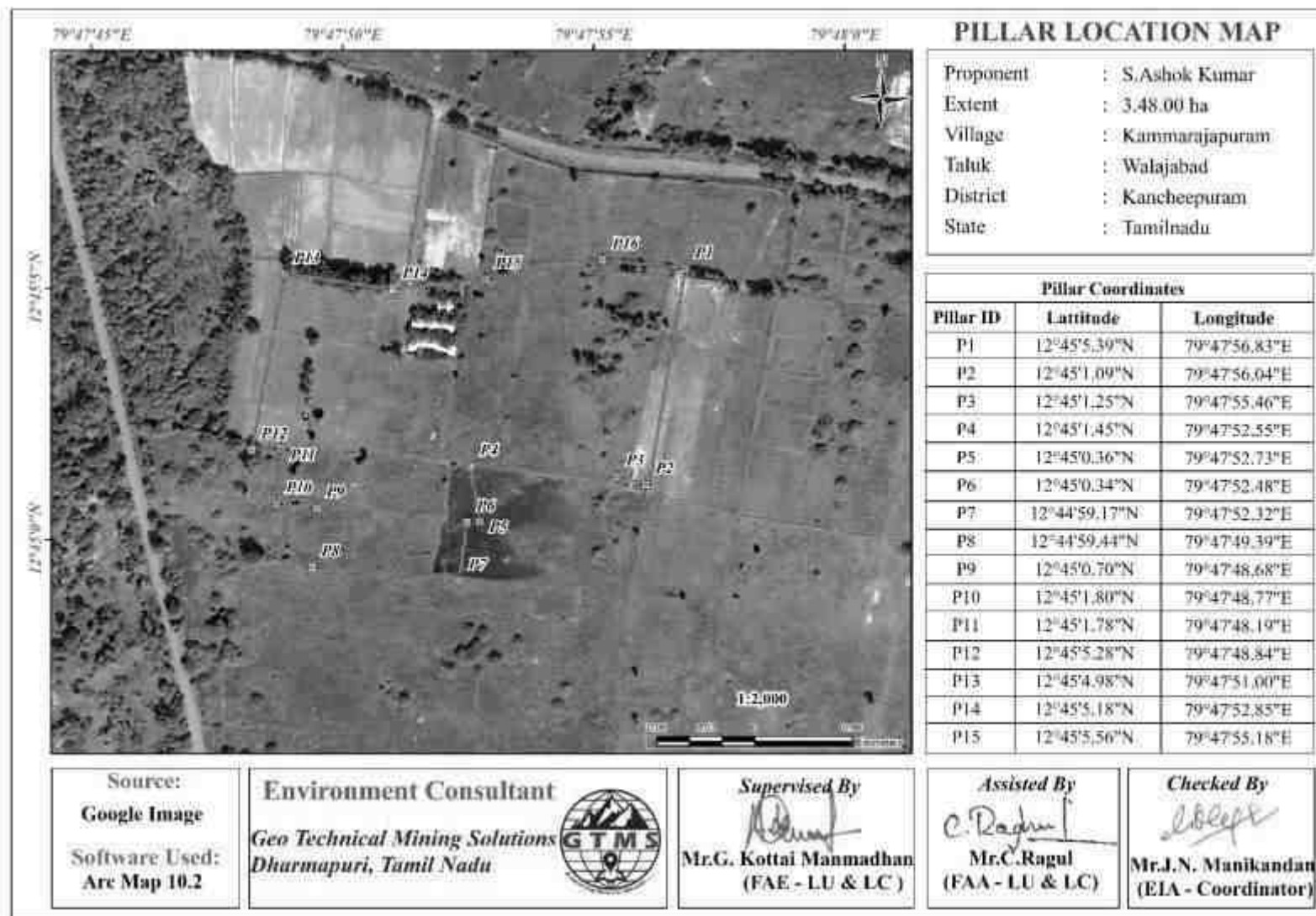


Figure 2.2 Google Earth Image Showing Pillar Coordinates of Lease Area

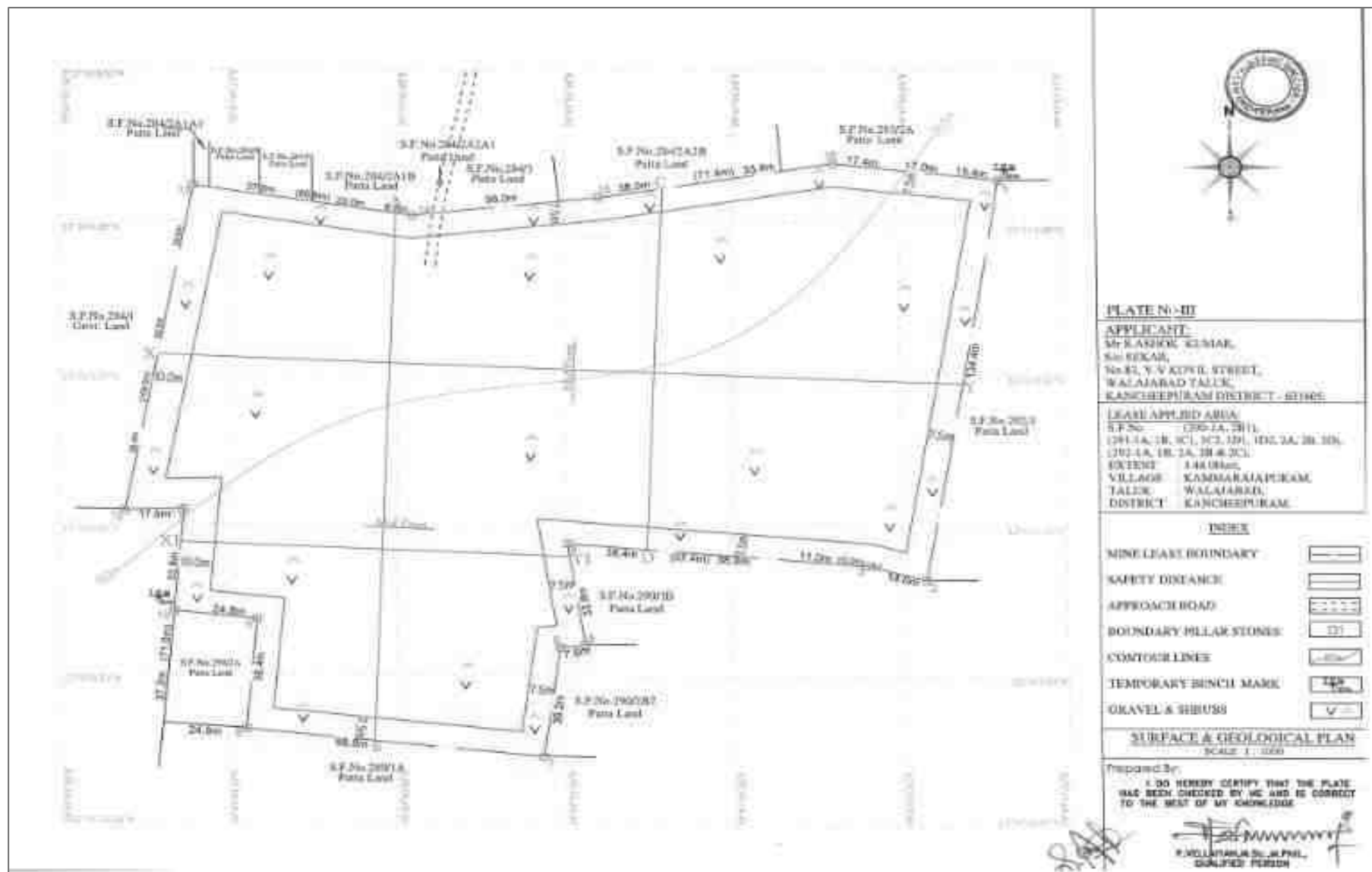


Figure 2.3 Surface & Geological Plan

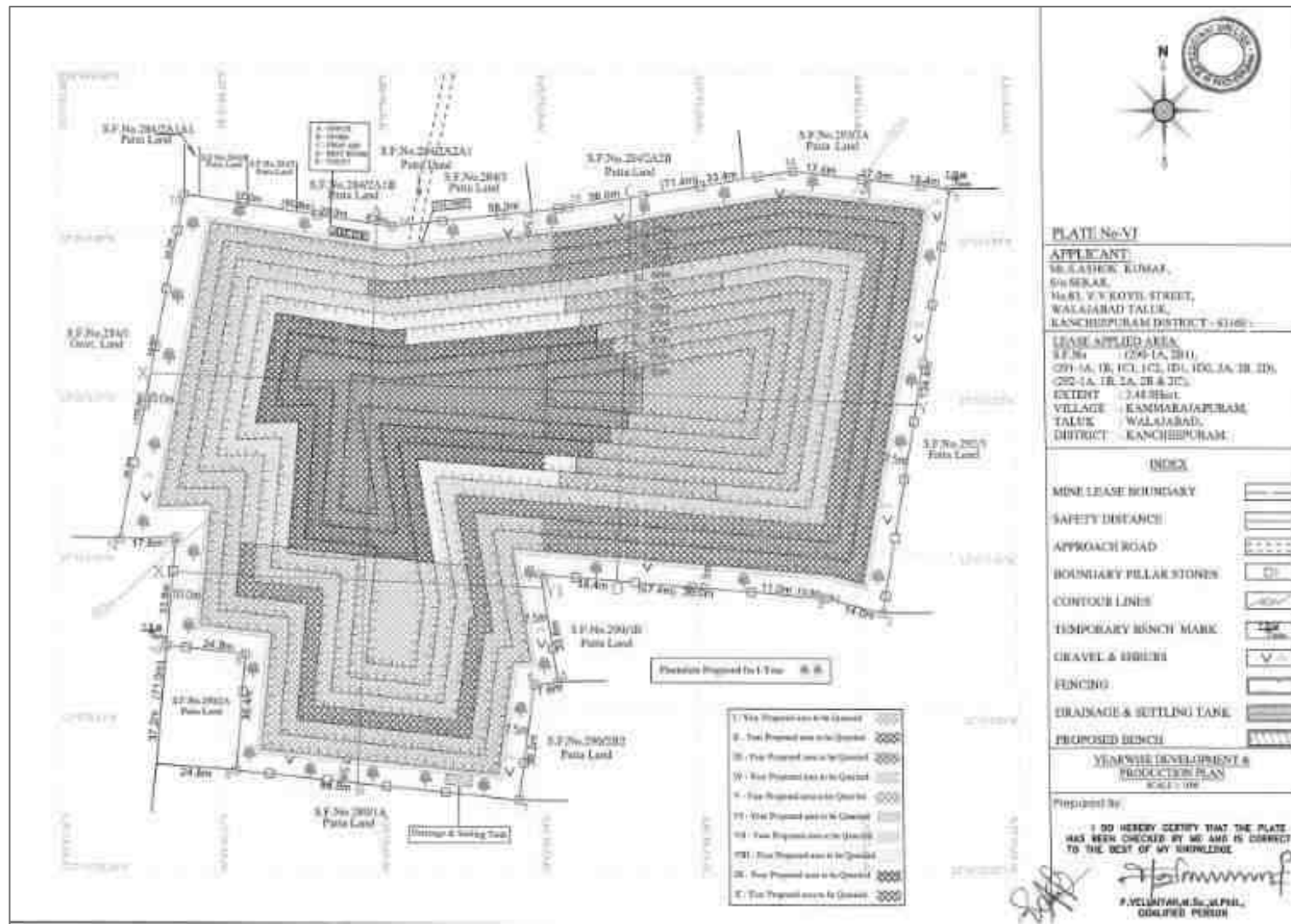


Figure 2.4 Year wise Development & Production Plan

2.7 MINING METHOD

The Quarrying operation is proposed to be carried out by open cast mechanized mining method with the bench height and width of 5m each. The open cast mechanized method involving drilling and blasting is proposed to extract rough stone. The extracted rough stone will be loaded to the trucks to the nearby stone crushing units. Due permission from D.G.M.S, will be taken as per Rule 106 of MMR 1961 is proposed. Mining operation is proposed in one shift i.e. 8AM to 4 PM. The average number of working days in a year would be 300 days/yr excluding. Sunday & holidays. The production will be slow down trend during monsoon period. In this project, NONEL blasting will be adopted to extract rough stone.

2.7.1 Conceptual Blasting Design

In this project, NONEL blasting will be employed to win rough stone. This method will involve closed spaced perimeter holes to reduce the overbreak/backbreak on a blast. The objective of the blasting design is to prevent fly rocks from damaging the nearby structures.

Rules of Thumb for Blast Design

Based on practical experience and technical information, a set of rules for blasting have been provided as below (Chapter 8 (nps.gov)). These rules will be applied to blast rocks in the proposed project.

Rule 1: The detonation velocity (VOD) of the explosive should be close to the same value of the sonic velocity (VSO) of the rock to be blasted.

The sonic velocity of a rock is considered to be a reliable indicator of its structural integrity and resistance to fragmentation. As the VOD of the explosive approaches close to the VSO of the rock, the blasting would result in relatively smaller size of fragmentation with uniformity. There is no value in using an explosive that has a VOD greatly in excess of the VSO of the rock, since there is little or no improvement in fragmentation above the VSO. When selecting an explosive to match up the VSO of a rock mass, variance of < 10% in the velocities is acceptable.

Rule 2: Generally, select the densest explosive possible.

When the density of explosives is higher, the potential energy of the explosives can be greater and the more of it can be placed within a borehole of a given size.

Rule 3: Select explosives according to the characteristics of the rock formation to be blasted.

When planes of separation in the rock are smaller than the degree of fragmentation required, the rock can often be blasted by using lower density and lower detonation velocity explosives.

Rule 4: When using slurry or water gel explosives, always determine the critical temperature below which the explosive will fail to reliably detonate.

Almost all slurry explosives have a critical temperature below which they may not detonate, or may not sustain detonation in elongated columns. The explosives should not be used when the temperature of the explosive at time of loading is below that critical temperature.

Rule 5: The distance between holes (spacing) should not be greater than one-half the depth of the borehole.

When the distance between holes in a row is greater than one-half the depth of the hole, the angles of breakage intersect above the bottom of the holes. This causes both a great deal of vertical throw and a very uneven bottom.

Rule 6: Stemming should be equal to the burden.

Stemming is useful to confine and maximize efficient use of the explosive's energy. It also reduces noise as much as possible. If the stemming is greater than the burden, the rock at the top of the borehole will have less cracking from reflection and refraction of compressive and tensile waves. Therefore, stemming should be equal to burden. Drill fines can be used for loading the borehole.

Rule 7: Sub drill (if necessary) should be between 0.3 and 0.5 of spacing/burden.

Sub drill should be equal to 0.3 of burden. It will work when there is row-for-row delay. In blasts where the delay system is both row-for-row and hole-for-hole, the sub drill should be determined by the largest dimension, which can be the spacing or the burden. An average sub drill of 0.4 of spacing is best to use for planning purposes. Based on the above-mentioned rules, blasting design has been conceptualized is given in Table 2.6.

Table 2.6 Conceptual Blasting Design

Blast hole Diameter (D) in mm	32
Burden (B) in m	1.2
Spacing (S) in m	1.38
Sub drill in m	0.5

Charge length (C) in m	0.70
Stemming	0.5
Hole Length (L) in m	1.2
Bench Height (BH) in m	2.5
Mass of explosive/hole in g	437.5
Stemming material size in mm	3.2
Burden stiffness ratio	2.08
Blast volume/hole in m ³	4.14
Number of blastholes/day	52
Blast hole pattern	Staggered
Mass of explosive /day in kg	20.72
Powder factor in kg/m ³	0.11
Type of explosives	Slurry
Initiation system	NONEL

Statutory Provision & Precaution during Blasting: -

- Blasting permission from DGMS will be taken by the proponent within 6 months from the date of execution of mine.
- Control blasting will be carried out by using delay detonators during multi rows blasting
- No secondary blasting will be carried out.
- Stemming column will be half of the depth of hole with coarse sand.
- Only Statutory designated Blaster will supervise the blasting operation.
- All persons in the radius of minimum 300m from the blasting site will be removed by siren.
- Blasting operation will be carried out during day time only particularly at noon time.

2.7.2 Magnitude of Operation

Based on the results of estimated production the details about the size of operation had provided in Table 2.7.

Table 2.7 Operational Details for Proposed Project

	Rough Stone (m³) & Ts / 10 years	Gravel (m³) & Ts / 2 years
Proposed production	581360 & 1598740	142240 & 284480
Number of Working Days	270	270
Production /Day (m ³) & Ts	215 & 592	263 & 526
No. of Lorry Loads	36	43

2.6.3 Extent of Mechanization

List of machineries proposed for the quarrying operation is given in Table 2.8.

Table 2.8 Machinery Details

S. No.	Type	No. of Unit	Size/Capacity	Dia of Hole (mm)	Motive Power
1	Jack Hammers	3	Hand Held	32mm	Diesel
2	Compressor	2	AIR	---	Diesel
3	Excavator	2	2.9 - 4.5 m ³	---	Diesel
Haulage & Transport Equipment					
4	Tipper	10	--	---	Diesel

2.7.4 Post mining land use

The land use at present, at the end of plan period & at the end of conceptual period is given in Table 2.9 below

Table 2.9 Land Use at the end of mine Life

Description	Present area (Hect.)	Area at the end of life of quarry (ha)
Area under quarry	Nil	2.85.00
Infrastructure	Nil	0.02.00
Roads	Nil	0.05.00
Green Belt	Nil	0.47.50
Un-Utilized Area	3.48.00	Nil
Drainage & Settling Tank	Nil	0.08.50
Total	3.48.00	3.48.00

2.7.5 Quarry Closure Budget

As the proposed project has the enormous potential for continuous operations even after the expiry of lease period, mine closure plan is not proposed for now. Based on the progressive mine closure plan for the scheme period, the mine closure cost is given in Table 2.10.

Table 2.10 Mine Closure Budget

Activity	Capital Cost
696 plants inside the lease area	1,39,200
1044 plants outside the lease area	3,13,200
Wire Fencing	6,96,000
Renovation of Garland Drain	34,800
Total	11,83,200

Source: Environment Management Plan

2.7.6 Conceptual Mining Plan

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc. The ultimate pit dimension is provided in Table 2.11.

Table 2.11 Ultimate Pit Dimension

Pit	Length (m)	Width (m)	Depth (m)
I	114	104	50

Source: Approved Mining Plan & ToR

2.7.7 Infrastructures

Infrastructures like mines office, temporary rest shelters for workers, latrine and urinal facilities have been proposed as per the mine rule and will be established after the grant of quarry lease. There is no proposal for the mineral processing or ore beneficiation plants in this project.

Other Infrastructure Requirement

No workshops are proposed inside the project area. Hence, there will not be any process effluent generation from the proposed lease area. Domestic effluent from the mine office will be discharged to septic tank and soak pit. As there is no toxic effluent expected to generate in the form of solid, liquid or gaseous form.

2.7.8 Water Requirement

Details of water requirement in 3.5 KLD is given in Table 2.12.

Table 2.12 Water Requirement for the Project

Purpose	Quantity	Source
Dust Suppression	1.0 KLD	Existing bore wells nearby the lease area
Green Belt development	1.0 KLD	Existing bore wells nearby the lease area
Drinking & Domestic	1.5 KLD	Existing bore wells and approved water vendors
Total	3.5KLD	

Source: Prefeasibility Report

2.7.9 Energy Requirement

High speed Diesel (HSD) will be used for quarrying machineries. As per the data shown in Table 2.13 Around **29,53,348litres of HSD** will be used for rough stone extraction during 5 years plan period. The diesel will be brought to the site from nearby diesel pumps.

Table 2.13 Fuel Requirement Details

Fuel Requirement for Excavator			
Details	Rough Stone (581360m³)	Gravel (142240m³)	Total Diesel (litre)
Average Rate of Fuel Consumption (l/hr)	16	10	---
Working Capacity (m ³ /hr)	20	60	---
Time Required (hours)	29,068	2370	---
Total Diesel Consumption for 10 years (litre)	4,65,088	23,700	4,88,788
Fuel Requirement for Compressor			
Average Rate of Fuel Consumption/hole (litre)	0.4	---	---
Number of Drill holes/day	52	---	---
Total Diesel Consumption for 10 years (litre)	56,160	---	56,160
Fuel Requirement for Tipper			
Average Rate of Fuel Consumption/Trip (litre)	20	20	---
Carrying Capacity in m ³	6	10	---
Number of Trips / days	36	43	---
Number of Trips / 10 years	97,200	23,220	---
Total Diesel Consumption for 10 years (litre)	19,44,000	4,64,400	24,08,400
Total Diesel Consumption by Excavator, Compressor and Tipper			29,53,348

2.7.10 Capital Requirement

The project proponent will invest Rs. **2,64,77,805/-** to the project. The breakup summary of the investment has been given in Table 2.14.

Table 2.14 Capital Requirement Details

S. No.	Description	Cost (Rs.)
1	Fixed Asset	2,12,63,805
2	Machinery	20,00,000
3	EMP	32,14,000
	Total Project Cost	2,64,77,805/-

Source: *Approved Mining Plan*

2.8 MANPOWER REQUIREMENT

The skilled, competent qualified statutory persons will be engaged for quarrying operation, preference will be given to the local community. Number of employees required for this project have been provided in Table 2.15.

	Category	Role	Nos
1	Highly Skilled	Mines Manager	1
		Mine Engineer	1
		Mine geologist	1
		Blaster	1
2	Unskilled	Musdoor/ Labours	19
Total			23

Source: Prefeasibility Report

2.9 PROJECT IMPLEMENTATION SCHEDULE

The commercial operation will commence after the grant of Environmental Clearance. CTO and CTE will be obtained from the Tamil Nadu State Pollution Control Board. The conditions imposed during the environmental clearance will be compiled before the start of mining operation. Expected time schedule for the quarrying operation is given in Table 2.16.

Table 2.16 Expected Time Schedule

S. No.	Particulars	Time Schedule (in Months)							Remarks if any
		1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	
1	Baseline Environmental Study for preparing EIA report based on the Standard and Specific ToR Conditions								Soil, Water, Air, Noise, Socio Economics, Ecological Biodiversity and Traffic studies to be carried out by NABL accredited Laboratory and FAE's.
2	Draft EIA Report								Submission to TNPCB

3	Public Hearing Meeting								Minutes will be provided by the Tamil Nadu Pollution Control Board.
4	Final EIA Report (including Public reviews)								Submission to PARIVESH 2.0 Portal for obtaining EC
5	SEIAA Meeting								For environmental clearance
Note: Time line may vary; subjected to rules and regulations /& other unforeseen circumstances									

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

CHAPTER III

DESCRIPTION OF THE ENVIRONMENT

3.1 GENERAL

Baseline environmental studies were carried out within 5km radius of the extraction of rough stone quarry to assess the existing environmental scenario in the area by **Ekdant Enviro Services (P) Limited**, which is MoEF recognized and NABL certified lab. For the purpose of EIA studies, Quarry lease area of rough stone quarry was considered as the core zone and area outside the mine upto 5km radius was considered as buffer zone. The baseline environmental monitoring for various components of environment viz. air, noise, water, land was carried out during **(January to March 2026)** in the study area covering 5km radius distance from the rough stone quarry. Other environmental data on flora and fauna, land-use pattern, forest etc. Were also generated through field surveys and secondary information collected from different departments of State Govt. socio-economic survey was conducted, through interaction with the people, medical officers by floating questionnaires and collection of information is supported by census data for demographic structures, amenities and infrastructure availability within the study area.

Study Area

The study area was divided into two zones:

- core zone– Project site cluster and
- buffer zone - 5km radius from the periphery of the cluster

Study area covers 5km radius from the mine located at S.F.No's: 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C of Kammarajapuram Village, Walajabad Taluk, Kancheepuram District and Tamil Nadu. Except for ecological study, which considers 10km as buffer zone. Both core and buffer zones are taken as the study area briefly given in Table 3.1 & 3.2. The study area map on Topo- sheet is represented in Figure 3.1.

Table 3.1 Classification of study Area

Sl. No	Classification of Study area	Type of Baseline data collection	Environmental Attributes
1	Core Zone (Cluster Lease Area)	Primary Data	Soil Environment, Water Quality, Ambient Air Quality, Noise Levels, Flora Fauna, Socio Economic study.

2	Extended Core Zone (upto 500m radius from the Cluster lease boundary)	Primary and Secondary Data	Soil Environment, Water Quality, Ambient Air Quality, Noise Levels, Flora Fauna, Socio Economic study.
3	Buffer Zone (Cluster lease boundary of 500m to 10km radius)	Primary and Secondary Data	Meteorological Data, Soil Environment, Water Quality (Surface/ Groundwater), Ambient Air Quality, Noise Levels, Flora Fauna, Socio Economic study.

Table 3.2 Monitoring Attributes and Frequency of Monitoring

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land Use/ Land Cover	Land-use Pattern within 5 km radius of the study area	Once during the study period	Study Area	Satellite Imagery & Primary Survey
*Soil	Physico- Chemical characteristics	Once during the study period	5 (1 in core & 4 in 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	5 (1 surface water & 4 ground water)	IS 10500 2012 & CPCB Standards
Meteorology	Wind speed Wind direction Temperature Cloud cover Dry bulb temperature Rainfall	1 hourly continuous mechanical/ automatic weather station	1	Site specific primary data & secondary data from IMD Station
*Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ NO _x	24 hours, twice a week	5 (1 core & 4 buffer)	S 5182 Part 1-23 National Ambient Air Quality Standards, CPCB

Noise Levels	Ambient noise	Hourly observation for 24 hours per location	5 (1 core & 4 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.

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

Components and Methodology

To achieve the objectives of ToR, NABET approved in Functional Area Experts (FAE) of Geo Technical Mining Solutions- members visited the study area and monitored the environmental parameters in accordance with the Guidelines of EIA, issued by the Ministry of Environment, Forests and Climate Change (MoEF and CC) Government of India. The components of the study are given in Table no. 3.3.

Table No. 3.3 Component of the EIA/EMP studies

Sl. No	Component	Sl. No	Component
1.	Geology & Geomorphology	7.	Air Quality and Meteorology
2.	Land Use & Land Cover	8.	Noise Environment
3.	Hydrogeology	9.	Biological Environment
4.	Soil Environment	10.	Socio-economic Environment
5.	Water Environment	11.	Solid and Hazardous waste
6.	Air Environment	12.	Risk Assessment

3.2 LAND ENVIRONMENT

3.2.1 Geology

The Charnockite series originally was assumed to have developed by the fractional crystallization of silicate magma. Subsequent studies have shown, however, that many, if not

all, of the rocks are metamorphic, formed by recrystallization at high pressures and moderately high temperatures.

Physiography of the rocks:

Dark colour and clouding of the feldspars are typical features of these rocks as bluish in quartz.

Chemical composition of rocks:

Charnockite, any member of a series of metamorphic rocks with variable chemical composition, the term is often limited to the characteristic ortho pyroxene granite of the series. The alkali feldspar may be intermediate between microcline and orthoclase, the fine micro perthitic texture being common.

Source: Kancheepram District annual mining report.

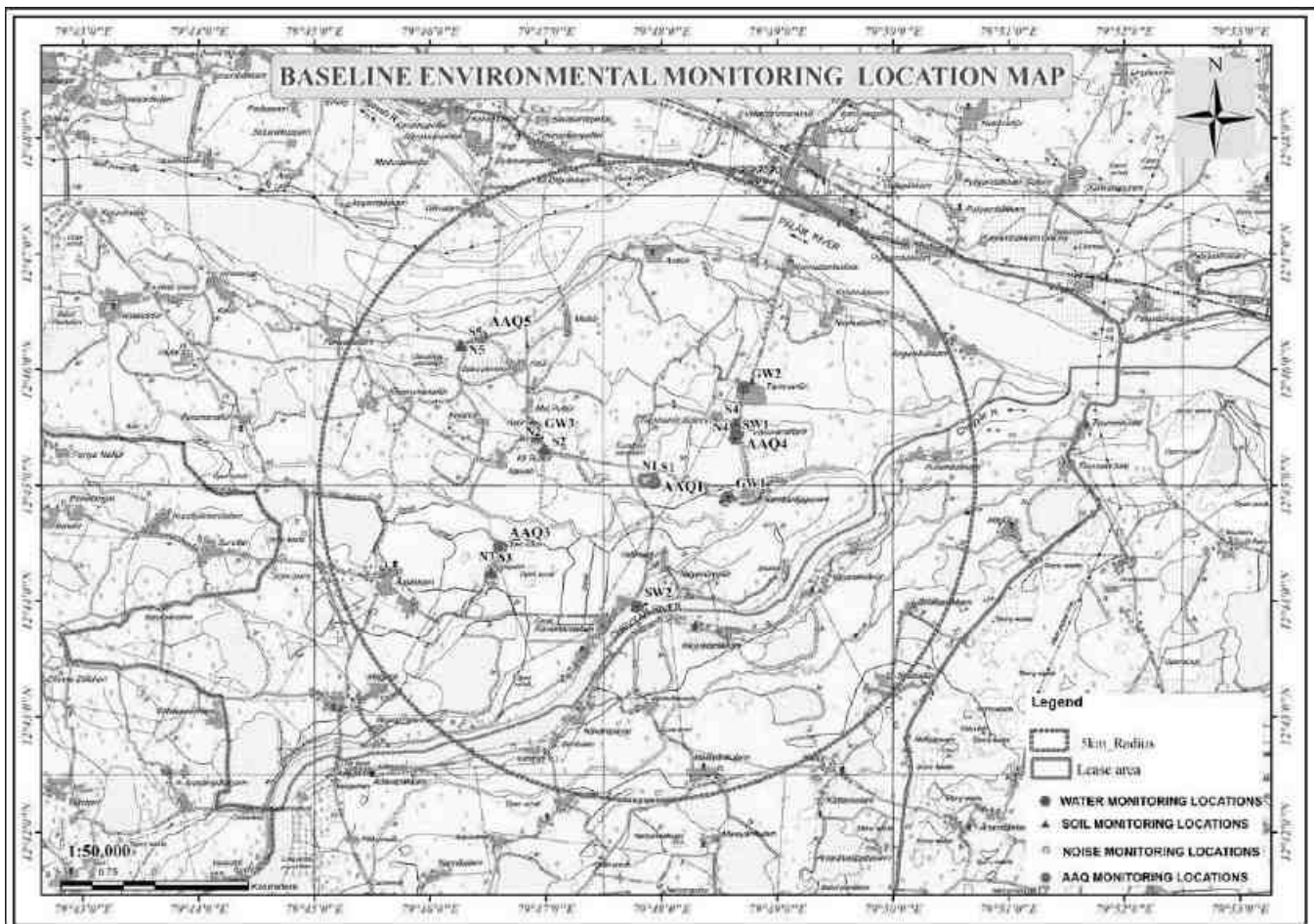


Figure 3.1. Topographical Map of 5km Radius Study Area

3.2.2 Geomorphology:

The Kancheepuram area is endowed with a complex geological set up with crystalline rocks occurring in the southern part of the area and the northern part of the area the crystalline rocks occur at depths covered by sedimentary formations ranging from gondwana to recent. The depth at which the crystalline rocks occur progressively increase towards north. The eastern part comprises unconsolidated sediments of fluvio-marine and marine origin. The Precambrian crystalline rocks are represented by charnockites and contain several enclave's mafic granulite. Garnetiferous and biotite gneisses are also encountered as linear bands.

3.2.3 Land Use/ Land Cover

The study utilizes the reclassified LULC dataset derived from the Advanced Wide Field Sensor (AWiFS) of the Indian Remote Sensing satellite Resourcesat-1 (P6). The data is accessed through the Bhuvan data portal (<http://bhuvan.nrsc.gov.in>). Sentinel 2-A images acquired in May- June are used for identifying changes. These images are pre-processed to correct atmospheric and radiometric errors ensuring data accuracy. The method calculates the number of changed pixels within the LULC dataset to assess the intensity of land use and land cover changes. This provides insights into the spatial extent of these changes. Land Use and Land Cover (LULC) map as shown in Figure 3.4 & 3.4a was prepared using Sentinel II image for the study area of 5 km radius. LULC maps were created at five-year intervals from a table (Table 3.4) to track the growth of the built-up area and changes in crop land. Totally 7 LULCs for 5-year interval were mapped and the areal extent of each LULC was provided in Table 3.4 & 3.4a is used to study the growth in the built area and crop land changes. To compute the change in percentage (%) using the formula

$$\text{Change in percentage (\%)} = \frac{\text{Present LULC area} - \text{Previous LULC area}}{\text{Previous LULC area}} \times 100$$

In 2015 agriculture was identified as the main land use in the study area is 6034ha. Bare lands were identified as the second largest 1690ha land use followed by built-up area of 546 ha. Following a similar structure as that used in 2015 the unsupervised LULC classification from the satellite images in 2020 and 2025 resulted in the identification of 6 LULC types. More than 60% of the area was dominated by dry agricultural lands. Comparisons between the multiple-temporal datasets 2015, 2020 & 2025 revealed several changes in land-use configuration. The reason for the fall in crop land is due to the decreased agricultural facility and people getting involved in the industries than agriculture and also the decreasing price of crops. The minor change that has occurred in this study area is the buildup area. The reason behind this change may be the fast and good transportation system and the good environment for industrial development. Despite of increasing wetland area due to abandoned.

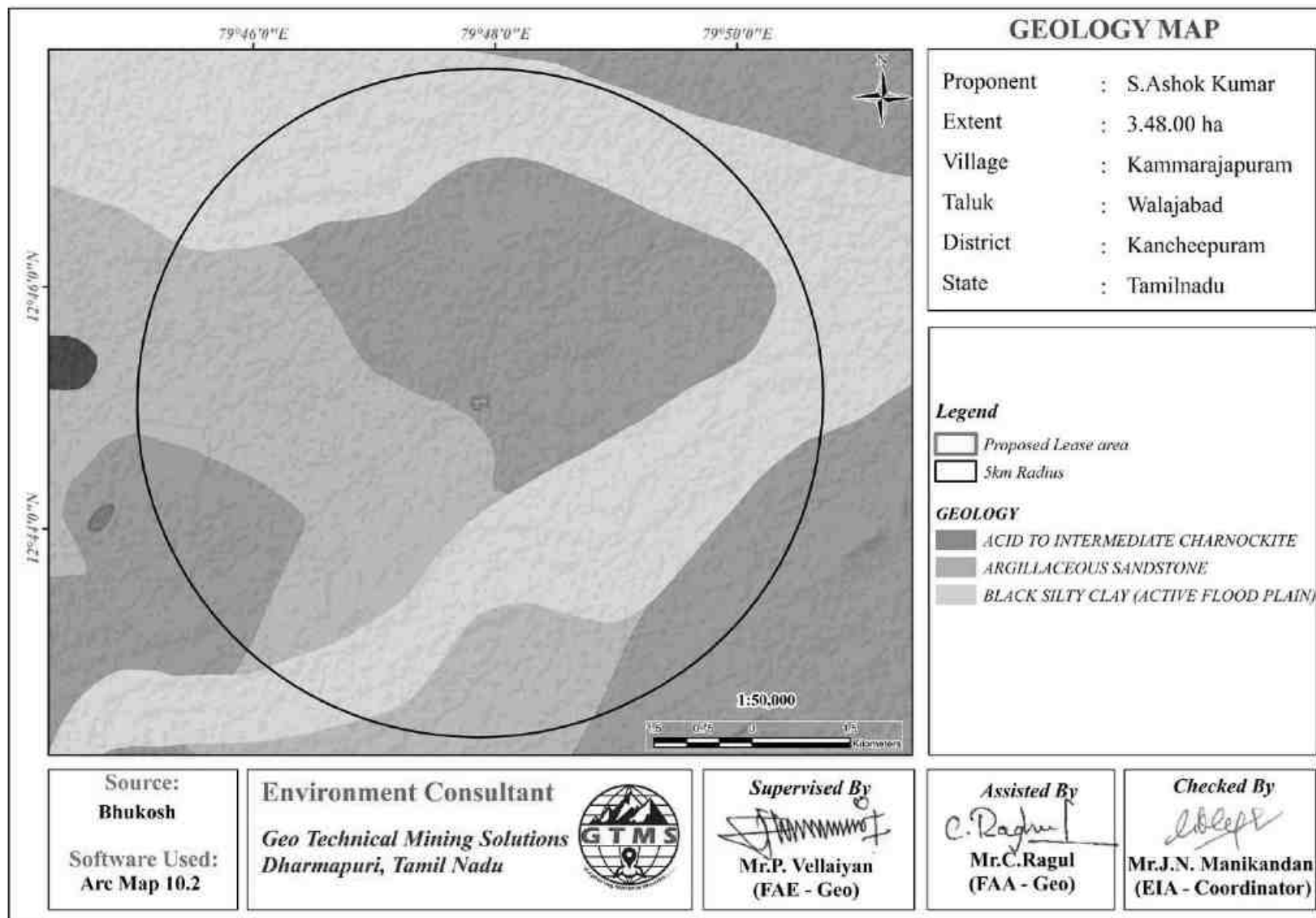


Figure 3.2 Geology Map of 5km Radius from the Proposed Project Site

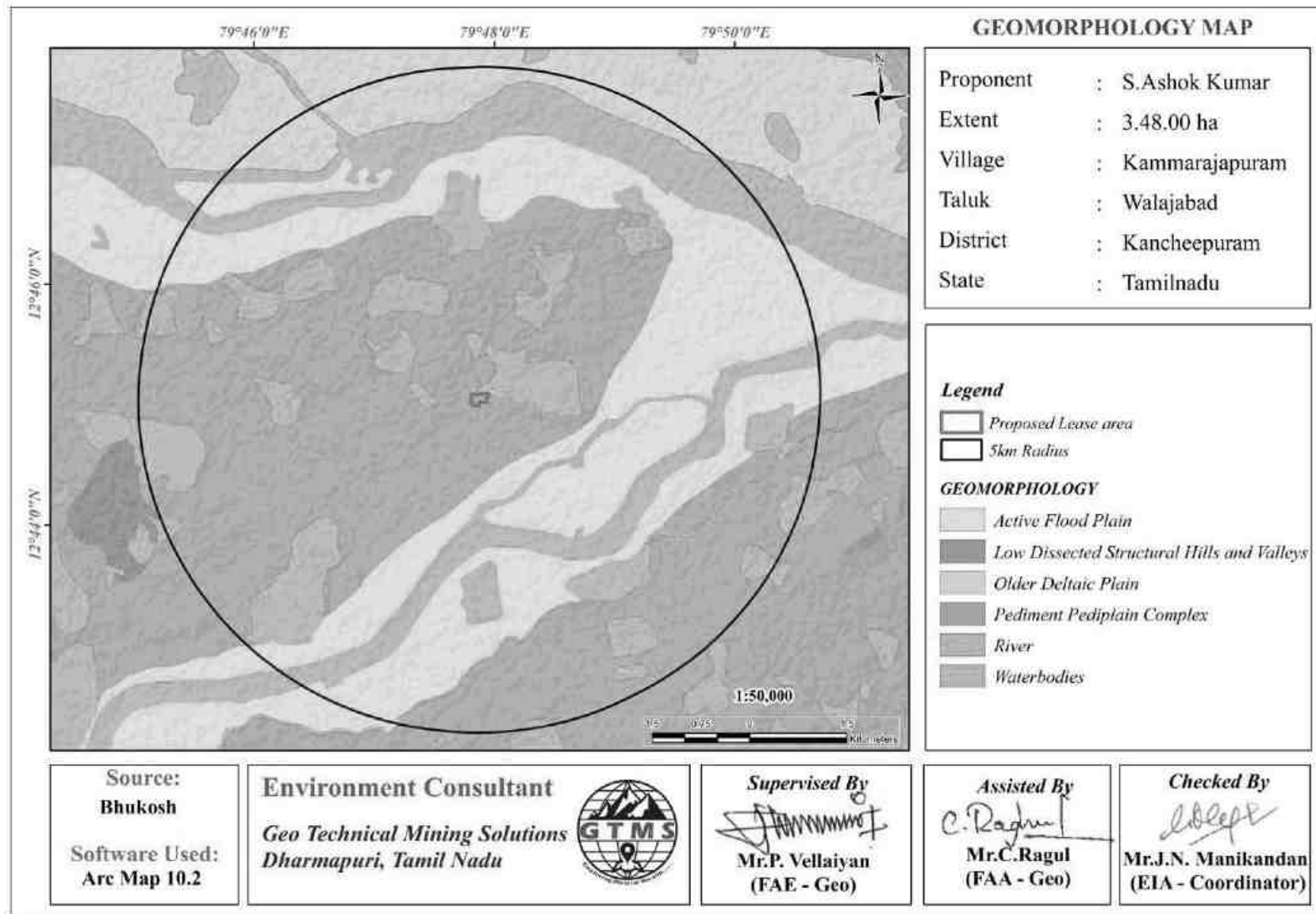


Figure 3.3 Geomorphology Map of 5km Radius from the Proposed Project Site

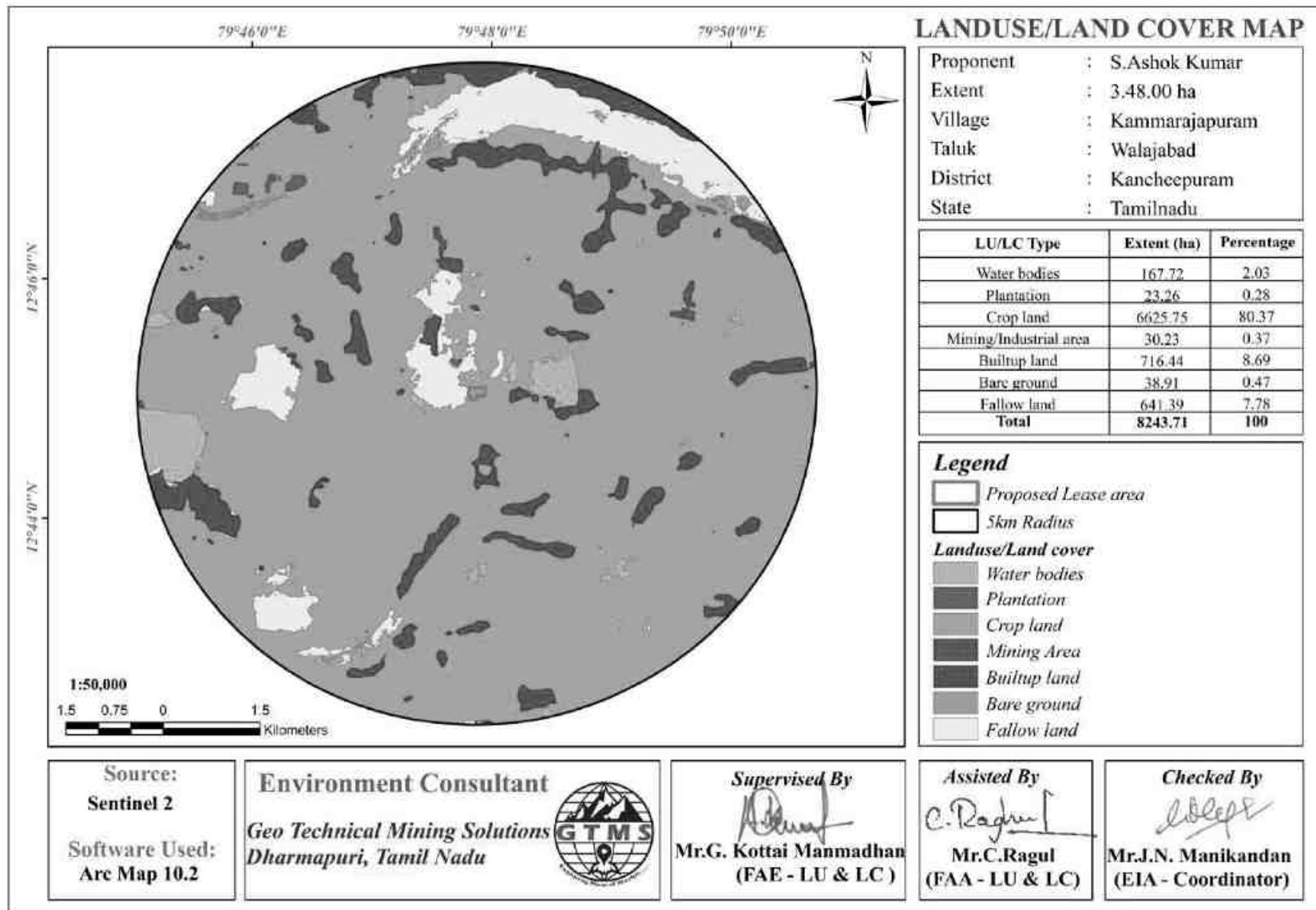


Figure 3.4 LULC Map of 5km Radius from the Proposed Project Site

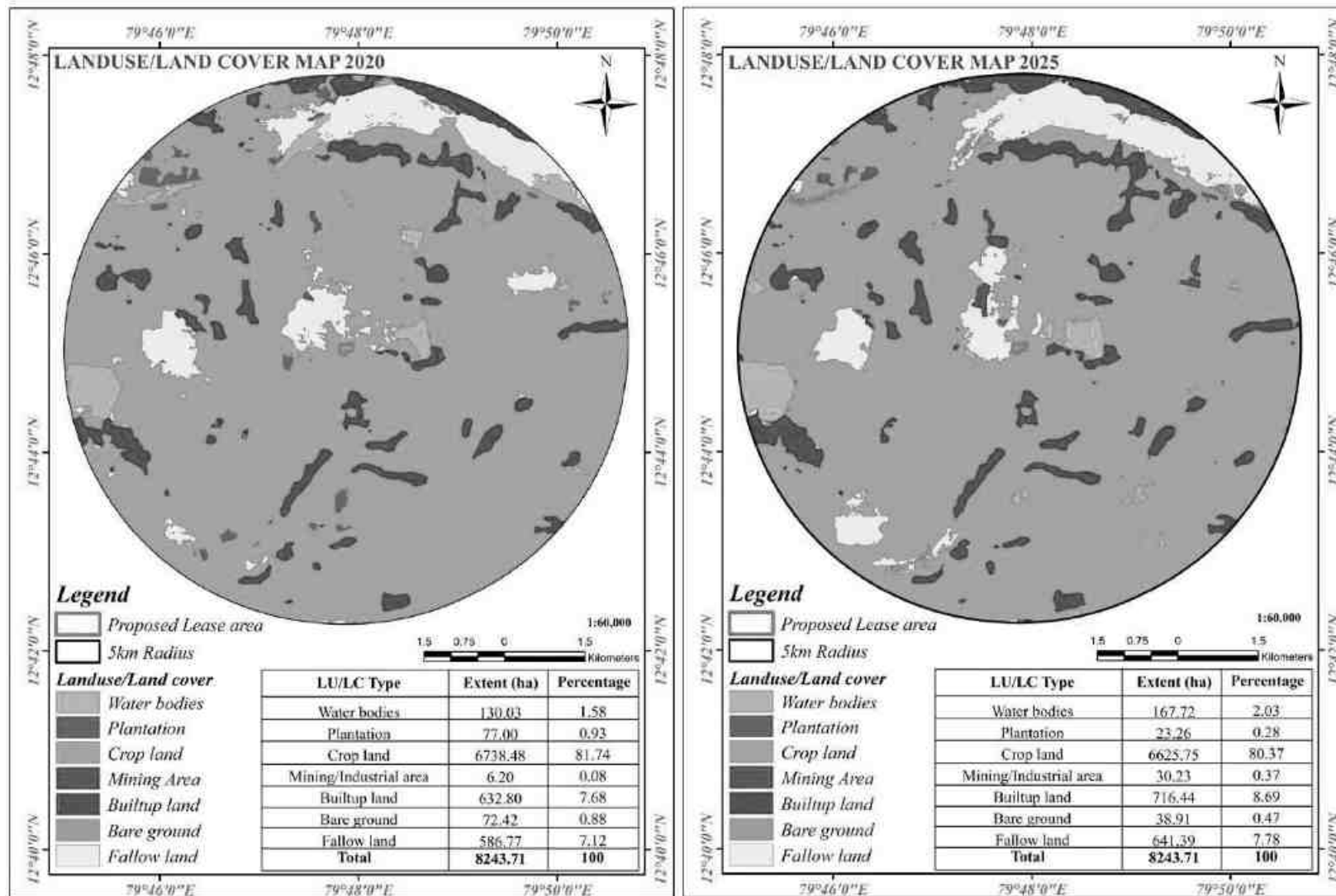


Figure 3.4a LULC Map of 5km Radius from the Proposed Project Site (2020- 2025)

mine or expired mine pit as the building material is essential for industrial growth now getting very much popular among the general masses.

Table 3.4 LULC Statistics of the Study Area

S. No.	Classification	LU in 2020 in Ha	LU in 2025 in Ha	Change in percentage
1	Water Bodies	130.03	167.72	-37.69
2	Plantation	77.00	23.26	53.74
3	Crop Land	6738.48	6625.75	112.73
4	Mining/ Industrial area	6.20	30.23	-24.03
5	Built- up land	632.80	716.44	-83.64
6	Bare ground	72.42	38.91	33.51
7	Fallow land	586.77	641.39	-54.62
Total		8243.71	8243.71	No Change

Source: Sentinel II Satellite Imagery

3.2.4 Topography

The proposed lease area is flat topography. The maximum elevation (80m) was observed north side of the site. The slope is towards southern side.

3.2.5 Drainage Pattern

Drainage pattern of the 5km radius study area majorly has dendritic or pinnate drainage pattern in nature indicating the uniform lithology beneath the surface as shown in Figure 3.5. This uniformity implies that the streams and their tributaries are primarily controlled by the slope of the land rather than by variations in rock resistance or structural features like faults or joints.

3.2.6 Seismic Sensitivity

The proposed lease area is situated in a Seismic Zone III, as defined by National Centre for Seismology ([Official Website of National Centre of Seismology](#)). The Zone III is defined as the region where only moderate damage is expected from seismic events. In this respect, the proposed lease area is located in a moderate earthquake hazard area.

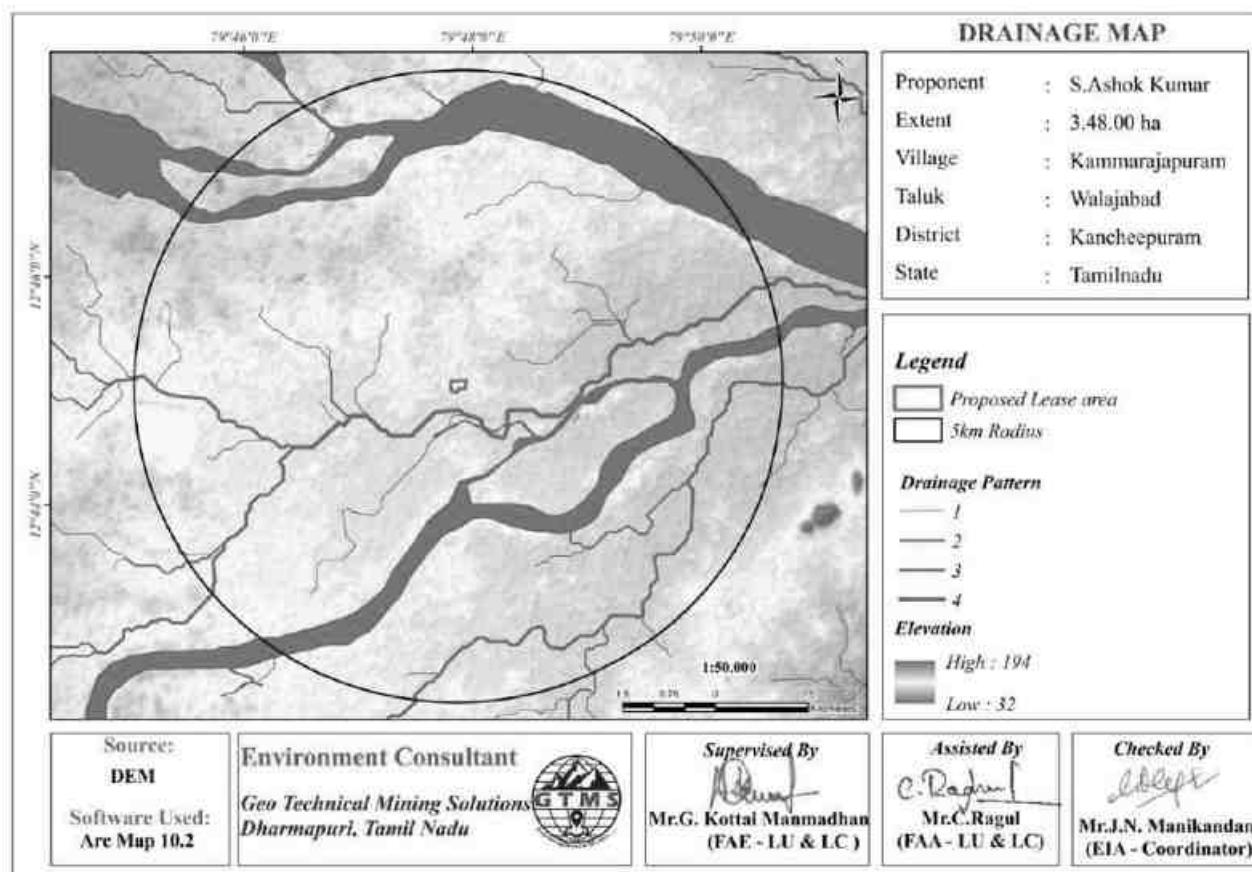


Figure 3.5 Drainage Map of 5Km radius from Proposed Project Site

3.3 SOIL ENVIRONMENTAL

The composite soil samples were collected from the 5 locations of the study area and analysed for different parameters. Auger instrument is used to collect samples at the desired depth typically 6-8 inches. The soil samples were placed in rigid paper bags, labelled and then subjected to air drying and sieving in the laboratory. This process ensures the samples are suitable for assessing macro and micronutrients as well as physicochemical properties. The locations of the sampling sites were given in Table 3.5 and shown in Figure 3.7.

Table 3.5 Soil Sampling Locations

Sampling ID	Location	Distance (km)	Direction	Coordinates
S01	Core	---	---	12°45.036'N, 79°47.932'E
S02	Asoor	1.68	NW	12°45.309'N, 79°46.990'E
S03	Kolathur	2.70	SW	12°44.251'N, 79°46.526'E
S04	Thammanur	1.50	NE	12°45.538'N, 79°48.641'E
S05	Seeyamangalam	3.48	NW	12°46.207'N, 79°46.266'E

Source: On-site monitoring/sampling Ekdant Enviro Services (P) Limited, in association with GTMS.

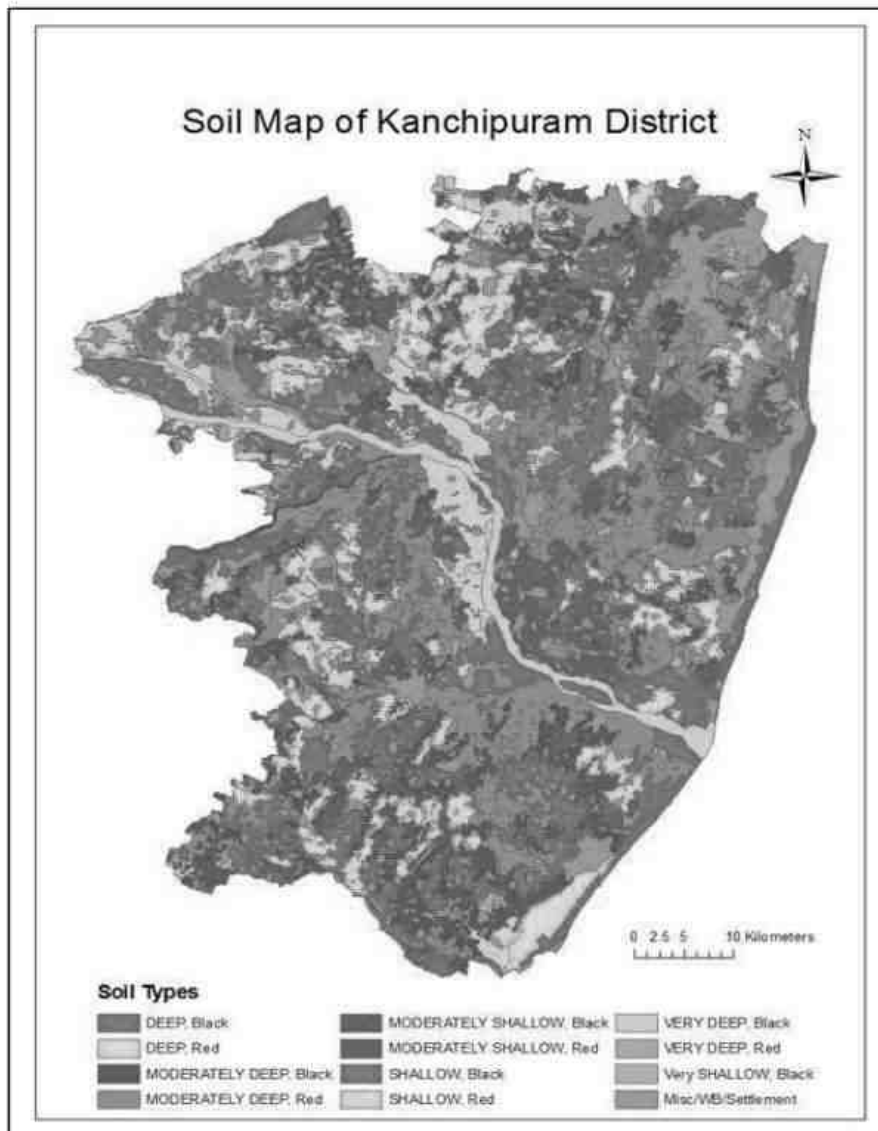


Figure 3.6 Soil Map of Kancheepuram District

3.3.1 Physical Characteristics & Chemical Characteristics

1. Soil pH and Electrical Conductivity (EC):

- **pH ranged from 7.56 to 7.90** indicating that the soil is **neutral to slightly alkaline**, which is favourable for most crops.
- **EC value ranged from 63.70 to 151.40 μ S/cm**, suggesting low salt concentration and non- saline soil across the sampling area.

2. Physical Properties

- **Density** values ranged from 1.20 to 1.30 g/cc, which are within the typical range for loamy soils and support good root penetration and aeration.

3. Soil Fertility Status:

- **Total Organic matter** levels ranged from 0.49 to 1.24g/100g, classifying soils as low to moderately fertile in terms of organic matter.

- **Nitrogen (N)** content varied from 0.019 to 0.033g/100g indicating moderate nitrogen availability.
- **Potassium (K)** ranged from 0.52 to 1.84mg/kg moderate fertility potential in terms of potassium

4. Base Elements and Cation Ratios:

- **Calcium (Ca)** levels were highest with 22.40mg/kg and lowest with 14.80mg/kg.
- **Magnesium (Mg)** ranged from 4.89 to 14.60mg/kg.

Conclusion:

The soils in the study area are generally non-saline, neutral to slightly alkaline, and moderately fertile with low contamination levels. They exhibit good permeability, porosity, and suitable textural classes for agriculture and greenbelt development. The absence of heavy metals confirms that baseline soil conditions are unpolluted and safe for reclamation and vegetation growth.

Table 3.6 Soil Quality of the Study Area

S. No	Parameters	Unit	S1	S2	S3	S4	S5
Physical Parameters							
1	pH value (10% Solution)	-	7.82	7.90	7.69	7.66	7.56
2	EC@ 25oC (10% solution)	Micromhos/cm	63.70	151.40	121.40	90.02	89.40
3	Moisture	g/100g	27.60	23.60	29.48	25.84	31.79
4	Density	g/cc	1.30	1.21	1.24	1.20	1.25
5	Colour	Qualitative	Brownish	Brownish	Brownish	Brownish	Brownish
6	Consistency	Qualitative	Sticky	Sticky	Sticky	Sticky	Sticky
7	Texture	g/100g	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
8	Alkalinity	g/100g	0.019	0.029	0.039	0.009	0.030
9	Sodium Absorption Ratio	-	3.62	2.82	2.30	2.39	2.77
10	Chlorides	g/100g	0.009	0.004	0.019	0.014	0.014
11	Sulphates	g/100g	0.020	0.028	0.024	0.028	0.022
12	Total Nitrogen	g/100g	0.022	0.025	0.030	0.019	0.033
13	Organic Matter	g/100g	0.63	1.24	0.76	1.02	0.49
14	Oil & Grease	g/100g	BLQ (LOQ=1.0)	BLQ (LOQ=1.0)	BLQ(LOQ=1.0)	BLQ(LOQ=1.0)	BLQ(LOQ=1.0)
15	Nitrates	g/100g	1.18	0.93	1.05	1.22	1.52

16	Loss On Ignition	g/100g	16.28	13.98	19.30	17.24	14.89
Non- NABL Parameters							
1	Structure	-	Structureless	Structureless	Structureless	Structureless	Structureless
2	Cation Exchange Ratio	meq/100g	0.273	0.149	0.166	0.255	0.185
3	Calcium	mg/kg	22.40	15.01	14.80	19.40	15.20
4	Water Holding Capacity	%	49.0	51.0	52.0	48.0	50.0
5	Magnesium	mg/kg	14.60	4.89	6.98	13.52	7.80
6	Sodium	mg/kg	11.0	8.90	7.60	9.68	9.40
7	Potassium	mg/kg	1.20	1.03	0.52	1.84	1.63
8	Iron	mg/kg	145	129	115	102	133
9	Copper	mg/kg	4.82	4.98	5.20	5.32	4.70
10	Nickel	mg/kg	2.13	2.34	2.70	2.01	2.94
11	Chromium	mg/kg	0.20	0.17	0.23	0.26	0.30
12	Lead	mg/kg	0.89	0.96	1.20	152	1.78
13	Zinc	mg/kg	0.47	0.59	0.74	0.87	0.31
14	Total Phosphorus	mg/kg	19.49	22.80	24.02	20.60	26.09
15	Lime Status	mg/kg	124	139	110	109	132

Source: Sampling Results by Ekdant Enviro Services (P) Limited, in Association with GTMS

Table 3.6a Assigning Scores to Soil Quality Indicators

S. No.	OM	BD	PH	EC	Total Score	Recommendation
S1	15	1	9	11	36	The soil requires major and immediate treatment
S2	15	1	9	11	36	
S3	15	1	9	11	36	
S4	15	1	9	11	36	
S5	15	1	9	11	36	

Organic Matter- (%- 0.1 to 2.0- 15), (2.5 to 3.5- 20), (3.5 to 5.0- 25), Bulk Density- (0.64 to 0.92- 6), (0.92 to 0.98- 3), (0.98> - 1) pH- (5.8 to 7.3- 9), (7.3 to 8.0- 6), (8.0> - 3), Electrical Conductivity- dS/m (<0.98- 5), (0.98 to 1.71- 3), (1.71> - 1).

OM (Organic Matter) BD (Bulk Density) pH (Potential of Hydrogen) EC (Electrical Conductivity)

Source: PSS-2262_Soil_Quality_Monitoring.pdf(okstate.edu)

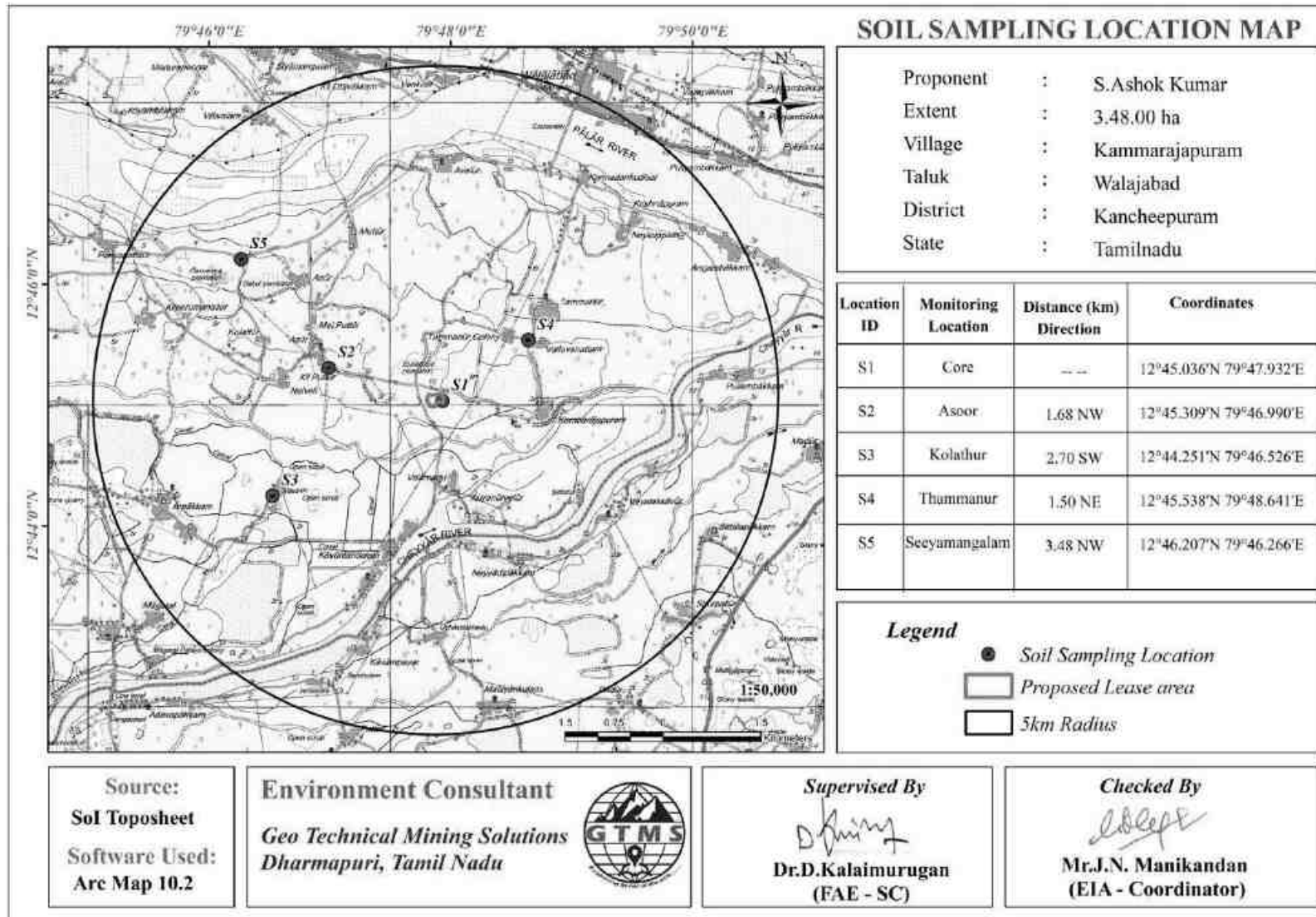


Figure 3.7 Topo- Map Showing Soil Sampling Locations within 5km Radius

3.4 WATER ENVIRONMENT

The study aims to establish a baseline understanding of the current water quality both surface and groundwater in the area recognizing the crucial role these resources play in its development. This involves assessing the existing water quality to understand its suitability for various uses and to identify potential issues or areas of concern. The water sample collected locations were given in Table 3.7 as well as in Figure 3.8.

Table 3.7 Water Sampling Locations

Sampling ID	Location	Distance (km)	Direction	Coordinates
GW1	Kammarajapuram	1.18	SE	12°44'53.85"N, 79°48'34.47"E
GW2	Thammanur	1.96	NE	12°45'50.61"N, 79°48'42.59"E
GW3	Asoor	1.72	NW	12°45'24.79"N, 79°46'55.44"E
SW1	Kammarajapuram Lake	1.37	NE	12°45'24.28"N, 79°48'37.92"E
SW2	Cheyyar River	1.91	South	12°43'57.12"N, 79°47'47.36"E

Source: Sampling Results by Ekdant Enviro Services (P) Limited, in Association with GTMS.

The analysis of water samples involved several steps sample storage, field measurements and laboratory titrations. Polypropylene containers were used for storage pre-washed with hydrochloric acid and distilled water. Standard methods (APHA 1999) were applied for water analysis including pH and electrical conductivity (EC) measurements in the field and titrimetric analysis for hardness, calcium, magnesium and chloride. Sodium and potassium were quantified using a flame photometer. All results except pH and EC are reported in mg/l with EC measured in $\mu\text{S}/\text{cm}$ at 25°C.

3.4.1 Water Consumption and Sources:

The water consumption in this opencast mine is mostly used for dust suppression by water sprinkling on haulage road, afforestation and domestic use etc.

Sl. No	Activities	Average demand (m³ /day)	Peak demand (m³ /day)
1	Drinking water	0.2	0.2
2	Utilized Water	0.8	0.8*
3	Dust suppression	1.5*	2.5
4	Green Belt	1.0*	0.5*
Total		3.5*	4.0*

*Water for dust suppression and afforestation may not be required for four to five months during the monsoon

- The water required for quarrying activities shall be drawn from the Rainwater Harvesting Ponds and from nearby old pits.
- 4-5 months during the monsoon season, water is not required for dust suppression.
- Packed drinking water shall be provided at site for workers.

Table 3.8 Nearest Water Bodies

S. No	Location	Distance (km)	Direction
1	Kambarajapuram Lake	0.19km	NE
2	Pillanthangal Lake	0.64km	North
3	Kilputhur Lake	0.53km	West
4	Melputhur Lake	0.96km	NW

3.4.2 Ground Water Quality Result

3.4.2.1 Physical Parameters:

The observation from the lab results given in Table 3.9 are as follows. The lab results for the water samples collected from the site as per IS 10500:2012 indicate that the basic physical and chemical parameters are within acceptable and permissible limits with some minor exceptions. The water is generally considered potable but there are potential issues related to hardness and alkalinity that could affect taste and potentially cause scaling in domestic equipment.

- The **pH** value ranges from 6.95 to 7.76. The World Health Organization (WHO) and the Bureau of Indian Standards (BIS) recommend a pH range of 6.5 to 8.5 for drinking water and the values are within the acceptable limits.
- **Turbidity** is measured by a nephelometric turbidimeter. NTU is the current standard for measure the intensity of scattered light caused by these particles rather than the amount of light transmitted through the sample. The **turbidity** value is less than 1 NTU in open well and bore well water. In surface water it is 5NTU.
- The **TDS levels** ranged from 820mg/L to 1040mg/L. In bore well water the TDS is higher than the WHO recommendation of 500mg/l for drinking water. High TDS levels can affect the taste of water potentially making it salty or bitter. In the long-term excessive TDS can irritate the stomach and according to some health sources may lead to kidney stones and cardiac issues.

3.4.2.2 Chemical Parameters:

- The **calcium** levels range from 67.0mg/L to 116.0mg/L which is within the permissible limit of 200mg/L but slightly above the acceptable limit of 75mg/L. High

calcium levels can cause scaling in domestic equipment, reduced detergent efficiency and potential health issues like constipation, gas and bloating.

- The **magnesium** levels range from 35.0mg/L to 41.0mg/L which is within both the acceptable and permissible limits. However, elevated magnesium levels can cause diarrhoea and vomiting in children.
- The **chloride** levels range from 160.0mg/L to 236.0mg/L which is within the acceptable and permissible limits of 250mg/L and 1000mg/L respectively. Chloride levels exceeding permissible limits can cause a bitter taste in the water and contribute to corrosion.
- The **total alkalinity** levels ranging from 256.0mg/L to 452.0mg/L are slightly above the acceptable limit of 200mg/L but within the permissible limit of 600mg/L. Excessive alkalinity can impart a soda taste to the water.
- The **hardness** levels ranging from 316.0mg/L to 460.0mg/L, are within the permissible limit but higher than the acceptable limit. Hardness can lead to corrosion and scaling problems, increased soap consumption and a salty taste.

Overall, the water quality of Borewell and open well based on the analysed parameters is generally suitable for drinking purposes as per IS 10500: 2012. However, the higher levels of calcium and hardness could potentially lead to some undesirable effects such as scaling in domestic appliances and a salty or soda taste. Further treatment might be needed to address these issues especially if the water is to be used for a wider range of applications.

Table 3.9 Ground Water Quality Result

S. No.	Parameters	Units	Results			As per IS 10500:2012	
			GW1	GW2	GW3	Acceptable Limit	Permissible Limit
1	Appearance: When Analyzed After Filtration	-	Slightly Turbid Clear	Slightly Turbid Clear	Slightly Turbid Clear	NA	NA
2	pH value at 25°C	-	6.95	7.06	7.76	6.5-8.5	6.5-8.5
3	Color	CU	2.0	2.0	2.0	NA	NA
4	Odor	Qualitative	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	NTU	0.60	0.30	0.80	1	5
6	Electrical conductivity at 25°C	Micro mhos/cm	1444	1763	1413	NA	NA
7	Total suspended solids	mg/l	2.0	BLQ (LOQ=1.0)	3.0	NA	NA

8	Total dissolved solids	mg/l	852	1040	820	500	2000
9	Total Hardness as CaCO ₃	mg/l	360	460	316	200	600
10	Calcium Hardness as CaCO ₃	mg/l	216	290	168	NA	NA
11	Magnesium Hardness as CaCO ₃	mg/l	144	170	148	NA	NA
12	Calcium as Ca	mg/l	87.0	116	67.0	75	200
13	Magnesium as Mg	mg/l	35.0	41.0	36.0	30	100
14	Phenolphthalein Alkalinity as CaCO ₃	mg/l	NIL	NIL	NIL	NA	NA
15	Total Alkalinity as CaCO ₃	mg/l	452	412	256	200	600
16	Chlorides as Cl	mg/l	160	236	236	250	1000
17	Sulfates as SO ₄	mg/l	31.0	73.0	60.0	200	400
18	Total Iron as Fe	mg/l	0.26	0.14	0.56	0.3	0.3
19	Silica (Reactive) as SiO ₂	mg/l	59.0	48.0	12.0	NA	NA
20	Carbonate Hardness as CaCO ₃	mg/l	360	412	256	NA	NA
21	Non-Carbonate Hardness as CaCO ₃	mg/l	NIL	48.0	60.0	NA	NA
22	Free Residual Chlorine	mg/l	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)	0.2	**1
BLQ= Below Limit of Quantification; LOQ= Limit of Quantification; NA= Not Applicable							

Source: Sampling Results by **Ekdant Enviro Services (P) Limited**, in association with GTMS

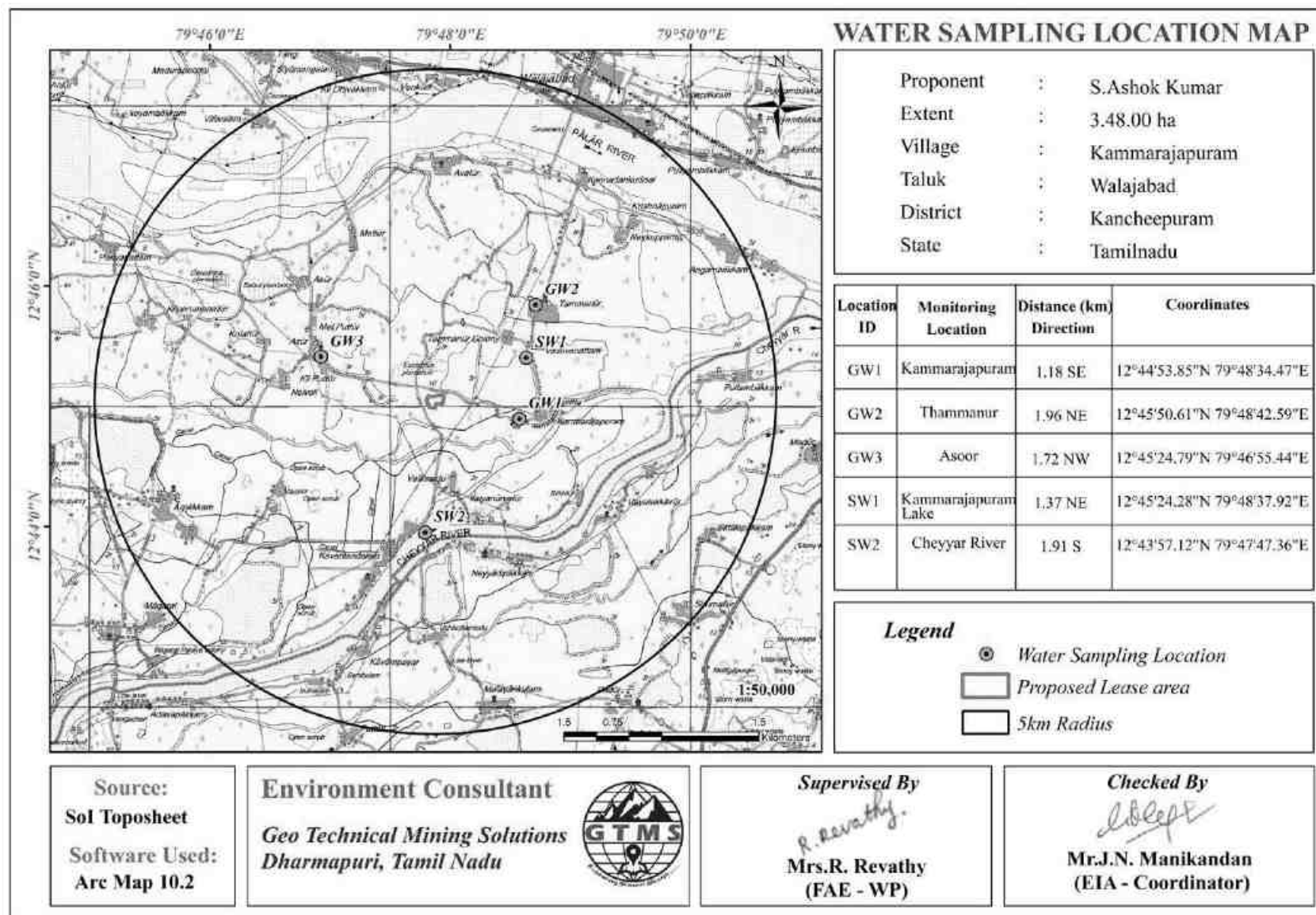


Figure 3.8 Topo- Map showing water sampling locations within 5km radius

3.4.3 Surface water

WATER BODIES NEAR MINE LEASE AREA

S. No	Name of the Water bodies	Distance in km	Direction	Elevation of the lease area	Elevation of the water body area
1	Odai	-	-	-	-
2	Pond	-	-	-	-
3	Kammarajapuram Lake	1.37km	NE	76	77
4	Cheyar River	1.91km	South	76	81

Source: Primary and Secondary data collection

There are no seasonal or perennial Odai and pond within the mine lease area. The drainage pattern of the region is plane to sub-dendritic. There is Kammarajapuram lake is located at a distance of 0.59km in Northeast direction of lease area and extent of 68.3heactares is a key surface water body in the area is characterized as Cheyyar river is located at a distance of 1.91km in South direction of lease area. Water table is found at a depth of 60m in summer and 65m in rainy seasons. Since these water bodies are located outside the lease area and there is no discharge of effluent or any untreated water from the mines will be made into these water bodies, there is no major impact. The project proponent will restrict the mining operation only within the lease and no other work will be carried out near the canal or any area outside the mining lease. Surface run- off water of the mine lease area is drained through proposed drainage and collected in the bottom of the quarry and collected water will be used for same quarry operation such as plantation & dust suppression. The baseline water quality assessment as detailed in Table 3.9a.

Table 3.9a Surface Water Quality Result

S. No.	Parameters	Units	Results	
			SW1	SW2
1	Appearance: When Analyzed After Filtration	-	Slightly Turbid Clear	Slightly Turbid Clear
2	pH value at 25°C	-	7.47	7.36
3	Color	CU	Pale Yellow	Pale Yellow
4	Odor	Qualitative	Disagreeable	Disagreeable
5	Turbidity	NTU	6.80	4.20
6	Electrical conductivity at 25°C	Micromhos/cm	476	503
7	Total suspended solids	mg/l	22.0	14.0
8	Total dissolved solids	mg/l	284	292
9	Total Hardness as CaCO ₃	mg/l	130	142

10	Calcium Hardness as CaCO ₃	mg/l	74.0	86.0
11	Magnesium Hardness as CaCO ₃	mg/l	56.0	56.0
12	Calcium as Ca	mg/l	30.0	34.0
13	Magnesium as Mg	mg/l	14.0	14.0
14	Phenolphthalein Alkalinity as CaCO ₃	mg/l	NIL	NIL
15	Total Alkalinity as CaCO ₃	mg/l	134	120
16	Chlorides as Cl	mg/l	19.0	24.0
17	Sulfates as SO ₄	mg/l	65.0	60.0
18	Total Iron as Fe	mg/l	1.13	0.80
19	Silica (Reactive) as SiO ₂	mg/l	9.06	6.0
20	Carbonate Hardness as CaCO ₃	mg/l	130	120
21	Non-Carbonate Hardness as CaCO ₃	mg/l	NIL	22.0
22	Free Residual Chlorine	mg/l	BLQ (LOQ=0.1)	BLQ (LOQ=0.1)
BDL: Below Detectable Level, CFU: Colony forming Unit,				

Source: Sampling Results by **Ekdant Enviro Services (P) Limited**, in association with GTMS

3.4.4 Hydrogeological Studies

The area within a 1.0km radius has numerous open and deep wells and groundwater level data were collected from both types of wells across two monsoon seasons. This data collection approach allows for a comprehensive understanding of groundwater behaviour in the region considering the variations in well types and seasonal influences.

3.4.4.1 Rainfall

Rainfall data for the study area were collected for the period of 1981- 2022 (POWER | Data Access Viewer (nasa.gov)). Long term monthly average rainfall was estimated from the data of 2014- 2024 and compared with the monthly rainfall for the year 2024, shown in Figure 3.7. The Figure 3.9 shows that monthly rainfall in 2024 is generally high in the months of June, August, October when compared to the long term monthly average rainfall.

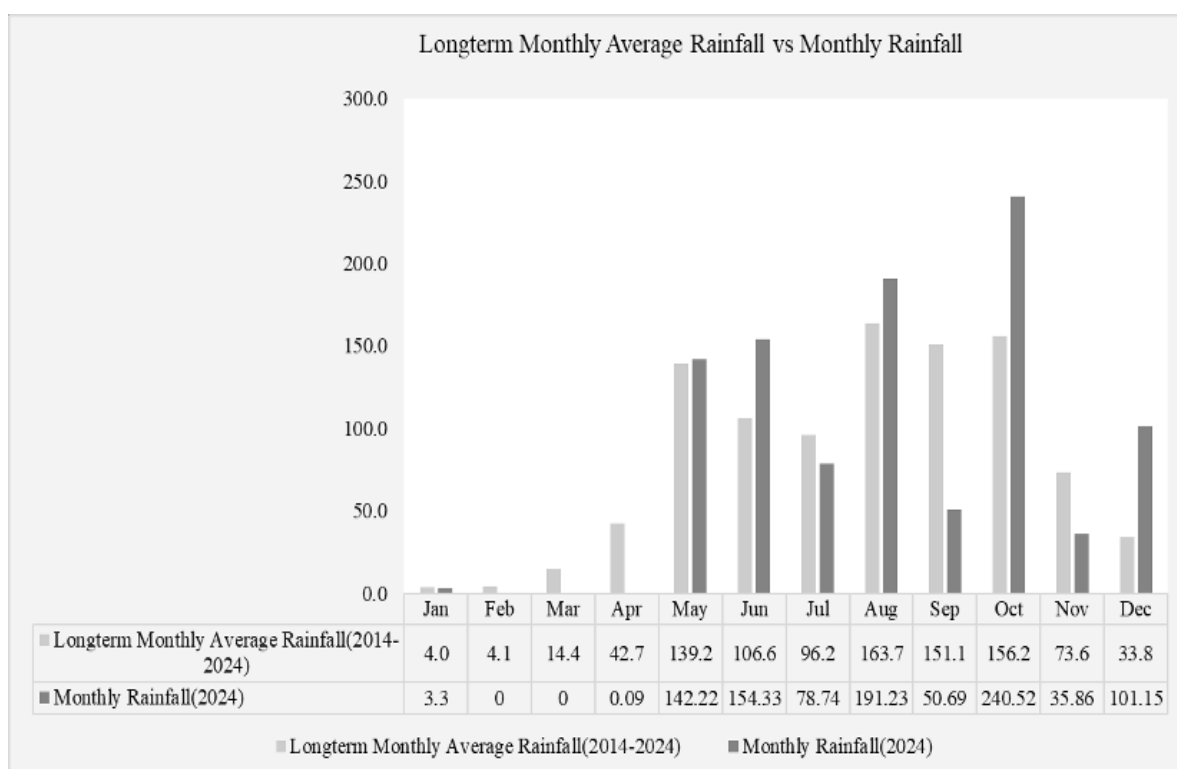


Figure 3.9 Long- Term Monthly Average Rainfall Vs Monthly Rainfall

3.4.4.2 Groundwater Levels and Flow Direction

Data regarding depth to groundwater levels are essential to infer the direction of groundwater movement within the study area. Knowledge of groundwater flow direction is must in choosing location for background groundwater quality monitoring well and in locating recharge and discharge areas. Therefore, data regarding groundwater elevations were collected from 9 open wells and 9 bore wells at various locations within 2 km radius around the proposed project sites for the period from March through May 2025 (Pre- Monsoon Season) and from December 2025 through February 2026, (Post Monsoon Season).

The open well water level data thus collected onsite are provided in Tables 3.10 and 3.11. According to the data, average depths to the static water table in open wells range from 13.03 to 14.50 m BGL in pre monsoon and 11.03 to 11.50 m BGL in post monsoon. The bore well data thus collected onsite are provided in Tables 3.12 and 3.13. The average depths to static potentiometric surface in bore wells for the period of December 2025 through February 2026, (Post Monsoon Season) vary from 58.43 to 61.37 m and from 63.30 to 64.57 m for the period of March through May, (Pre-Monsoon Season). Data on the depths to static water table and potentiometric surface were used to draw contour lines connecting groundwater elevation (also known as equipotential hydraulic head) to determine the groundwater flow direction perpendicular to the contour lines.

Table 3.10 Pre- Monsoon Water Level of Open Wells within 2km Radius

Station ID	Depth to Static Water Table BGL(m)				Latitude	Longitude
	Dec-2025	Jan-2026	Feb-2026	Average		
OW01	10.5	11.2	11.5	11.07	12°44'54.52"N	79°48'7.50"E
OW02	10.6	11.3	11.6	11.17	12°45'5.97"N	79°46'58.71"E
OW03	10.4	11.2	11.8	11.13	12°45'28.00"N	79°47'18.07"E
OW04	10.3	11.3	12.4	11.33	12°45'48.13"N	79°47'15.55"E
OW05	10.2	11.7	12.2	11.37	12°45'48.18"N	79°48'6.97"E
OW06	10.4	11.2	11.8	11.13	12°45'23.34"N	79°48'15.65"E
OW07	10.3	11.3	11.5	11.03	12°45'23.25"N	79°48'43.07"E
OW08	10.5	11.8	12.1	11.47	12°44'7.83"N	79°48'1.52"E
OW09	10.7	11.5	12.3	11.50	12°44'54.35"N	79°47'27.10"E

Source: Onsite monitoring data

Table 3.11 Post- Monsoon Water Level of Open Wells within 2km Radius

Station ID	Depth to Static Water Table BGL(m)				Latitude	Longitude
	Mar-2025	Apr-2025	May-2025	Average		
OW01	12.6	13.1	13.4	13.03	12°44'54.52"N	79°48'7.50"E
OW02	12.7	13.4	13.6	13.23	12°45'5.97"N	79°46'58.71"E
OW03	12.4	13.5	14.8	13.57	12°45'28.00"N	79°47'18.07"E
OW04	13.4	14.6	15.5	14.50	12°45'48.13"N	79°47'15.55"E
OW05	13.2	14.8	15.1	14.37	12°45'48.18"N	79°48'6.97"E
OW06	12.5	13.4	13.7	13.20	12°45'23.34"N	79°48'15.65"E
OW07	12.6	13.2	13.5	13.10	12°45'23.25"N	79°48'43.07"E
OW08	13.5	14.1	14.5	14.03	12°44'7.83"N	79°48'1.52"E
OW09	13.8	14.5	15.2	14.50	12°44'54.35"N	79°47'27.10"E

Source: Onsite monitoring data

Table 3.12 Pre- Monsoon Water Level of Bore Wells within 2km Radius

Station ID	Depth to Static Potentiometric Surface BGL(m)				Latitude	Longitude
	Dec-2025	Jan-2026	Feb-2026	Average		
BW01	58.4	59.5	60.2	63.50	12°44'53.84"N	79°48'34.47"E
BW02	58.3	59.4	60.3	64.23	12°45'33.53"N	79°48'26.58"E
BW03	60.5	61.2	62.4	64.57	12°45'18.61"N	79°46'58.47"E
BW04	57.4	58.5	59.4	64.13	12°44'16.14"N	79°48'0.41"E

BW05	58.6	59.2	59.8	63.50	12°44'4.90"N	79°48'15.61"E
BW06	58.5	59.4	60.5	64.27	12°45'0.18"N	79°48'10.67"E
BW07	59.4	60.5	61.8	64.43	12°45'14.11"N	79°47'22.58"E
BW08	60.1	61.2	62.5	64.50	12°45'45.51"N	79°47'50.88"E
BW09	58.2	58.6	59.5	63.30	12°44'56.12"N	79°47'30.62"E

Source: Onsite monitoring data

Table 3.13 Post-Monsoon Water Level of Bore Wells within 2 km Radius

Station ID	Depth to Static Potentiometric Surface BGL (m)				Latitude	Longitude
	Mar-2025	Apr-2025	May-2025	Average		
BW01	62.1	63.5	64.9	63.50	12°44'53.84"N	79°48'34.47"E
BW02	63.2	64.4	65.1	64.23	12°45'33.53"N	79°48'26.58"E
BW03	63.5	64.8	65.4	64.57	12°45'18.61"N	79°46'58.47"E
BW04	63.4	64.2	64.8	64.13	12°44'16.14"N	79°48'0.41"E
BW05	62.4	63.5	64.6	63.50	12°44'4.90"N	79°48'15.61"E
BW06	63.2	64.4	65.2	64.27	12°45'0.18"N	79°48'10.67"E
BW07	63.5	64.7	65.1	64.43	12°45'14.11"N	79°47'22.58"E
BW08	63.4	64.6	65.5	64.50	12°45'45.51"N	79°47'50.88"E
BW09	62.1	63.3	64.5	63.30	12°44'56.12"N	79°47'30.62"E

Source: Onsite monitoring Data

The water samples were collected from both borewells and dug wells during the pre-monsoon and post-monsoon in order to understand the water table dynamics within 2km radius of the lease area. After interpreting the observed values of water table depths in the sampling locations gradual variations in the depths were inferred from pre-monsoon to the post monsoon (Table 3.12 to 3.13). But this variation might be the usual due to differential downpour in the region. The uncertainty of the monsoon plays a vital role in the fluctuation of water depths in and around the lease area. As mentioned in rainfall data (1981-2021) and 2022, the region experiencing higher rainfall during the months of September to November than the other months of the year. The difference in depth of water table of open wells and borewells in the sampling locations exposes a gradual increase during the pre-monsoon and evidencing the decrease in depth during the post monsoon. This shows the rainfall influencing the water table of the region by the recharging the water bearing bodies naturally and regularly. And can be concluded that, mining activities has no impact on the quality and quantity of ground water in and around the lease area.

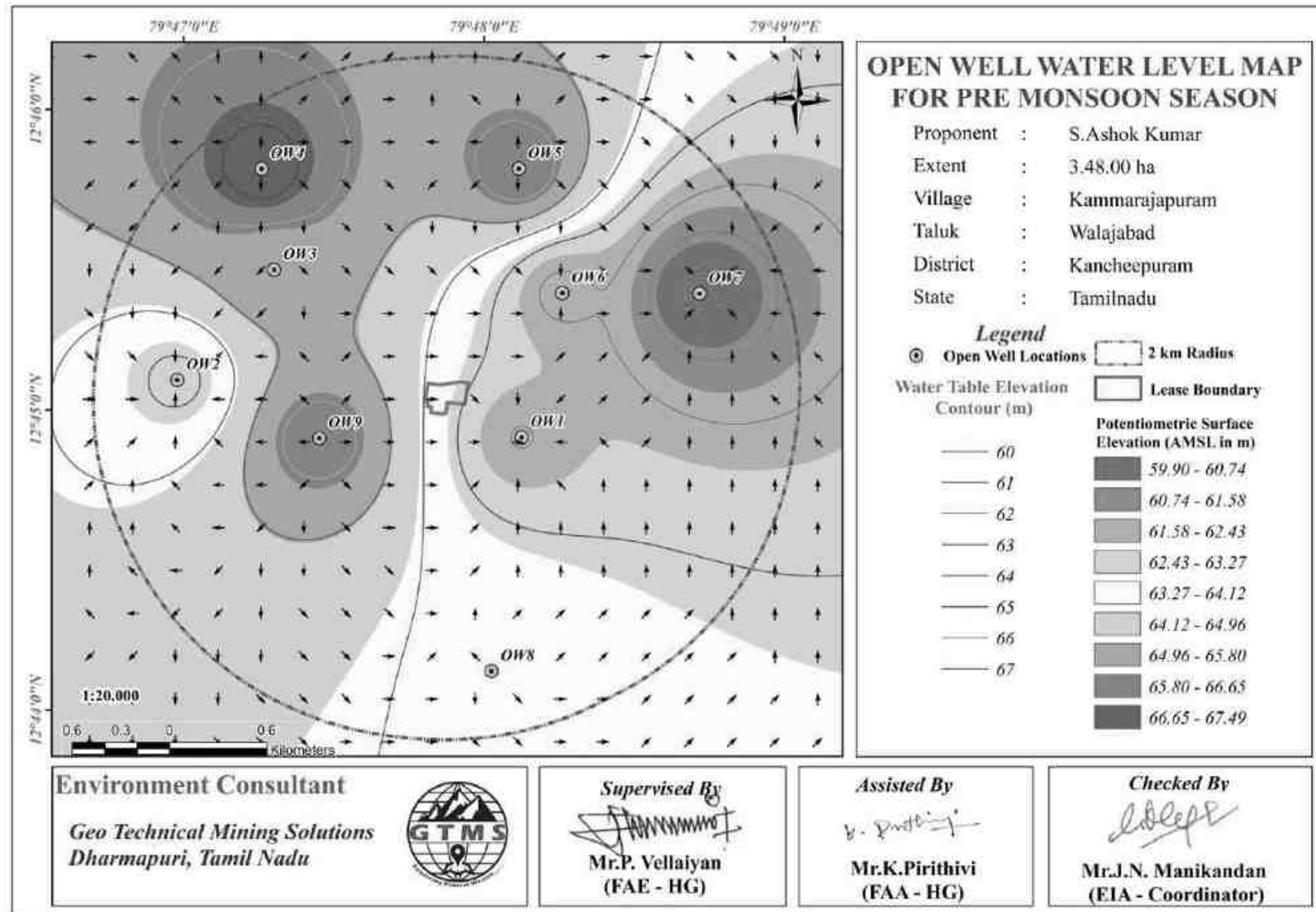


Figure 3.10 Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre- Monsoon Season

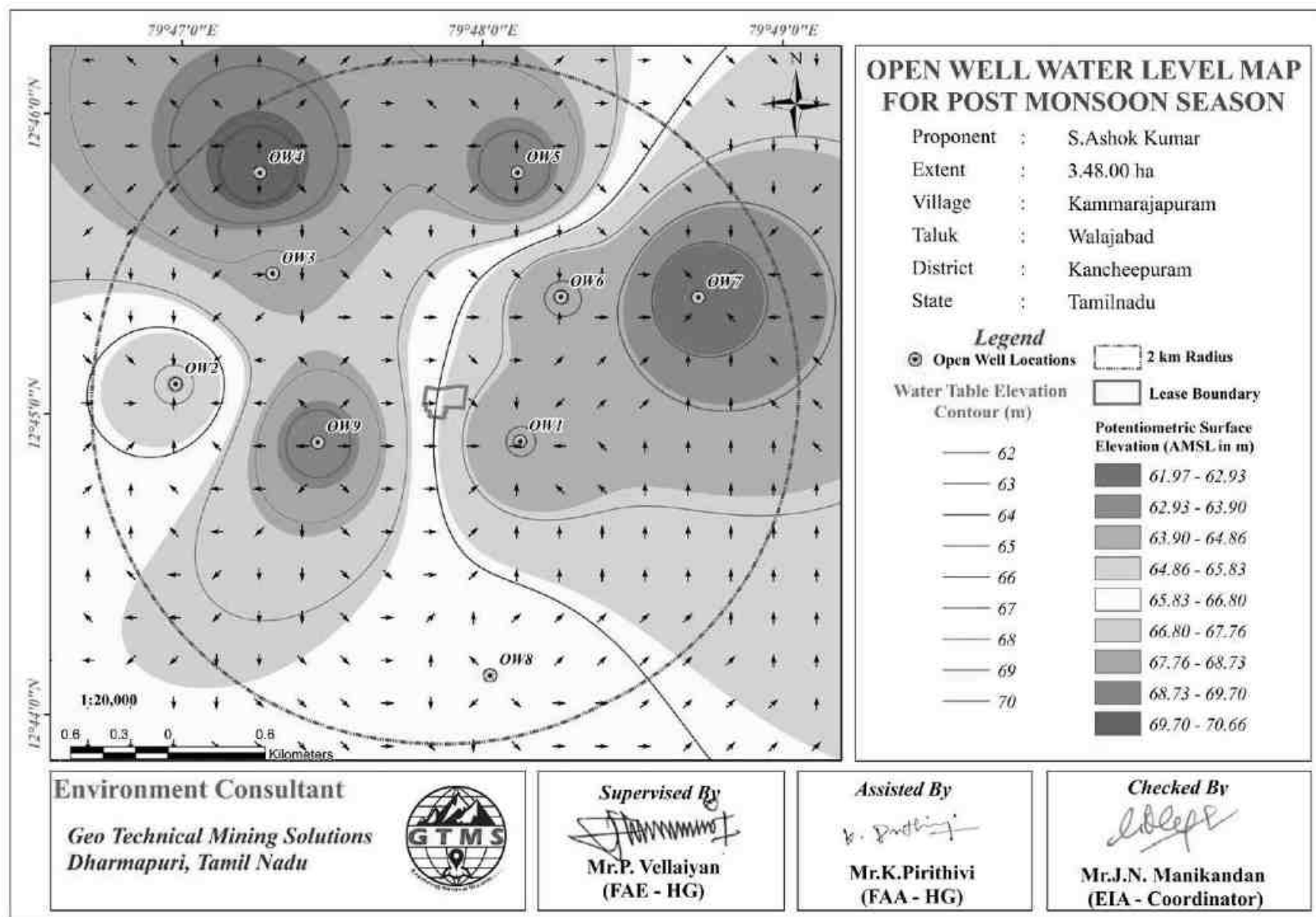


Figure 3.11 Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post-Monsoon Season

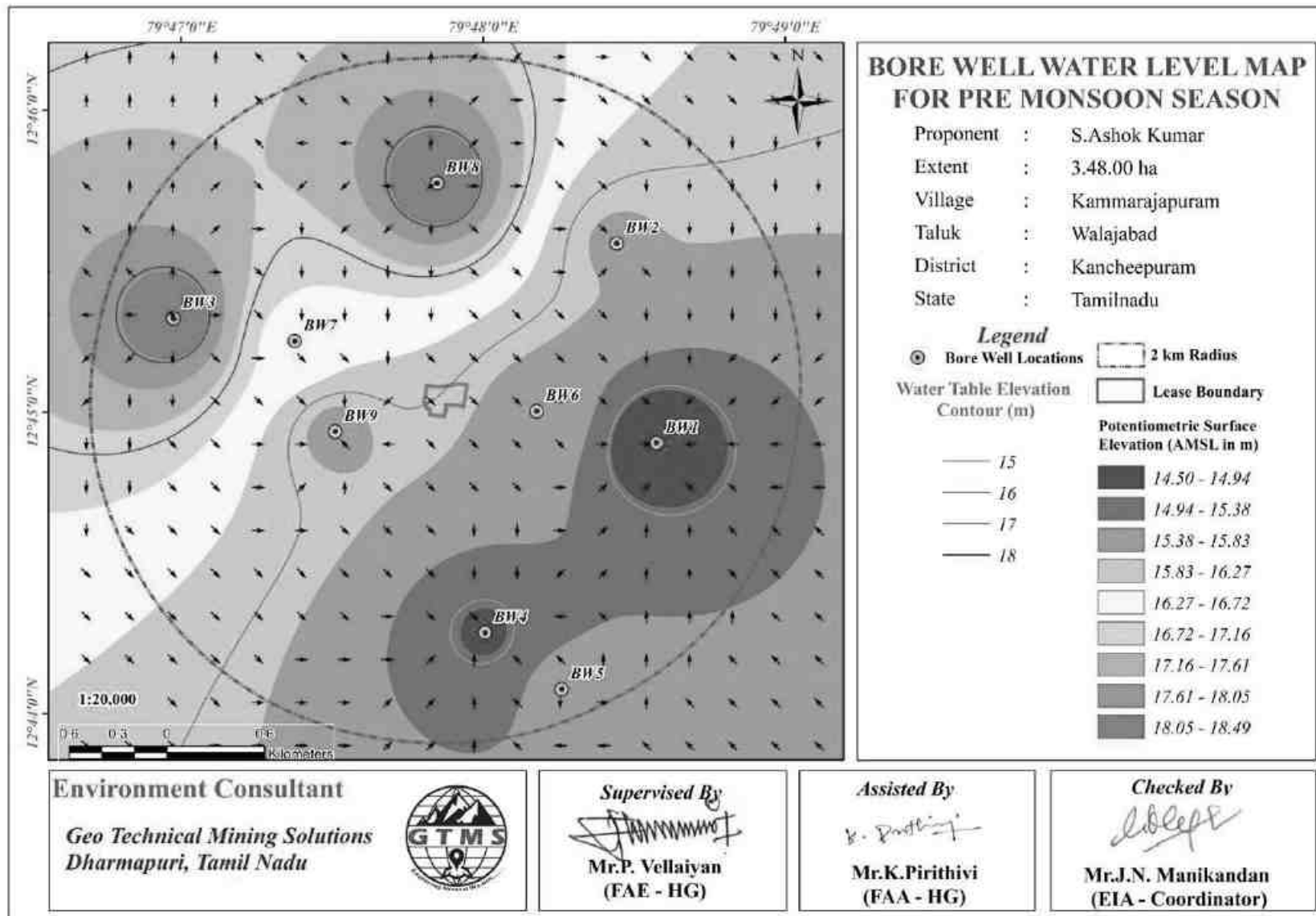


Figure 3.12 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre-Monsoon Season

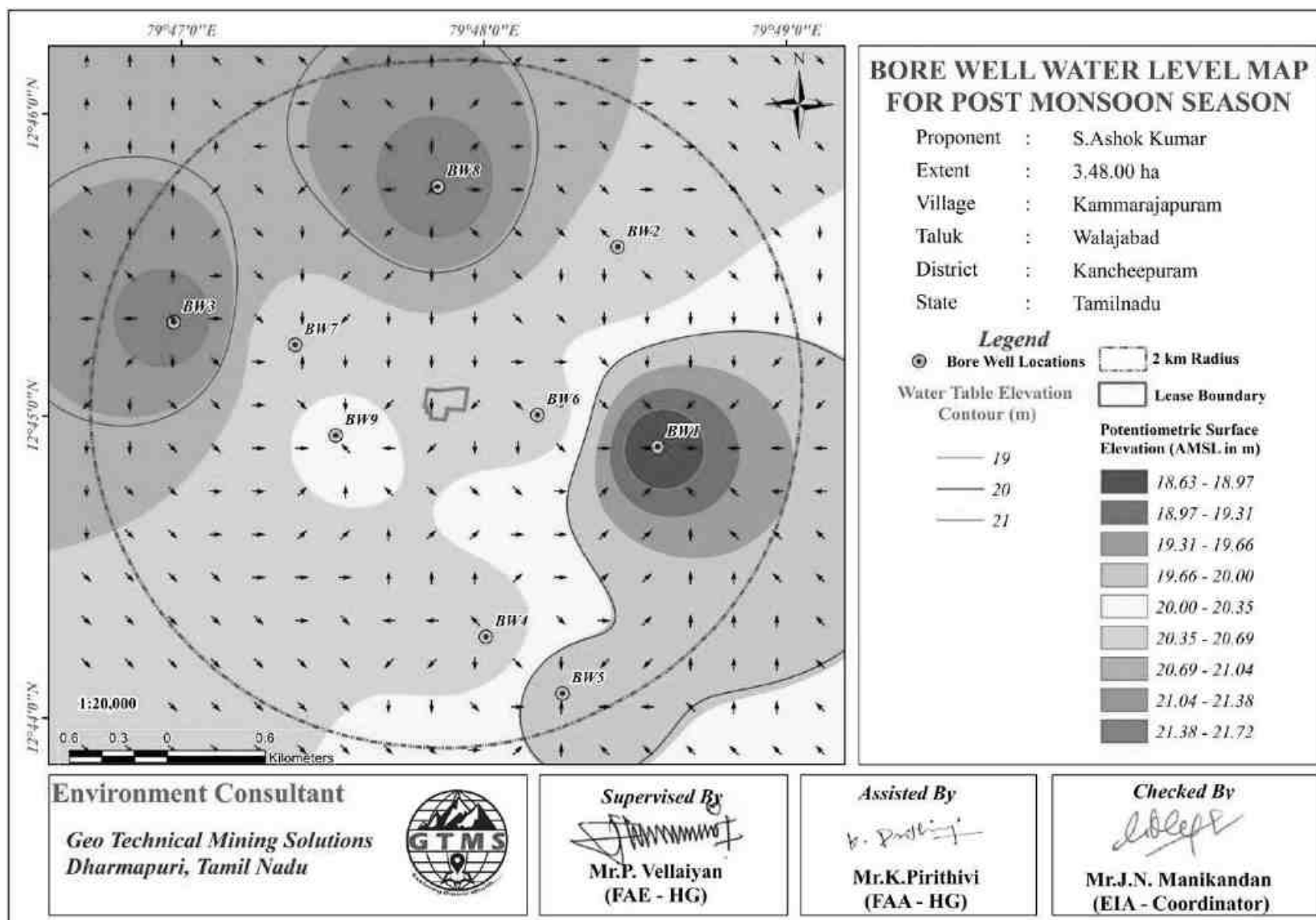


Figure 3.13 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post- Monsoon Season

Water Balance management in site

A sustainable eco-friendly water management strategy will be adopted in this project. Since the water requirement during the mining period is estimated about 3.5KLD for drinking, domestic and sanitary needs, creation and maintenance of green belt and for sprinkling purposes. The drinking water must be pure and safe, so it will be outsourced from nearby vendors/ RO- water plant will be installed in the site. The artificial rainwater harvesting structures are planned in and around the site. The excavated pits nearby the site will be connected by the garland drain system and water will be stored and this water will be utilised for the green belt maintenance and dust suppression sprinkling purpose. The rooftop harvesting structure is also planned from the labour sheds and other structures will be connected to the nearby excavated pits and utilised. These implementations will reduce the dependency of water from the nearby borewells and open wells. According to the soil resistivity data of the region, few locations are porous and permeable in nature. It will help in infiltration of rainwater and recharge the aquifer naturally during monsoon. This sustainable strategy will be helpful in maintaining the water balance within 2km radius of project site.

3.4.4.3 Electrical Resistivity Investigation

Electrical resistivity investigation, using vertical electric sounding (VES) and a four-electrode setup, is valuable for mapping subsurface layers and aquifers in areas lacking well data by measuring differences in electrical resistance. This method sends current through outer electrodes and measures the resulting voltage with inner electrodes, revealing variations in geological materials like weathered zones or fractured rock. These resistivity differences can help locate potential groundwater zones and identify different subsurface layers without needing exploratory wells. The geophysical VES data obtained from the project site was given in Table 3.14. The plot for the purpose of interpretation has been shown in Figure 3.14.

Table 3.14 Vertical Electrical Sounding Data

Location Coordinates - 12°45'3.51"N 79°47'53.14"E					
S. No.	AB/2 (m)	MN/2 (m)	Geometrical Factor (G)	Resistance in Ω	Apparent Resistivity in Ωm
1	2	2	11.78	12.44	146.5
2	4	2	49.46	7.42	367.04
3	6	5	112.26	4.98	559.28
4	8	5	200.18	2.86	572.71
5	10	5	75.36	8.49	640.03
6	15	10	173.49	4.53	786.42
7	20	10	310.86	3.18	987.56
8	25	10	487.49	2.29	1118.76

9	30	10	274.75	5.28	1451.78
10	35	10	376.8	4.22	1590.54
11	40	10	494.55	3.33	1649.12
12	45	10	628	2.75	1729.18
13	50	10	777.15	2.39	1857.16
14	60	20	453.6	3.50	1587.6
15	70	20	989.1	2.17	2149.5
16	80	20	1256	1.80	2261.52
17	90	20	1554.3	1.69	2630.93
18	100	20	1653.6	1.62	2680.44
19	110	20	1724.10	1.59	2748.98
20	120	20	1960.00	1.44	2824.56

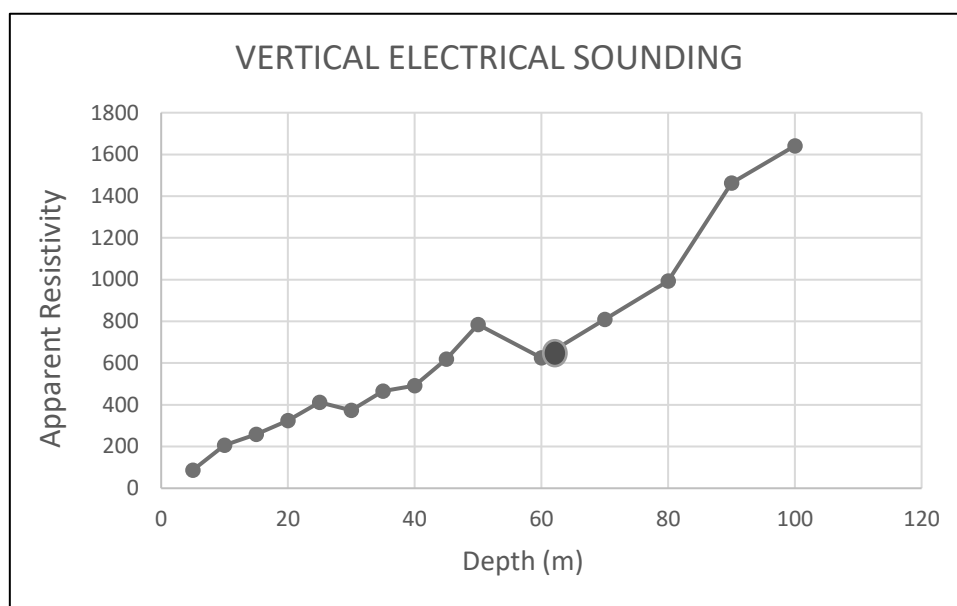


Figure 3.14 Graph showing occurrence of water bearing fracture zones at the depth in the proposed project site

The low resistance values indicate occurrence of water at the depth of about 60-65m below ground level. The maximum depth proposed for the proposed project is 50m BGL. Therefore, the mining operation will not affect the aquifer throughout the entire mine life period.

3.5 AIR ENVIRONMENT

Baseline studies on the air environment involve identifying specific pollutants and their concentrations in the ambient air of a region. The primary sources of air pollution are identified as vehicular traffic, dust from unpaved roads and domestic and agricultural activities. These sources contribute to the overall air quality and can be further investigated to understand the specific pollutants and their impact.

3.5.1 Meteorology

3.5.1.1 Climatic Variables

A temporary meteorological station was installed at the project sites by covering cluster quarries. The station was installed at a height of 3m above the ground level as there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature. Meteorological data obtained from the onsite monitoring station are provided in Table 3.15.

Table 3.15 Onsite Meteorological Data

S. No.	Parameters		Dec,2025	Jan,2026	Feb,2026
1	Temperature (°C)	Min	11.89	12	11.71
		Max	31.28	32.05	32.13
		Avg	20.28	21.10	21.48
2	Relative Humidity (%)	Min	18.7	12.27	23.5
		Max	100	100	100
		Avg	74.34	67.25	61.80
3	Wind Speed (m/s)	Min	0.28	0.13	0.38
		Max	5.83	5.23	4.0
		Avg	2.72	2.90	1.71
4	Wind Direction (degree)	Min	0.1	36.5	24
		Max	358.7	196.7	227.5
		Avg	75.92	77.89	88.11
5	Surface Pressure(kPa)	Min	91.92	92.01	92.12
		Max	92.84	93	93.27
		Avg	92.45	92.57	92.75

Source: Sampling Results by Green Link Analytical & Research Lab, in association with GTMS.

3.5.1.2 Wind Pattern

Wind rose diagrams are used to analyse wind patterns for their impact on air pollutant and noise dispersion from a project site. Two sets of wind roses were created one with historical data (December- February 2021- 2025) and another for the current study period (December2025- February 2026) allowing for comparison. The analysis showed a moderate overall wind speed of 2.46m/s and identified a prevalent wind direction from the East to West sectors.



Figure 3.15 Windrose Diagram January – March, 2022 & January – March, 2023



Figure 3.16 Windrose Diagram January – March, 2024 & January – March, 2025

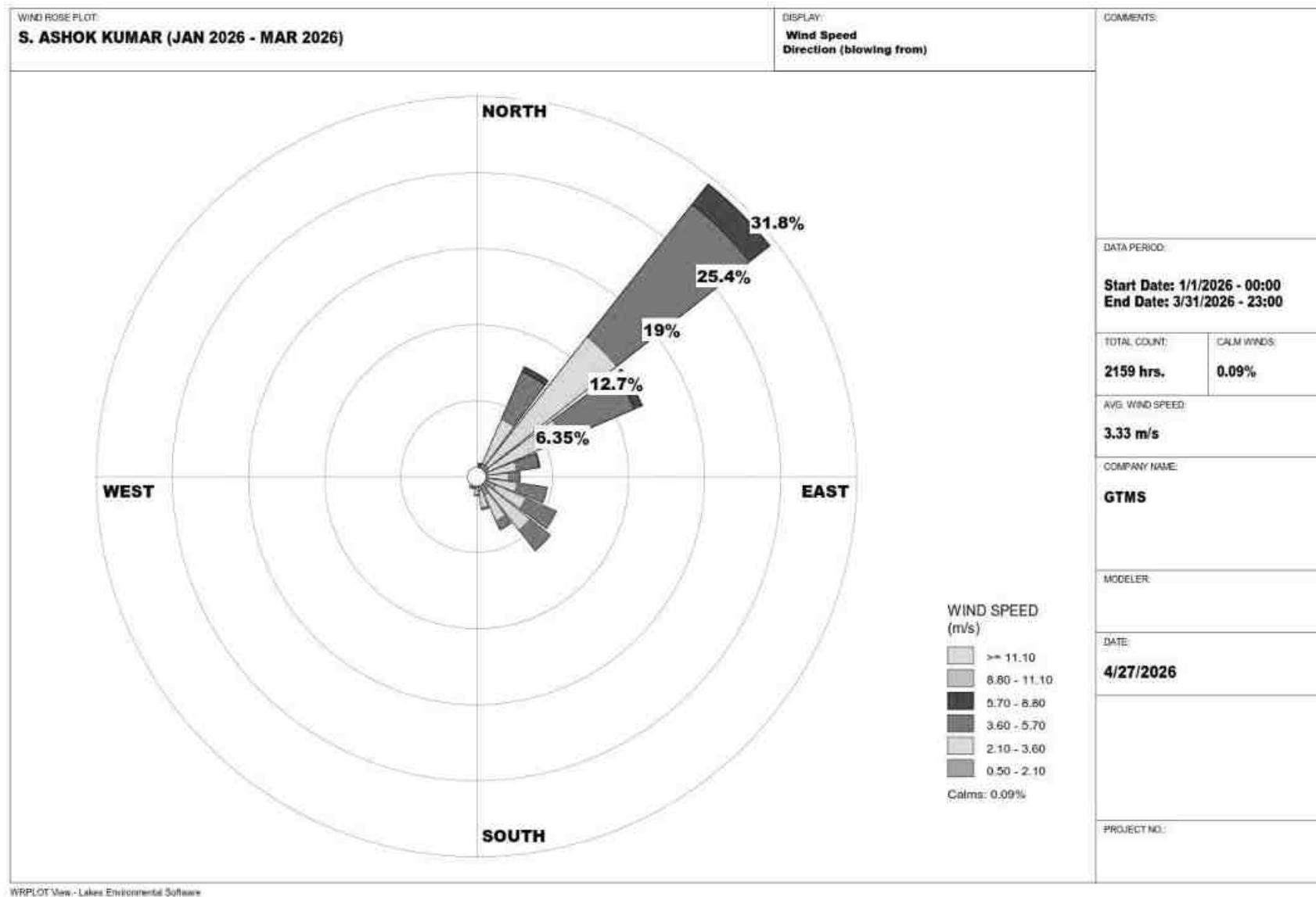


Figure 3.17 Onsite Wind Rose Diagram (January – March, 2026)

3.5.2 Ambient Air Quality Study

The baseline ambient air quality is studied 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

Table 3.16 Methodology and Instrument Used for AAQ Analysis

Parameter	Method	Instrument
PM _{2.5}	Gravimetric method attenuation method	Beta Fine Particulate Sampler
PM ₁₀	Gravimetric method attenuation method	Beta Respirable Dust Sampler
SO ₂	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hoch Heiser modified method)	Respirable Dust Sampler with gaseous attachment

Table 3.17 National Ambient Air Quality Standards

S. No.	Pollutant	Time Weighted Average	Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	SO ₂ (µg/m ³)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	NO _x (µg/m ³)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	PM ₁₀ (µg/m ³)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	PM _{2.5} (µg/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

Methodology

Ambient air quality monitoring was carried out with a frequency of two samples per week at five (05) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period **December 2025 to February 2026**, as per the CPCB, MoEF guidelines and notifications. It was ensured that the equipment was placed preferably at a height of at least 3 ± 0.5 m above the ground level at each monitoring station for negating the effects of wind-blown ground dust. The equipment was placed at space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results. The baseline

data of ambient air were generated for PM_{2.5}, PM₁₀, sulphur dioxide (SO₂) and nitrogen dioxide (NO_x). The sampling locations are shown in Figure 3.18 and average concentrations of air pollutants are summarized in Tables 3.19 and are shown in Figures 3.15 - 3.17.

Table 3.18 Ambient Air Quality (AAQ) Monitoring Locations

Location Code	Monitoring Locations	Distance (km)	Direction	Coordinates	
				Latitude	Longitude
AAQ1	Core	--	--	12°45'1.64"N	79°47'55.86"E
AAQ2	Asoor	1.80	NW	12°45'29.51"N	79°46'54.50"E
AAQ3	Kolathur	2.41	SW	12°44'27.66"N	79°46'36.33"E
AAQ4	Thammanur	1.44	NE	12°45'27.20"N	79°48'39.21"E
AAQ5	Vallimedu	1.21	S	12°44'19.82"N	79°47'53.62"E

Source: On-site monitoring/sampling by Ekdant Enviro Services (P) Limited in association with GTMS

Results

As per the monitoring data PM_{2.5} ranges from 17.56µg/m³ to 20.13µg/m³, PM₁₀ from 45.72µg/m³ to 50.59µg/m³, SO₂ from 4.87µg/m³ to 6.09µg/m³, NO_x from 8.02µg/m³ to 9.16g/m³. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

Air quality Index (AQI)

The AQI shows that the air quality of the study area falls within good category 51 causing minimal impact to human health.

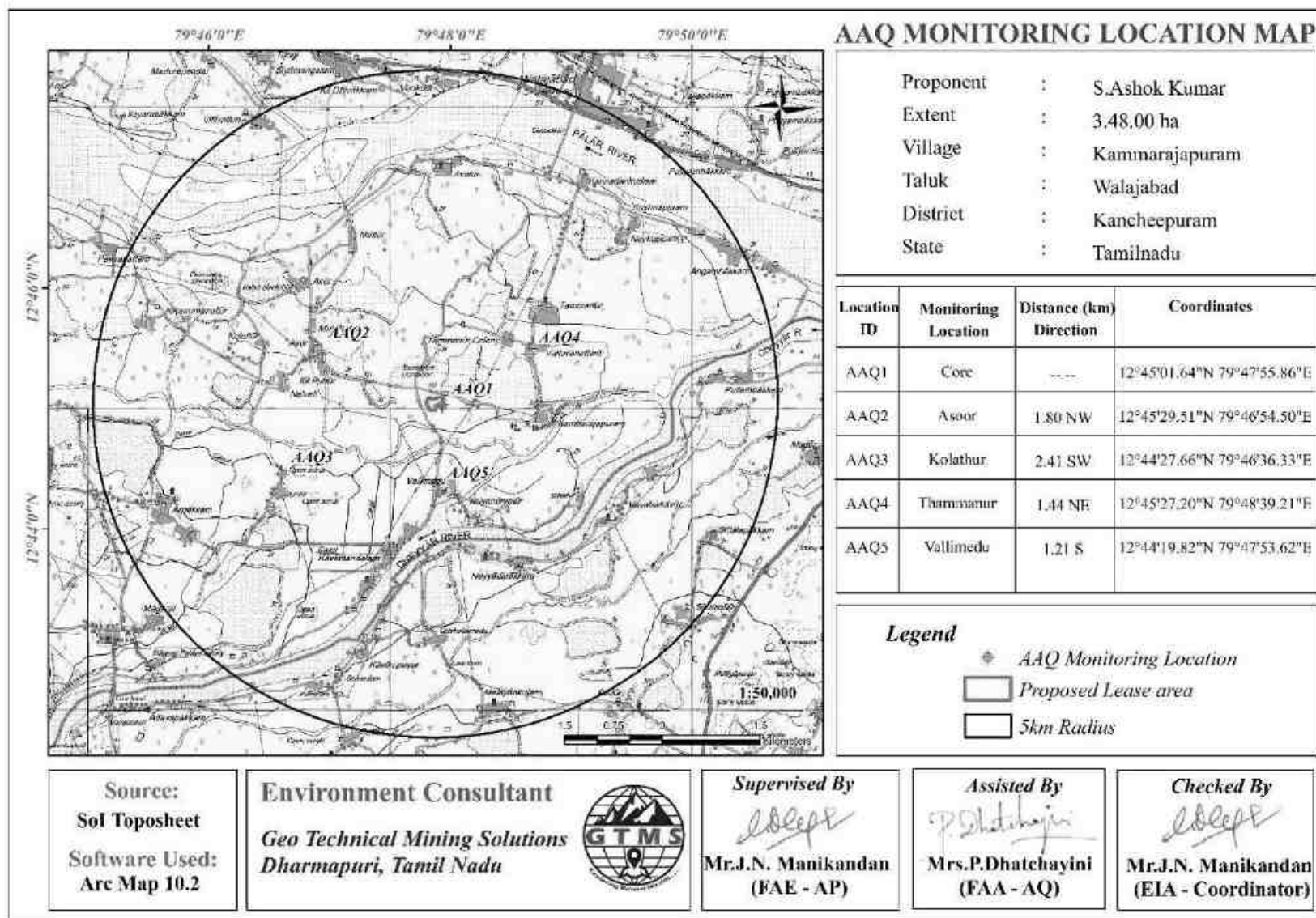


Figure 3.18 Map Showing Ambient Air Quality Monitoring Station Locations

Table 3.19 Summary of AAQ Result

PM _{2.5}					PM ₁₀			
Station ID	Max	Min	Mean	98 th Percentile	Max	Min	Mean	98 th Percentile
AAQ1	25.31	24.85	25.02	25.25	57.59	55.17	56.43	57.56
AAQ2	19.61	15.99	17.50	19.34	48.89	45.17	46.72	48.85
AAQ3	17.70	15.62	16.42	16.80	47.59	45.17	46.47	47.56
AAQ4	19.61	15.40	17.46	19.34	50.98	41.59	45.10	50.24
AAQ5	18.43	15.96	16.93	18.43	47.92	41.50	43.66	47.92
SO ₂					NO _x			
AAQ1	7.98	4.25	5.64	7.58	10.61	9.20	10.07	10.59
AAQ2	5.86	5.00	5.53	5.86	8.86	7.20	8.09	8.82
AAQ3	5.31	4.85	5.02	5.25	7.86	7.17	7.56	7.86
AAQ4	5.86	5.17	5.56	5.86	10.61	9.60	10.09	10.59
AAQ5	5.43	5.07	5.25	5.43	7.86	7.17	7.56	7.86

Free silica:

Crystalline silica is SiO₂ in a specific structural form distinct from the pure non-combined SiO₂ known as free silica. Sources like stone quarries sand mining and stone crushing can generate finely divided crystalline silica dust. Crystalline silica particles in these environments can be very small less than 4µm (PM₄). There are no generally accepted methods of monitoring in ambient PM₄ air.

Health Risks of Crystalline Silica Exposure

- **Inhalation:**

Over time, inhaling very small quantities of finely divided crystalline silica dust can lead to severe respiratory and other health problems.

- **Diseases:**

Exposure can result in silicosis (a type of scarring and inflammation of the lungs), bronchitis, and even cancer.

Exposure Limits and Regulations

- **ACGIH Recommendations:**

The American Conference of Governmental Industrial Hygienists recommends 0.1mg/m³ (10µg/m³) crystalline silica as respirable free silica as exposure limits.

- **Directorate General of Mines safety (India):**

Free silica content should not exceed 5% as prescribed by Directorate General of Mines Safety.

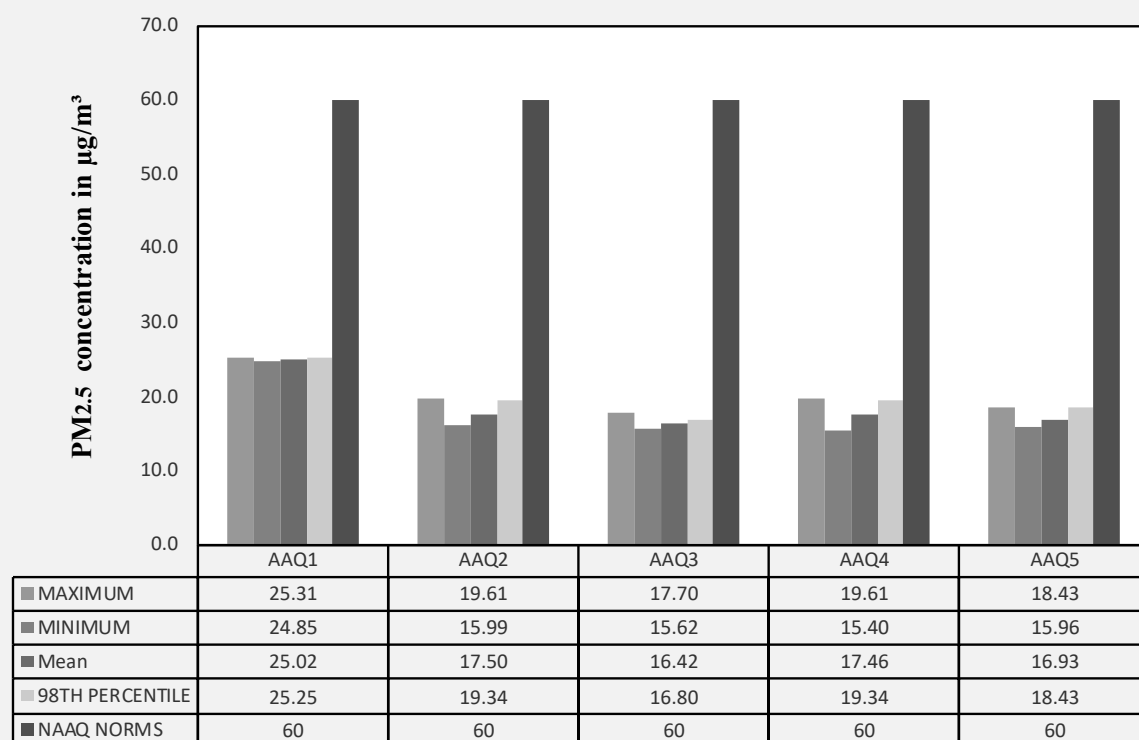


Figure 3.19 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM_{2.5} Measured from 5 Air Quality Monitoring Stations within 5 km Radius

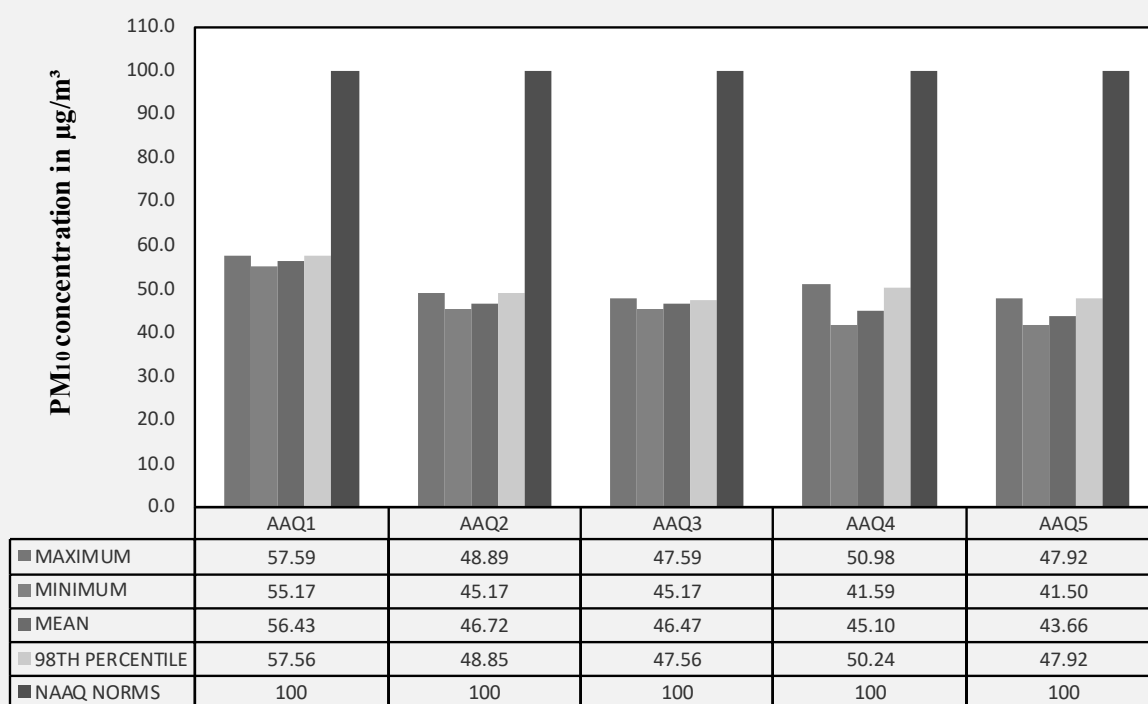


Figure 3.20 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM₁₀ Measured from 5 Air Quality Monitoring Stations within 5 km Radius

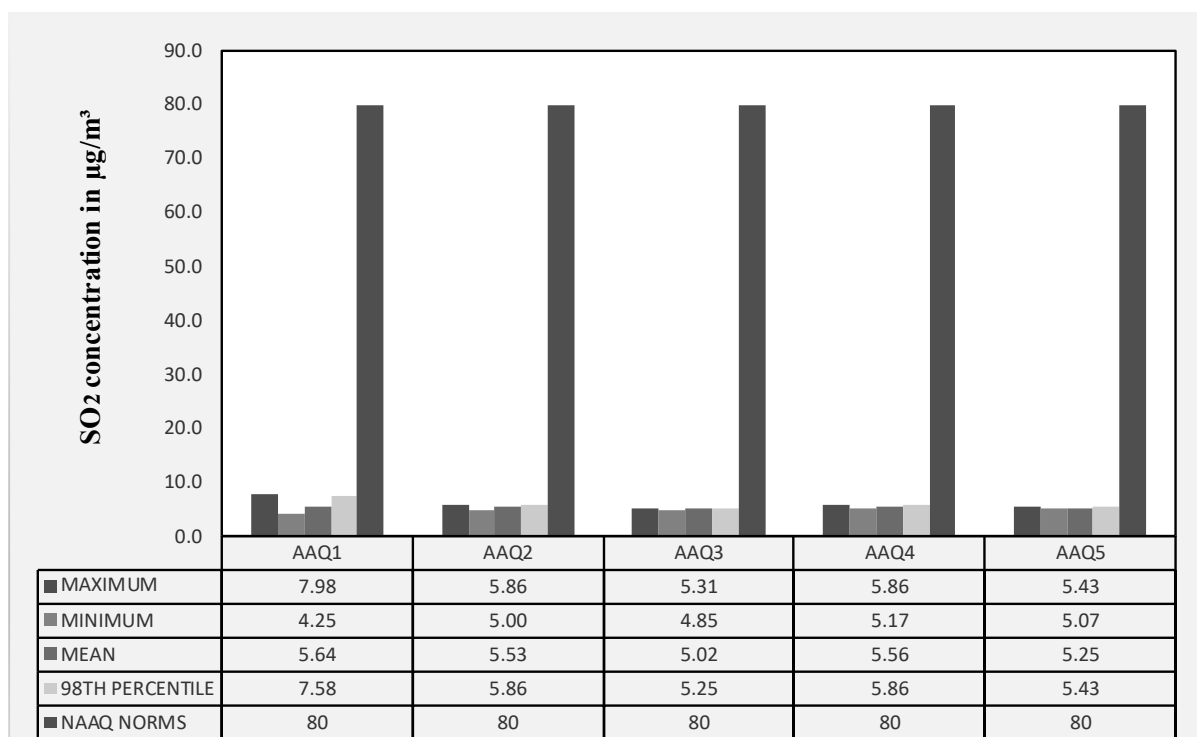


Figure 3.21 Bar Chart Showing Maximum, Minimum, and Average Concentrations of SO₂ Measured from 5 Air Quality Monitoring Stations within 5 km Radius

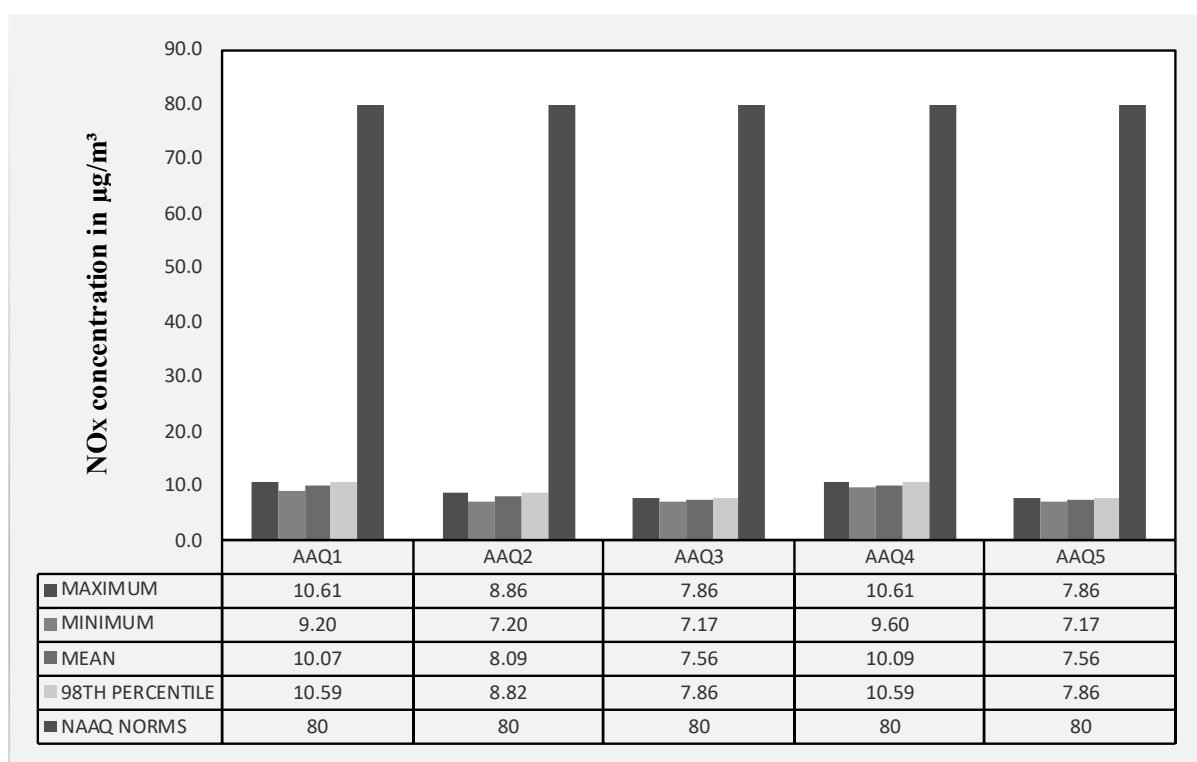


Figure 3.22 Bar Chart Showing Maximum, Minimum, and Average Concentrations of NO_x Measured from 5 Air Quality Monitoring Stations within 5km Radius

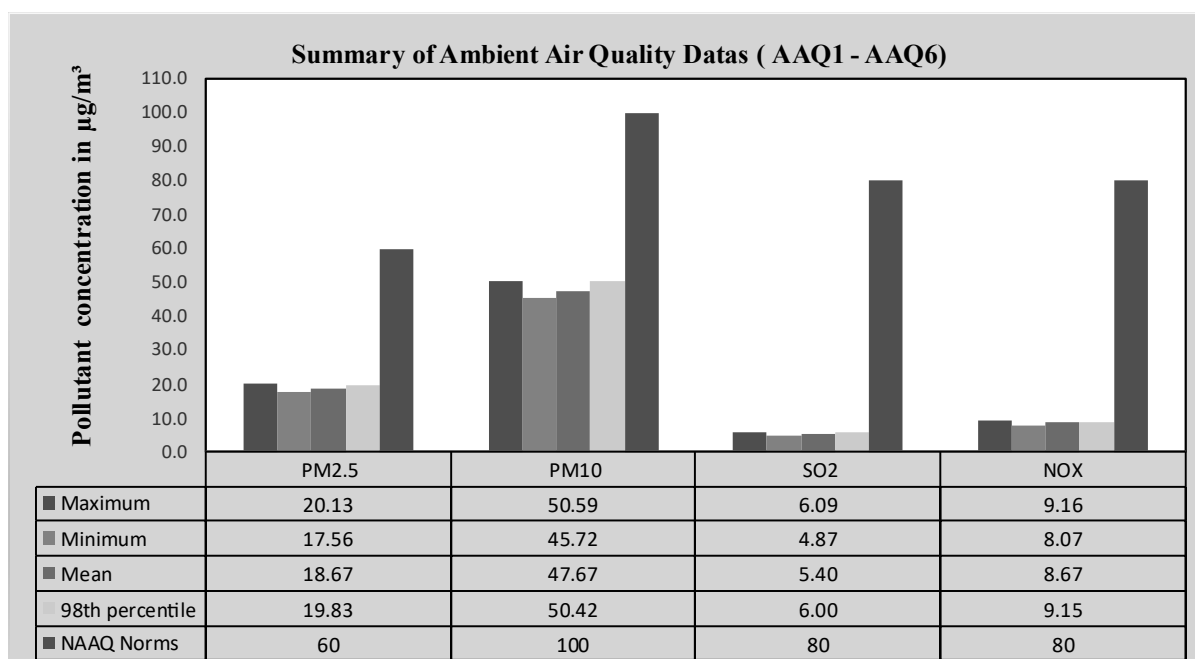


Figure 3.23 Bar Chart Showing Maximum, Minimum, And Average Concentrations of Pollutants in Atmosphere within 5 km Radius

3.6 NOISE ENVIRONMENT

The vehicular movement on road and mining activities is the major sources of noise in the study area. The main objective of noise monitoring in the study area is to establish the baseline noise level, which will in turn be used to assess the impact of the total noise expected to be generated during the project operations around the project site. In order to assess the ambient noise levels within the study area, noise monitoring was carried out at five (05) locations covering commercial, residential, rural areas within the radius of 5km. Details of noise monitoring locations are provided in Table 3.20 and spatial occurrence of the locations are shown in Figure 3.24.

Table 3.20 Noise Monitoring Locations

S. No.	Location Code	Monitoring Location	Distance (km)	Direction	Coordinates	
					Latitude	Longitude
1	N1	Core	--	--	12°45'2.86"N	79°47'52.78"E
2	N2	Asoor	1.68	NW	12°45'20.71"N	79°46'55.23"E
3	N3	Kolathur	2.70	SW	12°44'15.71"N	79°46'31.66"E
4	N4	Thammanur	1.50	NE	12°45'31.54"N	79°48'38.60"E
5	N5	Vallimedu	1.18	S	12°44'20.61"N	79°47'52.37"E

Table 3.21 Ambient Noise Quality Result

Station ID	Location	Environmental setting	Average day noise level (dB (A))	Average night noise level (dB(A))	Day time (6.00 AM – 10.00 PM)	Night time (10.00 PM – 6.00 AM)
					Standard (Leq in dB (A))	
N1	Core	Industrial Area	52.8	41.3	75	70
N2	Asoor	Residential Area	48.3	39.0	55	45
N3	Kolathur		46.5	38.3		
N4	Thammanur		49.0	40.0		
N5	Vallimedu		47.5	38.7		

Source: On-site Monitoring/Sampling by Ekdant Enviro Services (P) Limited in Association with GTMS

The table 3.21 shown that noise level in core zone was 52.8dB (A) Leq during day time and 41.3dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 46.5 to 48.3dB (A) Leq and during night time from 38.3 to 40.0dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB. The results are also depicted below in Figures 3.25 and 3.26.

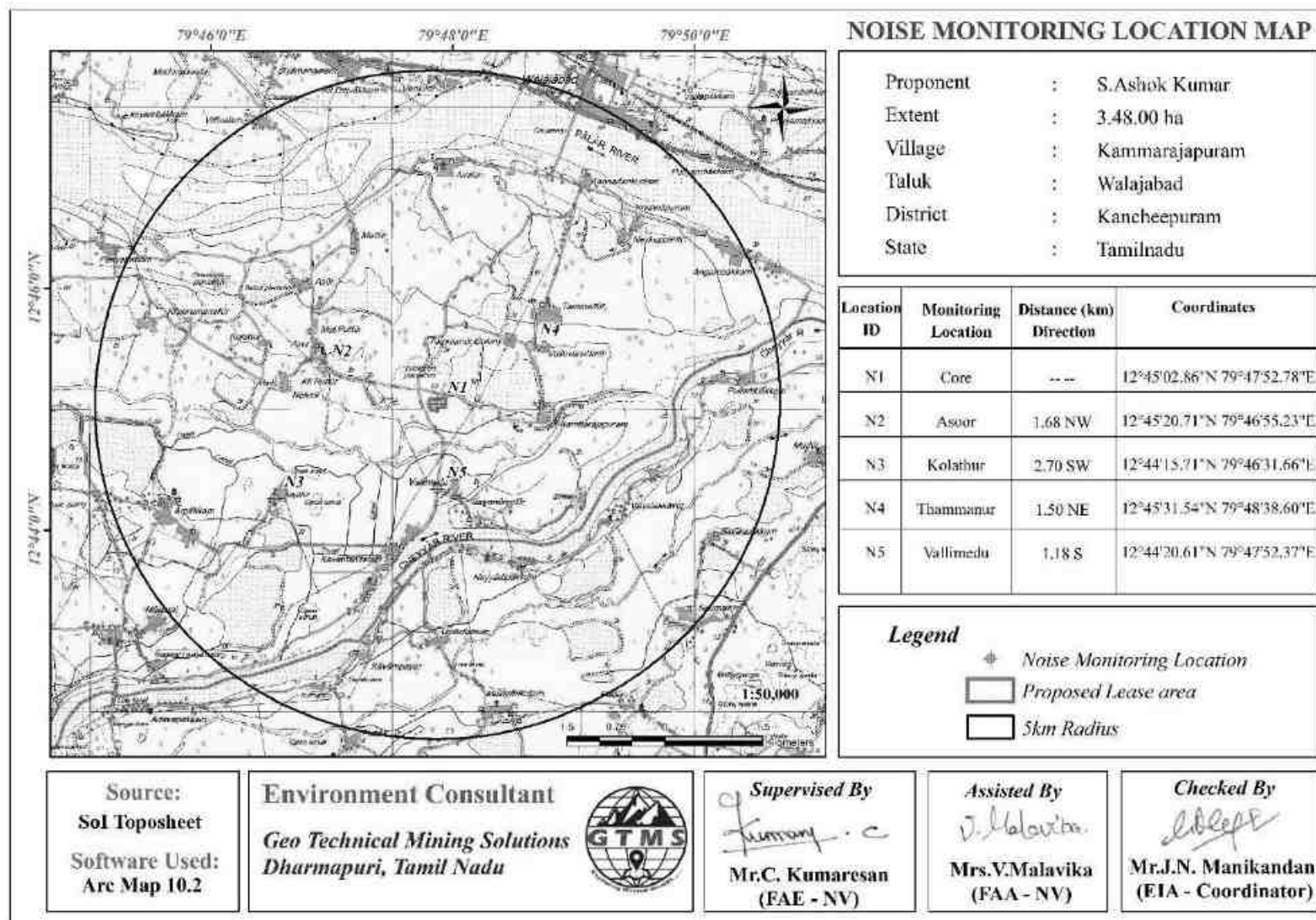


Figure 3.24 Map Showing Noise Level Monitoring Station Locations

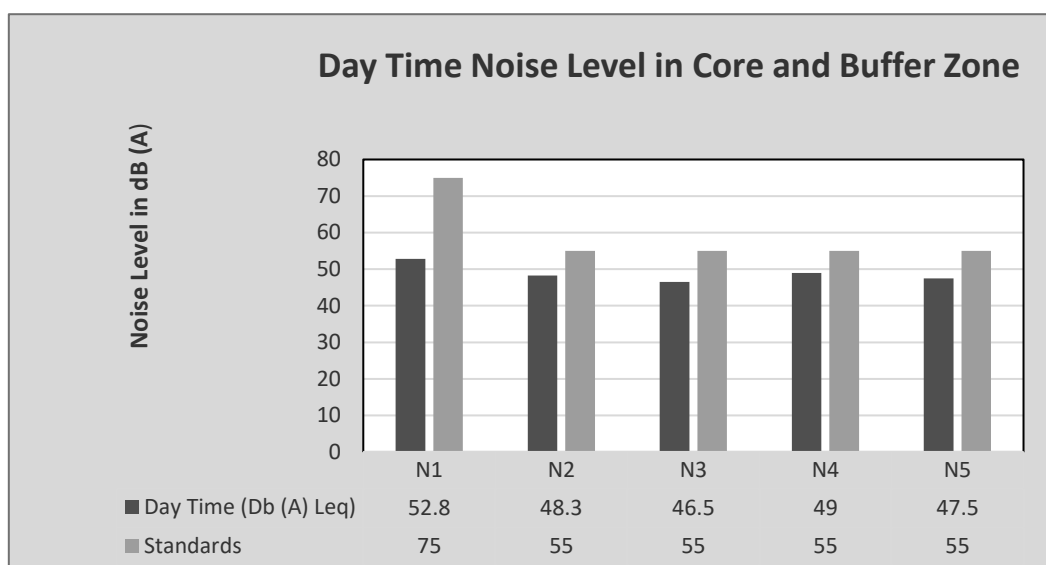


Figure 3.25 Bar Chart Showing Day Time Noise Levels Measured in Core and Buffer Zones

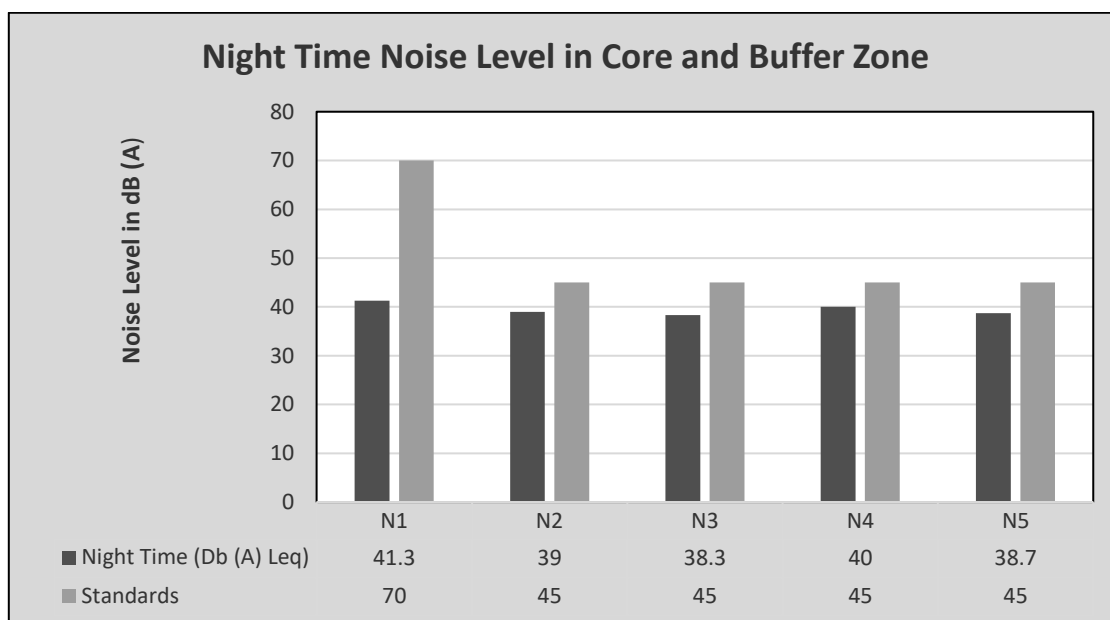


Figure 3.26 Bar Chart Showing Night Time Noise Levels Measured in Core and Buffer Zones

3.7 BIOLOGICAL ENVIRONMENT

Biological study of the ecosystem is essential to understand the impact of rough stone quarry on existing flora and fauna of the study area. Studies on various aspects of ecosystem play an important role in identifying sensitive issues for undertaking appropriate action to mitigate the impact, if any. A survey was conducted to study the flora and fauna in 10km radius by direct and indirect sightings/ data. Some of the information was gathered from the local habitants. All the collected data were classified to interpret the impact of pollution on the flora and fauna of that region. Survey of the wild plants as well as cultivated crop plants was made, and all the available information was recorded.

3.7.1 Biodiversity assessment methods

The Rapid Biodiversity Assessment (RBA) provides information about individual flora and fauna species and their habitats, ecosystems and communities, and threatening processes. It reviews existing information and the results of priority taxa and communities.

A major systematic program of fauna survey has been undertaken during the preparation of this RBA. Analysis of data involves the information identifying the flora and selected fauna groups in relation to different environmental strata across the site, and analysis of species and their responses to disturbance.

The RBA has focused primarily on the ecosystem and species levels of biodiversity because information about genetic variation within species is limited. The trees in each plot have been marked with metal plates so as to cater further field inspection easier. Physical marking of biodiversity has been dealt with for flora only, because of logical reasons. Floristic studies are dealt with in detail in the second part of the RBA.

The biodiversity information presented here is intended to reflect the best understanding of the available information, including information obtained through data audit, expert scientific opinion, and analysis of available data. It also points to deficiencies in existing information. The data presented will be used in the development of the restoration plans, including configuration of the quarry closure, and in the formulation of management recommendations by the experts.

The study has covered the following aspects to appraise the biodiversity of the site

S. No	Floral Component	Fauna elements
1	Plantations/ Agro- forestry	Total Listing of major Faunal elements
2	Natural Vegetation/ Forest type	Endangered Species/ Endemic Species
3	Flora Identification- Trees	Wildlife Schedules
4	Flora Identification- Shrubs	Migratory Species
5	Flora Identification- Herbs	Migratory corridors or Paths
6	Flora Identification- Climbers	Breeding & Spawning Grounds

The objective of this Section is to characterize and understand the present status of the ecosystems in the study area to assess the bio- diversity and to identify the critical areas. The present study was undertaken as a part of EIA report to understand the present status of ecosystem prevailing in the study area, to compare it with the past condition with the help of available data, to predict changes as a result of present activities and to suggest measures for maintaining the conditions.

3.7.2 Objectives of Biological Studies

The present study was undertaken with the following objectives:

- ❖ To study the likely impact of the proposed mining project on the local biodiversity and to suggest mitigation measure, if required, for vulnerable biota.
- ❖ To assess the nature and distribution of vegetation (Terrestrial and Aquatic) in and around the mining activity.
- ❖ Detail of flora and fauna, Endemic, Rare, Endangered and Threatened (RET Species) separately for core and buffer area based on such primary field survey and clearly indicating the Schedule of fauna present. In case of any schedule- 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.
- ❖ Devise management & conservation measures for biodiversity.

3.7.3 Methodology

A methodology of Sampling Flora and fauna studies were carried out to assess the list of terrestrial plant and animal species that occur in the core area and the buffer area up to 10km radius from the project site. No damage is created to flora and fauna during the sampling.

3.7.4 Flora Study

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. Transect method is used in the floral documentation in the buffer zone. Six transects were selected for the study. Each transects were occupied within 10km radius. For trees plots of (10x10m), shrubs (5x5m) and herbs (1x1m) were used and recorded.

3.7.5 Fauna Study

The faunal elements of core and buffer zone were identified by direct sightings or indirect evidences by recording occurrences such as holes, markings, hairs, spines, scats, pellets, droppings and quills (Menon 2003). Standard binocular was used for the observations. The authenticity of faunal elements occurrence was confirmed by interaction with the local

people. Avifauna identification was done with pictorial descriptions of published literature. Information pertaining to existence of any migratory corridors and paths were obtained from local inhabitants. The status of each faunal element was determined and wildlife schedule category was ascertained as per the IUCN- Red Data Book and Wildlife protection (Amendment) Act 2022. The Birds, butterflies, reptiles and odonates were mainly focused during faunal assessment, in which 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 one km, within a time span of one hour to 30 minutes was carried out in each of the habitats. Each transects were occupied within the 10km radius of the site. Bird species were recorded during the hours of peak activity 07 am to 12 am and evening 3.00 pm to 5.00 pm. Direct observations and bird calls used for bird documentation. Same transects were used for counting birds and butterflies. Opportunistic observations were made for Amphibians, reptiles and odonates. Presence of mammals were recorded by indirect signs. They were classified into species level as and when possible. Recorded bird species were identified to species level using standard books (Ali & Ripley 1987, Grimmett et al., 2016).

Important Value Index (IVI)

The concept of ‘Important Value Index (IVI)’ has been developed for expressing the dominance and ecological success of any species, with a single value (Mishra, 1968, Sharma, 2005). This index utilizes three characteristics, they are (i) Relative frequency and (ii) Relative density. The three characteristics computed using frequency, density and abundance for all the species falling in all the quadrat by using the following formula. The relative frequency, relative density and relative abundance has been calculated to calculate the IVI value

$$IVI = \text{Relative frequency} + \text{Relative abundance} + \text{Relative density} [RF + RA + RD]$$

$$\text{Relative Value Index (RVI)} = \text{Relative Density} + \text{Relative Frequency} [RD + RF].$$

Relative Value Index used for Expressing dominance and Ecological success of Shrub and herb Species in a particular area.

Shannon- Wiener Index, Evenness and Richness

Biodiversity index is a quantitative measure that reflects how many different types 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.

The **Shannon Diversity Index** (sometimes called the Shannon- Wiener Index) is a way to measure the diversity of species in a community.

The species diversity index (H) for floral and faunal diversity is calculated by the use of Shannon Wiener Index (Shannon Wiener, 1963) as:

$$H = - \sum (n_i/n) \times \ln (n_i/n)$$

- Where, n_i is individual density of a species and n is total density of all the species
- The Evenness Index (E) is calculated by using Shannon's Evenness formula (Magurran, 2004).
- The higher the value of H, the higher the diversity of species in a particular community

The lower the value of H, the lower the diversity. A value of $H = 0$ indicates a community that only has one species

$$\text{Evenness Index (E)} = H / \ln(S)$$

Where, H is Shannon Wiener Diversity index; S is number of species

The Shannon evenness Index is a way to measure the evenness of species in a community. The term “evenness” simply refers to how similar the abundances of different species are in the community.

3.7.6 Floral diversity Analysis

Flora study was conducted using the above said methodology to inventory the existing terrestrial plants in both core and buffer zones. Details of plants have been described in the succeeding sections.

3.7.6.1 Flora Composition in Core Zone

The core zone presents in tree, shrubs, herbs and grasses. Taxonomically total of 18 species belonging to 12 families 31 Plant have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were Herbs 5 followed by Trees 5 Shrubs 4 and Climbers 2. The result of core zone of flora studies shows that Fabaceae and Solanaceae are the main dominating species in the study area it mentioned in Table 3.22 & 3. 23. No species found as threatened category.

3.7.6.2 Flora Composition in buffer Zone

There are 139 different species identified in the buffer zone. Among the identified, floral (139) species were 30 trees, 19 herbs & climbers, 20 shrubs, 13 Creepers & grasses.

According to the findings of the buffer zone flora studies, the dominant species in the study area are Fabaceae, Asteraceae, and Euphorbiaceae, as shown in Table 3.25. 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. Details of flora with the scientific name were mentioned in Table 3.25. A list of floral species has been prepared based on a 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 3.25.

Table 3.22 Number of flora life in study area

S. No	Plant Life form	Number of Species	Number of Plant
1.	Trees	5	5
2.	Shrubs	4	11
3.	Herbs	5	9
4.	Climber	2	3
5.	Creepers	-	1
6.	Grasses	2	2
Total No. of Species		18	31

Table 3.23 Flora in mine lease area

S.no	Local name	Scientific name	Family name	IUCN- Conservation Status
Trees				
1.	Vembu (Neem)	<i>Azadirachta indica</i>	Meliaceae	LC
2.	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	Not Listed
3.	Manga maram	<i>Mangifera indica</i>	Anacardiaceae	Not Listed
4.	Teak	<i>Tectona grandis</i>	Lamiaceae	Not Listed
5.	Pongam oiltree	<i>Pongamia pin nata</i>	Fabaceae	Not Listed
Shrubs				
3	Avaram chadi	<i>Senna auriculata</i>	Fabaceae	Not Listed
4	Unni chadi	<i>Lantana camara</i>	Verbenaceae	Not Listed
5	<u>Thazhuthaalai</u>	<i>Chromolaena odorata</i>	Asteraceae	Not Listed
6	Thuthi	<i>Abutilon indicum</i>	Meliaceae	Not Listed
Herbs				
8	Kattu kanchippul	<i>Apluda mutica</i>	Poaceae	Not Listed
9	Kolunji chadi	<i>Tephrosia purpurea</i>	Fabaceae	Not Listed
10	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae	Not Listed
11	Nearunji mull	<i>Tribulus zeyheri</i>	Zygophyllaceae	Not Listed
12	Pulapoo	<i>Aerva lanata</i>	Amaranthaceae	Not Listed
Climber				

15	Veliparuthi	<i>Pergularia daemia</i>	Apocynaceae	Not Listed
16	Kovakka	<i>Coccinia grandis</i>	Cucurbitaceae	Not Listed
Grasses				
17	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae	Not Listed
18	Kattu kanchippul	<i>Apluda mutica</i>	Poaceae	Not Listed

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

Table 3.24 Species Richness (Index) in mine lease area

Details	H	H max	Evenness	Species Richness
Trees	1.23	1.0	0.68	0.84
Shrubs	1.34	1.47	0.54	1.31
Herbs	1.29	1.68	0.77	1.19

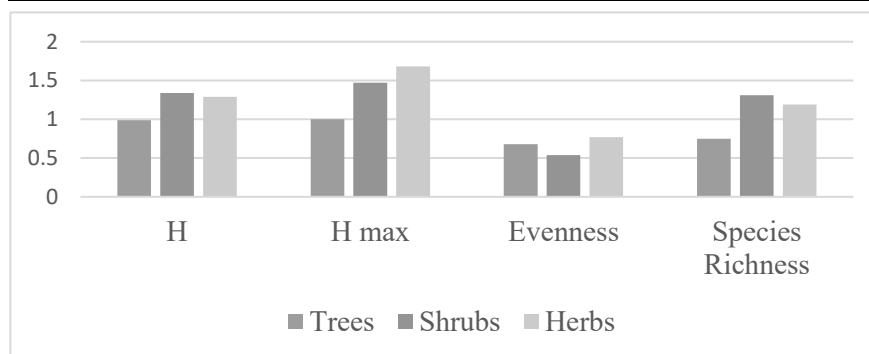


Figure 3.27 Species Richness (Index) in Mine Lease area

Table 3.25 Flora in Buffer Zone

S. No	Local name	Scientific name	Family Name	IUCN Conservation Status
Trees				
1.	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	Not Listed
2.	Manga	<i>Mangifera indica</i>	Anacardiaceae	Not Listed
3.	Puliyamaram	<i>Tamarindus indica</i>	Legumes	Not Listed
4.	Vadanarayani	<i>Delonix elata</i>	Fabaceae	Not Listed
5.	Thenpazham	<i>Muntingia calabura</i>	Tiliaceae	Not Listed
6.	Punnai	<i>Calophyllum inophyllum</i>	Calophyllaceae	Not Listed
7.	Ilanthai	<i>Ziziphus jujubha</i>	Rhamnaceae	LC
8.	Karuvelam	<i>Acacia nilotica</i>	Mimosaceae	Not Listed
9.	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae	Not Listed
10.	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	Not Listed
11.	Navalmaram	<i>Syzygium cumini</i>	Myrtaceae	Not Listed
12.	Alamaram	<i>Ficus benghalensis</i>	Moraceae	LC
13.	Vazhaimaram	<i>Musa</i>	Musaceae	Not Listed
14.	Teak	<i>Tectona grandis</i>	Lamiaceae	Not Listed
15.	Savukku	<i>Casuarina equisetifolia</i>	Casuarinaceae	Not Listed
16.	Thailamaram	<i>Eucalyptus</i>	Myrtaceae	Not Listed
17.	Arasanmaram	<i>Ficus religiosa</i>	Moraceae	Not Listed
18.	Eucalyptus	<i>Eucalyptus globules</i>	Myrtaceae	

19.	Athi	<i>Ficus recemosa</i>	Moraceae	Not Listed
20.	Vazhaimaram	<i>Musa</i>	Musaceae	Not Listed
21.	Kadukkai	<i>Terminalia chebula</i>	Combretaceae	Not Listed
22.	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae	Not Listed
23.	Sapota tree	<i>Manilkara zapota</i>	Sapotaceae	Not Listed
24.	Navalmaram	<i>Syzygium cumini</i>	Myrtaceae	Not Listed
25.	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae	Not Listed
26.	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae	Not Listed
27.	Vadanarayani	<i>Delonix elata</i>	Fabaceae	Not Listed
28.	Manja kadambai	<i>Adina cordifolia</i>	Rubiaceae	Not Listed
29.	Pappali maram	<i>Carica papaya L</i>	Caricaceae	Not Listed
30.	Vilvam	<i>Aegle marmelos</i>	Rutaceae	Not Listed
Shrubs				
31.	Unichedi	<i>Lantana camara</i>	Verbenaceae	Not Listed
32.	Sundaika	<i>Solanum torvum</i>	Solanaceae	Not Listed
33.	Erukku	<i>Calotropis gigantea</i>	apocynaceae	Not Listed
34.	Avarai	<i>Senna auriculata</i>	Fabaceae	Not Listed
35.	Sappathikalli	<i>Cereus pterogonus</i>	Cactus	Not Listed
36.	Kattamanaku	<i>Jatropha gossypifolia</i>	Euphorbiaceae	Not Listed
37.	Nochi	<i>Vitex negundo</i>	Lamiaceae	Not Listed
38.	Idlipoo	<i>xoracoc cineia</i>	Rubiaceae	Not Listed
39.	Neermulli	<i>Hydrophila auriculata</i>	Acanthaceae	Not Listed
40.	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae	Not Listed
41.	Thuthi	<i>Abutilon indicum</i>	Meliaceae	Not Listed
42.	Chemparruthi	<i>Hibiscus rosa-sinensis</i>	Malvaceae	Not Listed
43.	Arali	<i>Nerium indicum</i>	Apocynaceae	Not Listed
44.	Icham	<i>Phoenix pusilla</i>	Arecaceae	Not Listed
45.	Karunochi	<i>Vitex negundo</i>	Lamiaceae	Not Listed
46.	Arali (White)	<i>Nerium oleander</i>	Apocynaceae	Not Listed
47.	Peacock flower	<i>Caesalpinia pulcherrima</i>	Fabaceae	Not Listed
48.	Yellow Trumpet	<i>Tecoma stans</i>	Bignoniaceae	Not Listed
49.	Indian Nightshade	<i>Solanum violaceum</i>	Solanaceae	Not Listed
50.	Pomegrante	<i>Punica granatum</i>	Lythraceae	Not Listed
Herbs/ Climber				
51.	Amman Paccharisi	<i>Euphorbia hirta</i>	Euphorbiaceae	Not Listed
52.	Anachundaikai	<i>Solanum violaceum</i>	Solanaceae	Not Listed
53.	Agave	<i>Agave sisalana</i>	Asparagaceae	Not Listed
54.	Gopuram Tangi	<i>Andrographis echinoides</i>	Acanthaceae	Not Listed
55.	Katang kathrikai	<i>Solanum virginianum</i>	Solanaceae	LC

56.	Kombumul	<i>Acanthospermum hispidum</i>	Asteraceae	Not Listed
57.	Musumusukkai	<i>Mukia maderaspatana</i>	Cucurbitaceae	Not Listed
58.	Nagathali	<i>Opuntia dillenii</i>	Cactaceae	Not Listed
59.	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae	Not Listed
60.	Paca poondu	<i>Pavonia gallaensis</i>	Malvaceae	Not Listed
61.	Ponnangani	<i>Alternanthera pungens</i>	Amaranthaceae	Not Listed
62.	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	Not Listed
63.	Poolai poondu	<i>Aerva lanata</i>	Amaranthaceae	Not Listed
64.	Sirupunaikkali	<i>Passiflora foetida</i>	Passifloraceae	Not Listed
65.	Thottalchinungi	<i>Mimosa pudica</i>	Fabaceae	Not Listed
66.	Thumbai	<i>Leucas aspera</i>	Lamiaceae	Not Listed
67.	Vishnukrandai	<i>Evolvulus alsinoides</i>	Convolvulaceae	Not Listed
68.	Wild thulasi	<i>Hyptis suaveolens</i> (L.)	Lamiaceae	Not Listed
Creepers/ Grasses				
69.	Sithrapaalavi	<i>Euphorbia prostrata</i>	Euphorbiaceae	Not Listed
70.	Vallarai	<i>Merremia gangetica</i>	Convolvulaceae	Not Listed
71.	Thumattikai	<i>Cucumis callosus</i>	Cucurbitaceae	Not Listed
72.	Siru puladi	<i>Desmodium triflorum</i>	Fabaceae	Not Listed
73.	Vallikeerai	<i>Ipomoea aquatica</i>	Convolvulaceae	Not Listed
74.	Malli	<i>Jasminum augustifolium</i>	Oleaceae	Not Listed
75.	Sangupoo	<i>Clitoria ternatia</i>	Fabaceae	Not Listed
76.	Mudakkotan	<i>Cardiospermum helicacabum</i>	Sapindaceae	Not Listed
77.	Kattu kanchippul	<i>Aphuda mutica</i>	Poaceae	Not Listed
78.	Korai	<i>Cyperus rotandus</i>	Poaceae	Not Listed
79.	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae	Not Listed
80.	Arugampul	<i>Cynodon dactylon</i>	Poaceae	Not Listed
81.	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae	Not Listed

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

3.7.7 Fauna Study

The faunal survey was carried out for Mammals, Birds, Reptiles, Amphibians and Butterflies. There are no rare, endangered, threatened (RET) and endemic species present in Mine lease area.

Table 3.26 Methodology applied during survey of fauna

S. No.		Method of Sampling	References
1	Insects	Random walk, Opportunistic observations	Pollard (1977); Kunte (2000)
2	Reptiles	Visual encounter survey (Direct Search)	Daniel J.C (2002)

3	Amphibians	Visual encounter survey (Direct Search)	
4	Mammals	Tracks and Signs	Menon V (2014)
5	Avian	Random walk, Opportunistic observations.	Grimmett R (2011); Ali S (1941)

3.7.7.1 Fauna in Core Zone

A total of 24 varieties of species were observed in the Core zone (Table.3.27). Among them are 8 Insects, 5 Reptiles, 4 Mammals and 9 Avian. A total of 26 species belonging to 20 families were recorded from the core area. The study shows that number of species decreases towards the mining area. This might be due the lack of vegetation. None of these species in the core zone are threatened or endemic. The survey was conducted to identify species listed in IUCN Red List. According to the field data, any species are not of Schedule I and nine species are of schedule IV. There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in Table 3.27.

3.7.7.2 Fauna in Buffer Zone

A total of 50 species belonging to 36 families have been recorded from the buffer zone area (Table.3.28). Based on habitat classification the majority of species were Birds 15 (30%), followed by Insects 14 (28%), Reptiles 13 (26%), Mammals 5 (10%) and Amphibians 3 (6%). There are 7 Schedule II species and 27 species are under schedule IV according to Indian wild life Act 1972. A total fifteen species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable and endemic species were observed.

Table 3.27 Fauna in Core Zone

S. No	Common name/ English Name	Family Name	Scientific Name	Schedule list wildlife protection act 1972	IUCN Red List data
Reptiles					
1	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NE	NE
2	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	NE	NE
3	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
4	Common krait	Elapid snakes	<i>Bungarus caeruleus</i>	Schedule IV	LC
5	Fan-Throated Lizard	Agamidae	<i>Sitanaponticeriana</i>	NL	LC
Insects					
1	Plain Tiger	Nymphalidae	<i>Dananeuschrysippus</i>	NL	LC
2	Tawny coster	Nymphalidae	<i>Danaus chrysippus</i>	Schedule IV	LC
3	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NE	LC
4	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC

7	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
8	Ant	Formicidae	<i>Camponotus vicinus</i>	NL	NL
Mammals					
1	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	LC
2	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule II	LC
3	Rat	Murids	<i>Rattusrattus</i>	Schedule IV	LC
4	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
Avian					
1	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NE	LC
2	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	NE	LC
3	Koel	Cuculidae	<i>Dynamism scolopaceus</i>	Schedule IV	LC
4	Common cuckoo	Cuculidae	<i>Cuculus canorus</i>	NE	LC
5	House crow	Corvidae	<i>Corvus splendens</i>	NE	LC
6	Crow Pheasant	Cuculidae	<i>Centropus sinensis</i>	Schedule IV	LC
7	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	Schedule IV	LC
8	Asian green bee-eater	Meropidae	<i>Meropsorientalis</i>	NL	LC
9	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NE	LC

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

Table 3.28 Fauna in Buffer Zone

S. No	Common name/ English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	UCN Red List data
Insects					
1	Honey bee	Apidae	<i>Apis cerana</i>	Schedule IV	LC
2	Blue tiger	Nymphalidae	<i>Tirumala limniace</i>	Schedule IV	LC
3	Common Indian crow	Nymphalidae	<i>Euploea core</i>	Schedule IV	LC
4	Tawny coster	Nymphalidae	<i>Danaus chrysippus</i>	Schedule IV	LC
5	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
6	Jewel beetle	Buprestidae	<i>Eurythyrea austriaca</i>	Schedule IV	LC
7	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
8	Ant	Formicidae	<i>Camponotus vicinus</i>	NL	LC
9	Praying mantis	Mantidae	<i>mantis religiosa</i>	NL	LC
10	Dragonfly	Gomphidae	<i>Ceratogomphus pictus</i>	Schedule IV	LC
11	Milkweed butterfly	Nymphalidae	<i>Danainae</i>	NL	LC
12	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
13	Lesser grass blue	Lycaenidae	<i>Zizina otis indica</i>	Schedule IV	LC
14	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV	LC
Reptiles					
1	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
2	Chameleon	Chamaeleonidae	<i>Chameleon zeylanicus</i>	Schedule II	LC
3	Fan-Throated Lizard	Agamidae	<i>Sitanaponticeriana</i>	NL	LC

4	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	NL	LC
5	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
6	Olive keel back water snake	Natricidae	<i>Atretium schistosum</i>	Sch II (Part II)	LC
7	Whip Snake	Elapidae	<i>Dryphis nasutus</i>	Sch II (Part II)	LC
8	Common krait	Elapid snakes	<i>Bungarus caeruleus</i>	Schedule IV	LC
9	Indian wall lizard	Gekkonidae	<i>Hemidactylus flaviviridis</i>	Schedule IV	NL
10	Saw scaled viper	Elapidae	<i>Echis carinatus</i>	Sch II (Part II)	LC
11	Brahminy skink	Scincidae	<i>Eutropis carinata</i>	NL	LC
12	Scincidae	Viperidae	<i>Vipera russeli</i>	Sch II (Part II)	LC
13	Common skink		<i>Mabuya carinatus</i>	NL	LC
[GE11] Mammals					
1	Indian palm squirrel	Sciuridae	<i>Funambulus palmarum</i>	Schedule IV	LC
2	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	LC
3	Indian hare	Leporidae	<i>Lepus nigricollis</i>	Schedule IV	LC
4	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule (Part II)	LC
5	Brown rat	Muridae	<i>Rattus norvegicus</i>	Schedule IV	LC
Aves					
1	Koel	Cuculidae	<i>Eudynamis</i>	Schedule IV	LC
2	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NL	LC
3	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
4	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
5	Asian green bee-eater	Meropidae	<i>Merops orientalis</i>	NL	LC
6	Red-vented Bulbul	Pycnonotidae	<i>Pycnonotus cafer</i>	Schedule IV	LC
7	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	Schedule IV	LC
8	Shikra	Accipitridae	<i>Accipiter badius</i>	NL	LC
9	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
10	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
11	Two-tailed Sparrow	Dicruridae	<i>Passer domesticus</i>	Schedule IV	LC
12	Grey Francolin	Phasianidae	<i>Francolinus pondicerianus</i>	Schedule IV	LC
13	Common Quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
14	White-breasted waterhen	Rallidae	<i>Amaurornis phoenicurus</i>	NL	LC
15	Common Coot	Rallidae	<i>Fulica atra</i>	Schedule IV	LC
Amphibians					
1	Indian Burrowing frog	Dicroglossidae	<i>Sphaerotheca brevipes</i>	Schedule IV	LC
2	Pond Frog	Ranidae	<i>Rana hexadactyla</i>	Schedule IV	LC

3	Tiger Frog	Chordata	<i>Hoplobatrachus tigerinus (Rana tigerina)</i>	Schedule IV	LC
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*NL-Not listed, LC-Least concern, NT-Near threatened

Aquatic Vegetation

The field survey for assessing the aquatic vegetation was also undertaken during the study period. Fish is commonly found in all types of natural water bodies and very common source of food in Eastern South India. The local fishermen were enquired and also the secondary resources were reviewed to collect information on the fishes found in the study area. Few common species are; *Catla (Catla catla)*, *Channa striata*, *Oreochromis niloticus*.

Table 3.29 Aquatic Fauna and Flora

Sl. No	Common Name	Scientific name	Family Name	IUCN Red List of Threatened Species
Flora				
1	Water hyacinth	<i>Eichornia crassipes</i>	Pontederiaceae	NA
2	Blue waterlily	<i>Nymphaea nouchali</i>	Nymphaeaceae	LC
3	Cross Grass	<i>Carex cruciata</i>	Cyperaceae	NA
4	Scutch grass	<i>Cynodon dactylon</i>	Poaceae	LC
Fauna				
5	Thilapia	<i>Oreochromis niloticus</i>	Cichlidae	LC
6	Catla	<i>Catla</i>	Cyprinidae	LC
7	Koravi meen	<i>Channa striata</i>	Channidae	LC
8	Roghu	<i>Labeo rohita</i>	Cyprinidae	LC

*LC- Least Concern, NA-Not yet assessed

Phytoplankton's:

Microcystis, Nitzschia, Oscillatoria, Navicula and Pediasstrum sps.

Zooplanktons:

These consist of microscopic organisms from groups Protozoa, Rotifers, Cladocera and Copepoda etc. Some common species of zooplanktons are; *Deflandre*, *Arcella vulgaris*, *Centropyxis spinosa*, *Arcella discoides*, *Arcella hemispherica*, *Centropyxis aculeate*, *Trigonopyxis arcula*, *Brachionus calyciflorus*, *Lecane curvicornis*, *Brachionus angularis*, *Polyarthra vulgaris*, *Filinia longiseta*.

Food chain

The food chain in aquatic ecosystems often begins with the algae or phytoplankton producers, and then the zooplankton that feed on them. This type of food chain is found in nearby lakes and rivers with phytoplankton, zooplankton, fish *Artiola gray* and humans.

Ex: Phytoplankton → Zooplankton → small fish → large fish → Human

3.7.8 Agriculture & Horticulture in Kancheepuram District:

Agriculture in Kancheepuram district, primarily relying on tank irrigation, focuses heavily on rice cultivation, making it a key economic driver. The district, benefiting from

northeast monsoon rains, also features Rice, Millets, Pulses, oilseed, oil palm, groundnut, sugarcane, Coconut and black gram, with 13 development blocks utilizing a mix of traditional and technical farming practices. Rice is the dominant crop, cultivated over two main seasons, alongside pulses like black gram and oilseeds like groundnut.

3.7.8.1 Major Agricultural Crops

Major horticulture crops cultivated in this district are vegetables crops like brinjal, chillies, onion and turmeric. Details of major field crops and Agricultural in 1km radius is given in Table. 3.30.

Table 3.30 Major Crops in 1km radius

S. No	Major crops	Scientific name	Families
1	Sorghum	<i>Sorghum bicolor</i>	Poaceae
2	Gingelly	<i>Sesamum indicum</i>	Pedaliaceae
3	Groundnut	<i>Arachis hypogaea</i>	Legumes
4	Millets	<i>Panicum miliaceum L</i>	Poaceae
5	Sesame	<i>Sesamum indicum</i>	Pedaliaceae
6	Cotton	<i>Gossypium herbaceum</i>	Malvaceae

3.7.8.2 Major Horticulture Crops

Horticulture includes cultivation of fruits, vegetables, nuts, seeds, herbs, sprouts, mushrooms, algae, flowers, seaweeds and non-food crops such as grass and ornamental trees and plants. It also includes plant conservation, landscape restoration, landscape and garden design.

Horticulture

Major horticulture crops cultivated in Kancheepuram district are fruit crops like mango, banana, Sapota and guava, vegetables like tomato, brinjal, ladies finger, chillies, onion and tapioca, spices like turmeric. Details of major field crops and horticulture cultivation in 1km radius is given in Table 3.31.

Table 3.31 Major Field Crops & Horticulture cultivation in 1km radius.

S. No	Common Name	Scientific Name	Family
Major Horticultural Crops			
1	Guava	<i>Psidium guajava</i>	Myrtaceae
2	Sapota	<i>Manilkara zapota</i>	Sapotaceae
3	Lemon	<i>Citrus × limon</i>	Rutaceae
4	Papaya	<i>Carica papaya</i>	Caricaceae
5	mango	<i>Mangifera indica</i>	Anacardiaceae
6	banana	<i>Musa × paradisiaca</i>	Musaceae

Vegetables			
7	Onion	<i>Allium cepa</i>	Amaryllidaceae
8	Tapioca	<i>Manihot esculenta</i>	Spurges
9	Brinjal	<i>Solanum melongena</i>	Nightshade
10	Tomato	<i>Solanum lycopersicum</i>	Nightshade
11	Bottle Gourd	<i>Lagenaria siceraria</i>	Cucurbits
12	Ladies finger	<i>Abelmoschus esculentus</i>	Mallows
13	Moringa	<i>Moringa oleifera</i>	Moringaceae

3.8 SOCIO ECONOMIC ENVIRONMENT

The major developmental activities in the mining and industrial sector are crucial for economic development and the creation of direct and indirect employment opportunities. These activities also fulfil society's basic and modern needs of the society, ultimately improving the quality of life through advancements in social, economic, health, education, and nutritional status within the project region, state, and country. In this manner all developmental projects have direct as well as indirect relationships with socioeconomic aspects, which also include public acceptability for developmental projects. Thus, the study of socio-economic environment component incorporating various facets related to prevailing social and cultural conditions and economic status of the mining (rough stone quarry) project region is an important part of the EIA study. 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.

3.8.1 Objectives of the Study

The objectives of the socio-economic impact assessment are as follows:

- To study the socio-economic status of the people living in the study area of the project.
- To identify the basic needs of the nearby villages within the study area.
- To assess the impact on socio-economic environment due to the project.
- To provide the employment and improved living standards.
- To analysis of impact of socio economic and Environmental Infrastructure facilities and road accessibility.

3.8.2 Methodology

The study employed cluster sampling to outline two zones around the proposed project site: Zone 1 (Core Zone, 0-1km radius) and Zone 2 (Low Impact Zone, 1–5km radius). The primary data collection was conducted through structured interviews, field observation, and

focus group discussions with the local people of in Kammarajapuram Village, Walajabad Taluk of Kancheepuram District, Tamil Nadu. The secondary data were collected from the Census report 2011 and official records, covering demographics and basic services including information on population, number of households, literacy rates, sex ratios, worker details and the availability of basic services. This study covers the positive and negative impacts of the project's establishment, and provides recommendations for analysing and mitigating adverse effects. The study areas are illustrated in Figure 3.28.

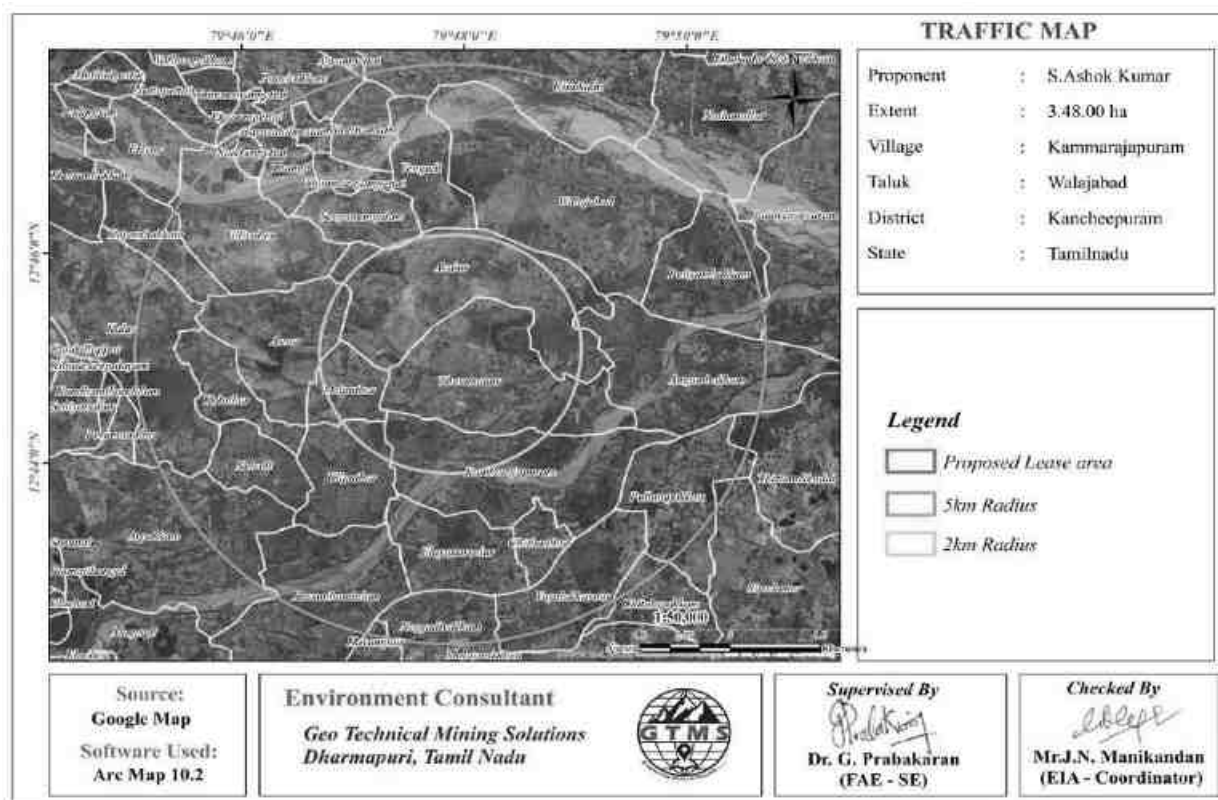


Figure 3.28 Details Village Boundaries within 2km and 5km Radius of the Project Lease area

3.8.3 Demographic Profile of Kancheepuram District

Kancheepuram district is situated on the northern East Coast of Tamil Nadu and is adjacent by Bay of Bengal and Chennai city and is bounded in the west by Vellore and Thiruvannamalai district, in the north by Thiruvallur district and Chennai district, in the south by Villuppuram district in the east by Bay of Bengal. The district has been divided into 2 revenue divisions comprising of 5 taluks with 520 revenue villages.

In 2011, Kancheepuram had population of 3,998,252 of which male and female were 2,012,958 and 1,985,294 respectively. In 2001 census, Kancheepuram had a population of 2,877,468 of which males were 1,457,242 and remaining 1,420,226 were females. Average literacy rate of Kancheepuram in 2011 were 84.49 compared to 84.49 of 2001. If things are looked out at gender wise, male and female literacy were 89.89 and 79.02 respectively. For

2001 census, same figures stood at 84.73 and 68.79 in Kancheepuram District. Total literate in Kancheepuram District were 3,013,382 of which male and female were 1,611,461 and 1,401,921 respectively. In 2001, Kancheepuram District had 1,952,198 in its district.

With regards to Sex Ratio in Kancheepuram, it stood at 986 per 1000 male compared to 2001 census figure of 975. The average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate. In 2011 census, child sex ratio is 959 girls per 1000 boys compared to figure of 961 girls per 1000 boys of 2001 census data. The district had a total of 1,006,245 households. There was a total of 1,673,814 workers, comprising 74,761 cultivators, 162,494 main agricultural labourers, 41,149 in house hold industries, 1,088,974 other workers, 306,436 marginal workers, 14,582 marginal cultivators, 110,020 marginal agricultural labourers, 13,583 marginal workers in household industries and 168,251 other marginal workers.

Source: <https://www.census2011.co.in/census/city/471-kancheepuram.html>

3.8.4 Profile of Study Area- Kammarajapuram Village

Kammarajapuram is a medium size village located in Kancheepuram Taluka of Kancheepuram district, Tamil Nadu with total 380 families residing. The Kammarajapuram village has population of 1527 of which 766 are males while 761 are females as per Population Census 2011. In Kammarajapuram village population of children with age 0-6 is 172 which makes up 11.26 % of total population of village. Average Sex Ratio of Kammarajapuram village is 993 which is lower than Tamil Nadu state average of 996. Child Sex Ratio for the Kammarajapuram as per census is 849, lower than Tamil Nadu average of 943. Kammarajapuram village has lower literacy rate compared to Tamil Nadu. In 2011, literacy rate of Kammarajapuram village was 69.67 % compared to 80.09 % of Tamil Nadu. In Kammarajapuram Male literacy stands at 82.17 % while female literacy rate was 57.33 %. As per constitution of India and Panchyati Raaj Act, Kammarajapuram village is administrated by Sarpanch (Head of Village) who is elected representative of village. Our website, don't have information about schools and hospital in Kammarajapuram village. Table 3.32.

Table. 3.32 Demographic Status of Kammarajapuram Village

Particulars	Total	Male	Female
Total No. of Houses	380	-	-
Population	1527	766	761
Child (0-6)	172	93	79
Schedule Caste	273	139	134
Schedule Tribe	56	26	30
Literacy %	69.67%	82.17%	57.33%
Total Workers	818	460	358
Main Worker	731	-	-
Marginal Worker	87	30	57

Source: <https://www.census2011.co.in/data/village/629737-kambarajapuram-tamil-nadu.html>

3.8.5 Working Population- Kammarajapuram Village

In Kammarajapuram village out of total population, 818 were engaged in work activities. 89.36 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 10.64 % were involved in Marginal activity providing livelihood for less than 6 months. Of 818 workers engaged in Main Work, 57 were cultivators (owner or co-owner) while 407 were Agricultural labourer.

Benefits:

The table 3.33 presents a village-wise distribution of households, population, social composition, literacy, and workforce participation for 37 villages, covering a total of 47462 houses. The total population of the study area is 190026 comprising 95373 males and 94653 females, which indicates a slightly higher male population across the study area.

Among the villages, Angambakkam, Arpakkam, Avalur, Ayyampettai, Kalur, Naickenpettai, Palayaseevaram, Sirudamur, Thammanur, Uthukadu and Walajabad have comparatively larger populations, while Asoor, Bavasahibpettai, Chitalapakkam, Chithaathur, Elayanarvelur, Kambarajapuram, Kavampair, Kavanthandalam, Kilottivakkam, Kilputhur, Kolathur, Koyambakkam, Melputhur, Nathanallur, Nelveli, Neyyadivakkam, Poosivakkam, Puliyambakkam, Pullampakkam, Seeyamangalam, Thangi, Thimmarajampettai are smaller villages with limited population size. The gender distribution across villages is relatively balanced; however, males marginally outnumber females in most villages. The total child population (0–6 years) in the study area is 20,817, consisting of 10,525 male children and 10,291 female children. Villages such as Avoolor, Thammanur, Melputhur, Kilputhur, Kammarajapuram, Angampakkam, Pullampakkam, Vayalakkavoor, Kavampair, Kavanthandalam, Arpakkam, Kolathur, Perumanallur and Villivalam record higher child population figures, reflecting a comparatively younger population structure. In contrast, smaller villages show a much lower proportion of children.

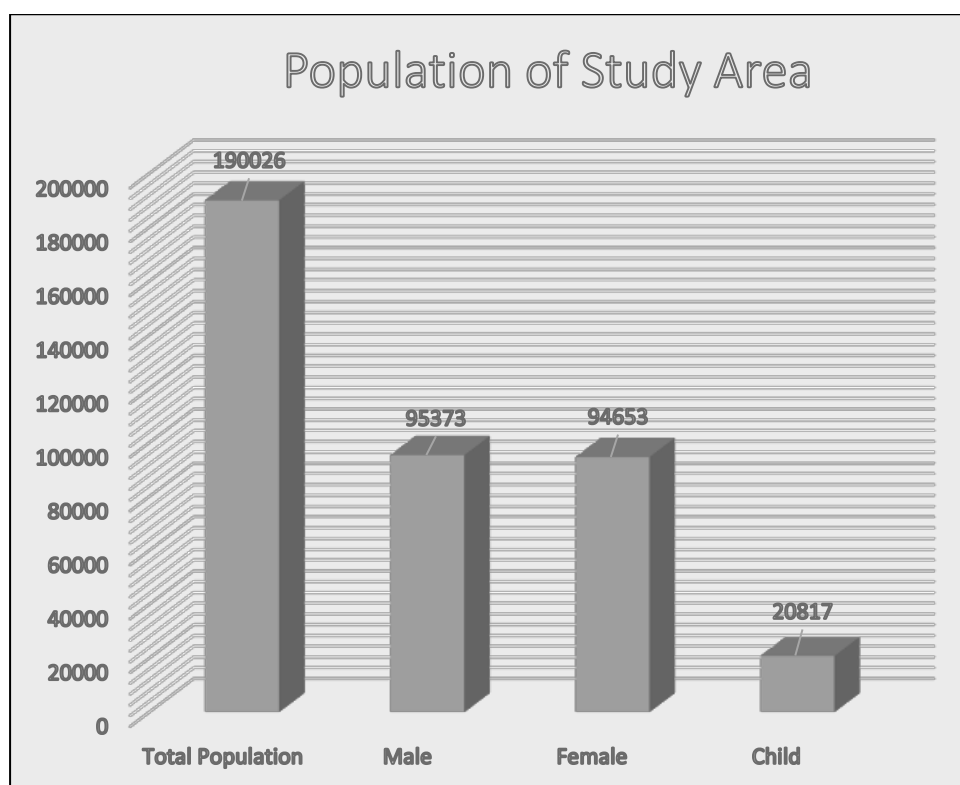
The Scheduled Caste (SC) population forms a significant component of the population, totalling 65,923 persons, with 32,819 males and 33,104 females. Villages like Avoolor, Thammanur, Melputhur exhibit a notably high SC population, indicating social concentration in these settlements. The Scheduled Tribe (ST) population is relatively small across the study area, accounting for only 2890 persons (1458 males and 1432 females). ST population is mainly concentrated in villages such as Avoolor, Thammanur, Melputhur while the majority of villages report no Scheduled Tribe population at all.

The total literate population comprises 1,24,974 persons, including 70,147 males and 54,827 females. Male literacy is consistently higher than female literacy across all villages,

highlighting a persistent gender gap in education. Larger villages such as Kammarajapuram, Avoolur, Thammanur, Melputhur contribute substantially to the overall literate population.

Workforce participation in the study area totals 88,894 workers, consisting of 55,818 male workers and 33,076 female workers. Male participation in economic activities is significantly higher than female participation in every village. Villages with larger populations naturally record higher workforce numbers, while smaller villages show lower employment levels. The disparity suggests limited employment opportunities and prevailing social constraints affecting female workforce participation.

Overall, the table reveals a moderately populated rural region with a substantial Scheduled Caste presence, minimal Scheduled Tribe population, and pronounced gender disparities in literacy and employment. Although workforce participation is considerable, the comparatively lower female literacy and employment levels emphasize the need for targeted interventions in education, skill development, and women's empowerment, particularly in larger and socially disadvantaged villages.



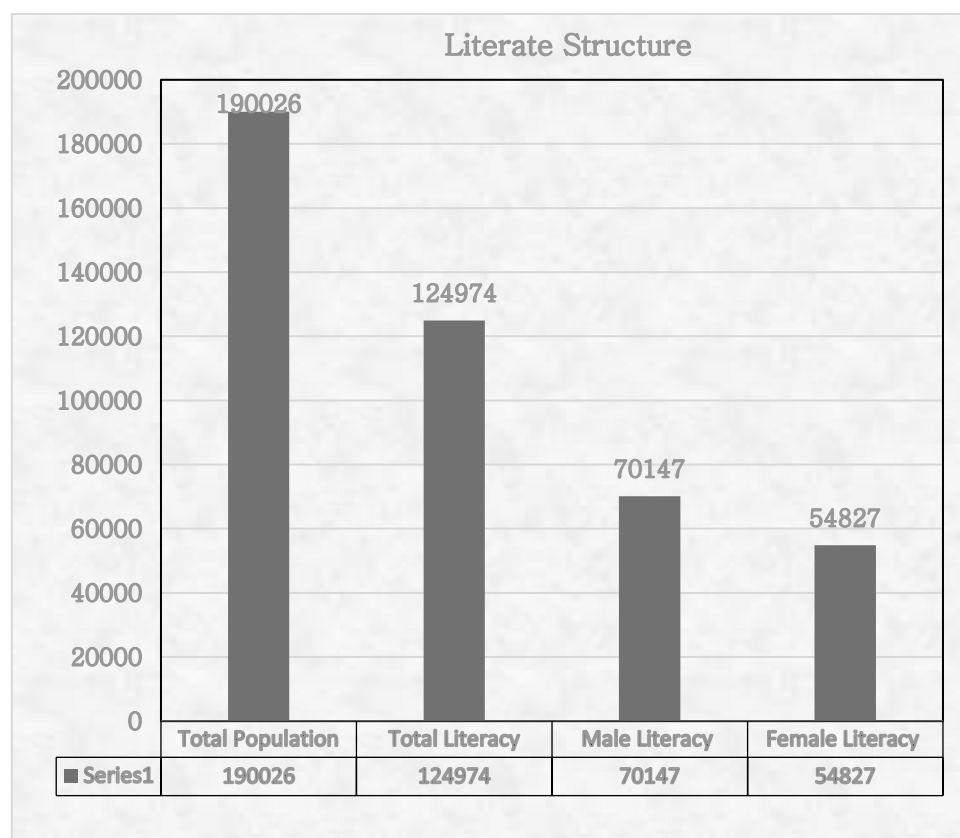
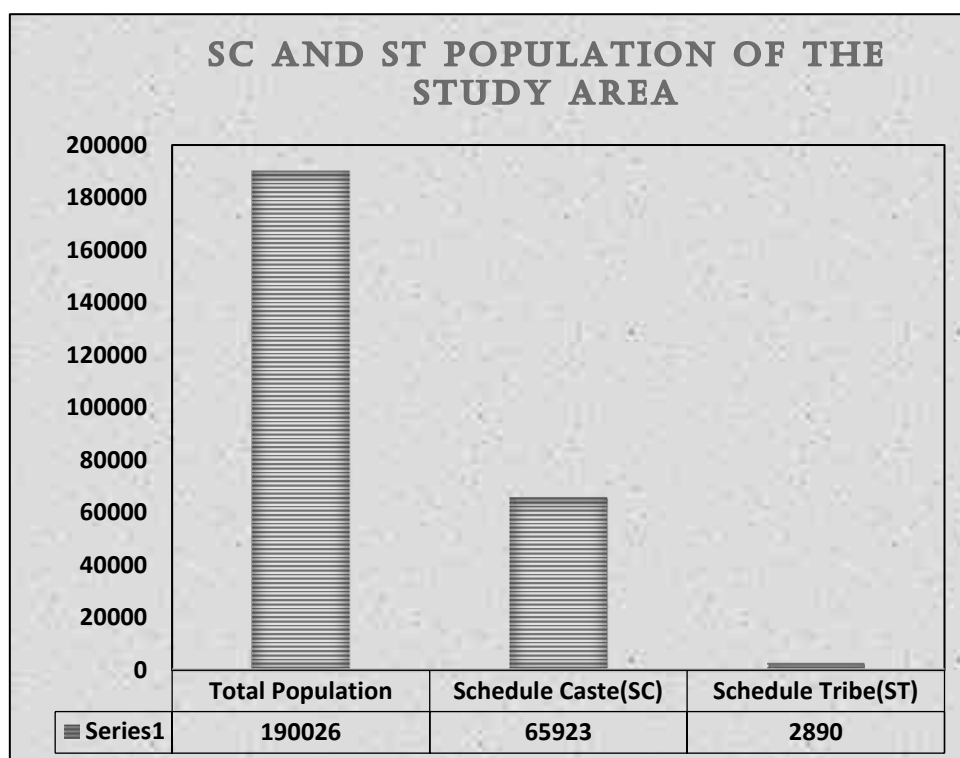


Figure 3.29 Demographic Details – Population, Social Groups, and Literacy Rate in the Study Villages

Table 3.33 Population Structure and Literacy Rate of Study Area

Village Name	No. of Houses	Population in Gender wise		Child (0-6)		Schedule Caste		Schedule Tribe		Literacy Rate		Total Workers	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Kalur	786	1560	1569	171	150	256	264	3	3	1110	835	981	582
Asoor	323	609	625	67	65	363	378	7	10	457	365	317	227
Avalur	992	1948	2012	240	205	119	121	34	39	1322	1055	1099	927
Angambakkam	450	963	944	116	103	712	696	12	9	674	493	549	455
Thammanur	526	1088	1028	134	114	330	337	83	68	712	519	623	459
Melputhur	116	214	216	27	23	146	154	0	0	152	111	131	87
Kolathur	139	243	265	35	32	190	212	0	0	159	147	131	71
Arpakkam	731	1475	1462	181	197	808	818	171	149	993	801	819	450
Kavanthandalam	461	796	823	66	68	192	200	36	31	548	422	524	332
Kilputhur	53	80	90	7	5	1	0	0	0	56	43	48	42
Kambarajapuram	380	766	761	93	79	139	134	26	30	553	391	460	358
Elayanarvelur	299	544	535	67	57	273	281	0	0	352	291	349	202
Chithaathur	88	159	163	9	9	0	0	3	3	96	65	107	79
Walajabad	31416	63158	62710	6947	6837	21910	22101	766	771	46741	36504	37063	21985
Poosivakkam	310	632	618	80	57	409	388	0	0	436	364	334	249
Uthukadu	1118	2288	2240	241	254	925	928	16	20	1723	1347	1345	742
Palayaseevaram	1411	2792	2842	325	356	1208	1234	18	15	2013	1550	1587	571
Nathanallur	520	1047	1111	113	145	319	332	35	37	690	598	630	508
Puliyambakkam	502	1253	905	109	85	420	393	63	60	999	551	502	247
Vengudi	270	542	569	56	50	297	317	9	15	451	426	300	132
Kilottivakkam	315	660	660	68	69	386	399	0	0	547	477	369	232
Seeyamangalam	144	281	283	29	23	165	144	0	0	190	160	167	89
Thimmarajampettai	549	1108	1116	87	108	13	12	0	0	929	802	708	352
Bavasahibpettai	153	302	291	41	35	146	159	0	0	204	154	193	153
Thangi	229	464	458	61	46	170	177	6	6	328	237	269	170
Naickenpettai	527	1072	1034	140	117	40	45	35	25	775	664	623	261
Villivalam	442	856	875	85	100	154	172	0	0	584	452	510	338
Koyambakkam	61	132	123	15	14	132	123	0	0	98	90	76	73
Ayyampettai (CT)	1699	3298	3312	331	324	253	269	2	1	2618	2162	2012	1004

Kavampair	179	339	343	37	51	172	171	16	23	244	183	227	156
Neyyativakkam	323	666	694	62	78	316	366	24	24	513	383	432	220
Vayalakkavoor	341	752	677	90	56	440	369	0	0	526	364	421	242
Pullampakkam	209	424	448	64	58	328	343	24	20	269	225	246	179
Thirumukkudal	406	850	823	91	80	453	435	22	22	672	544	447	93
Sirudamur	755	1555	1542	186	179	550	540	27	22	1101	819	936	584
Chitalapakkam	153	288	304	32	37	5	4	0	0	204	140	190	188
Nelveli	86	169	182	22	25	79	88	20	29	108	93	93	37
Total	47462	95373	94653	10525	10291	32819	33104	1458	1432	70147	54827	55818	33076

Source: Tamil Nadu Census Reports – 2011

Table 3.34 Workforce Details of the Study Area

Village Name	Total Worker	Total Male Workers	Total Female Workers	Total Main Workers	Total Main Cultivators	Total Main Agricultural Labourers	Total Other Workers	Total non-Workers
Kalur	1563	981	582	1304	426	317	542	1566
Asoor	544	317	227	498	50	303	139	690
Avalur	2026	1099	927	1741	275	890	571	1934
Angambakkam	1004	549	455	831	183	409	233	903
Thammanur	1082	623	459	883	402	140	340	1034
Melputhur	218	131	87	218	19	148	51	212
Kolathur	202	131	71	178	15	127	36	306
Arpakkam	1269	819	450	1117	129	436	529	1668
Kavanthandalam	856	524	332	731	195	413	112	763
Kilputhur	90	48	42	89	6	51	32	80
Kambarajapuram	818	460	358	731	57	407	259	709
Elayanarvelur	551	349	202	475	51	202	210	528
Chithaathur	186	107	79	181	0	130	49	136
Walajabad	59048	37063	21985	46193	5904	13994	23367	66820

Poosivakkam	583	334	249	505	82	330	91	667
Uthukadu	2087	1345	742	1745	224	568	889	2441
Palayaseevaram	2158	1587	571	1753	141	273	1318	3476
Nathanallur	1138	630	508	777	127	276	350	1020
Puliyambakkam	749	502	247	457	38	105	309	1409
Vengudi	432	300	132	341	28	76	222	679
Kilottivakkam	601	369	232	440	14	53	360	719
Seeyamangalam	256	167	89	175	1	10	146	308
Thimmarajampettai	1060	708	352	957	25	40	651	1164
Bavasahibpettai	346	193	153	338	4	172	99	247
Thangi	439	269	170	413	40	126	229	483
Naickenpettai	884	623	261	825	25	14	735	1222
Villivalam	848	510	338	760	121	356	252	883
Koyambakkam	149	76	73	149	17	104	27	106
Ayyampettai (CT)	3016	2012	1004	2703	15	16	1809	3594
Kavampair	383	227	156	318	47	176	95	299
Neyyativakkam	652	432	220	592	183	173	233	708
Vayalakkavoor	663	421	242	625	140	293	178	766
Pullampakkam	425	246	179	412	43	250	118	447
Thirumukkudal	540	447	93	527	25	340	161	1133
Sirudamur	1520	936	584	1316	402	581	319	1577
Chitalapakkam	378	190	188	144	79	13	48	214
Nelveli	130	93	37	129	0	80	49	221
Total	88894	55818	33076	71571	9533	22392	35158	101132

Source: Tamil Nadu Census Reports – 2011

3.8.6 Workforce Participation

The table 3.34 presents a village-wise distribution of workers and non-workers, along with the occupational structure of main workers, for 37 villages in the study area. Altogether, the study area records a total workforce of 88,894 persons, comprising 55,818 male workers and 33,076 female workers, clearly indicating that males constitute a significantly larger share of the working population.

In all villages, male workers outnumber female workers, reflecting a pronounced gender disparity in workforce participation. Villages such as Angambakkam, Arpakkam, Avalur, Ayyampettai, Kalur, Naickenpettai, Palayaseevaram, Sirudamur, Thammanur, Uthukadu and Walajabad report higher total worker strength, which corresponds closely with their larger population size. On the other hand, smaller villages like Asoor, Bavasahibpettai, Chitalapakkam, Chithaathur, Elayanarvelur, Kambarajapuram, Kavampair, Kavanthandalam, Kilottivakkam, Kilputhur, Kolathur, Koyambakkam, Melputhur, Nathanallur, Nelveli, Neyyadivakkam, Poosivakkam, Puliyambakkam, Pullampakkam, Seeyamangalam, Thangi, Thimmarajampettai show comparatively fewer workers.

Out of the total workers, 71,571 are main workers, indicating that a substantial proportion of the workforce is engaged in relatively stable or regular employment. Villages such as Angambakkam, Arpakkam, Avalur, Ayyampettai, Kalur, Naickenpettai, Palayaseevaram, have a notably high number of main workers, reflecting stronger employment bases in these settlements. The occupational composition of main workers shows that main cultivator's number 9,533, forming a major segment of the workforce and highlighting the continued importance of agriculture. Villages like Kolathur, Koyambakkam, Melputhur, Nathanallur, Nelveli, Neyyadivakkam, Poosivakkam, Puliyambakkam, Pullampakkam, Seeyamangalam, Thangi, Thimmarajampettai exhibit a strong dependence on cultivation. Main agricultural labourers total 22,392, underscoring sustained reliance on agricultural wage labour. This category is particularly prominent in villages such as Elayanarvelur, Kambarajapuram, Kavampair, Kavanthandalam, Kilottivakkam, Kilputhur, Kolathur, Koyambakkam.

The total number of non-workers is 1,01,132, which is substantial and, in several villages, exceeds the number of workers. Villages such as Asoor, Bavasahibpettai, Chitalapakkam, Chithaathur, Elayanarvelur, Kambarajapuram, Kavampair, Kavanthandalam, Kilottivakkam, Kilputhur, Kolathur, Koyambakkam, Melputhur, Nathanallur, Nelveli, Neyyadivakkam, Poosivakkam, Puliyambakkam, Pullampakkam, Seeyamangalam, Thangi, Thimmarajampettai record particularly high non-working populations, consisting mainly of

children, students, elderly persons, and individuals not engaged in economic activities. Overall, the table indicates that the rural economy of the study area is predominantly agrarian, with cultivation and agricultural labour forming the backbone of employment. While a segment of the population is engaged in non-agricultural activities, diversification remains limited. The consistently lower participation of females in the workforce and the high proportion of non-workers highlight the need for enhanced livelihood opportunities, skill development, and inclusive employment strategies, particularly targeting women and economically inactive groups.

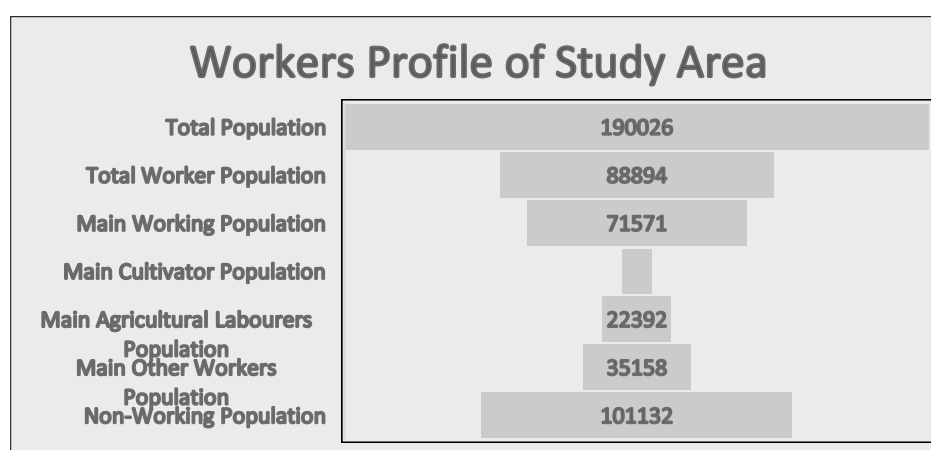


Figure 3.30 Details of Workforce in the Study Villages

As per SEAC recommendation the project proponent should spend minimum of 5 lakhs to the nearby school from the proposed project site as part of CER cost. Also, the village panchayat will get direct benefit from the government through District mineral Resource fund (DMF) for infrastructure development activities.

- ❖ Awareness and Opinion of the People About the Project, to assess public awareness and opinions regarding the proposed project, the following key observations were recorded:
- ❖ During the survey, it was observed that only residents of nearby villages were aware of the proposed project, while those in more distant villages were largely unaware.

People in the region expressed expectations that the project would generate employment opportunities and lead to improvements in education, transportation, and sanitation facilities provided by the project authorities.

Recommendation and Suggestion

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, furniture and equipment in schools, up-gradation of existing school infrastructure through the CSR funds.
- 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 common cold, malaria, typhoid, tuberculosis, yellow fever and pneumonia. Repairing of PHCs and Anganwadi centres.
- People with disability: Establishment of centre for special education, sensitization of the community towards disabled and awareness on Government schemes.
- Connectivity: Transport connectivity to easiness accessibility to the region.
- Greenbelt: Establish a greenbelt and plant saplings around quarry boundaries, village schools, and village roads.

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.

Conclusion

This study was carried out the baseline socio-economic conditions of the study area. It examined parameters including the population, number of households, literacy rate, sex ratio, workforce details, and the availability of essential amenities like transportation, drinking water, road connectivity, and educational facilities. The study revealed both positive and negative socio-economic implications associated with the proposed project and cluster quarries. While potential environmental and social impacts must be addressed, the project is expected to provide significant economic benefits in terms of local employment and improved livelihood opportunities in directly and indirectly. Therefore, with the implementation of effective mitigation and management measures, the project can contribute positively to the socio-economic development of the area while minimizing adverse impacts.

3.9 TRAFFIC DENSITY

The traffic survey conducted based on the transportation route of material, the Rough Stone and gravel is proposed to be transported mainly through Village Road and (SH – 132B) Kancheepuram - Chengalpattu Road as shown in Table 3.35 and in Figure 3.31. Traffic density measurements were made continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., Heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station. During each shift one person on either direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken. Direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken.

Table 3.35 Traffic Survey Locations

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Village Road	0.20 Km-NW	Village Road
TS2	SH-132B	4.8 Km- NE	Kancheepuram - Chengalpattu

Source: On-site monitoring by GTMS FAE & TM

Table 3.36 Existing Traffic Volume

Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	19	57	30	30	68	34	121
TS2	51	153	84	84	212	106	343

Source: On-site monitoring by GTMS FAE & TM

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

Table 3.37 Rough Stone Transportation Requirement

Transportation of Rough and Gravel per day		
Capacity of trucks	No. of Trips per day	Volume in PCU
15 tonnes	79	237

Source: Approved Mining Plan

Table 3.38 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
TS1	121	237	358	1200
TS2	343	237	580	1500

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

- ❖ Due to these projects the existing traffic volume will not exceed the traffic limit. 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.

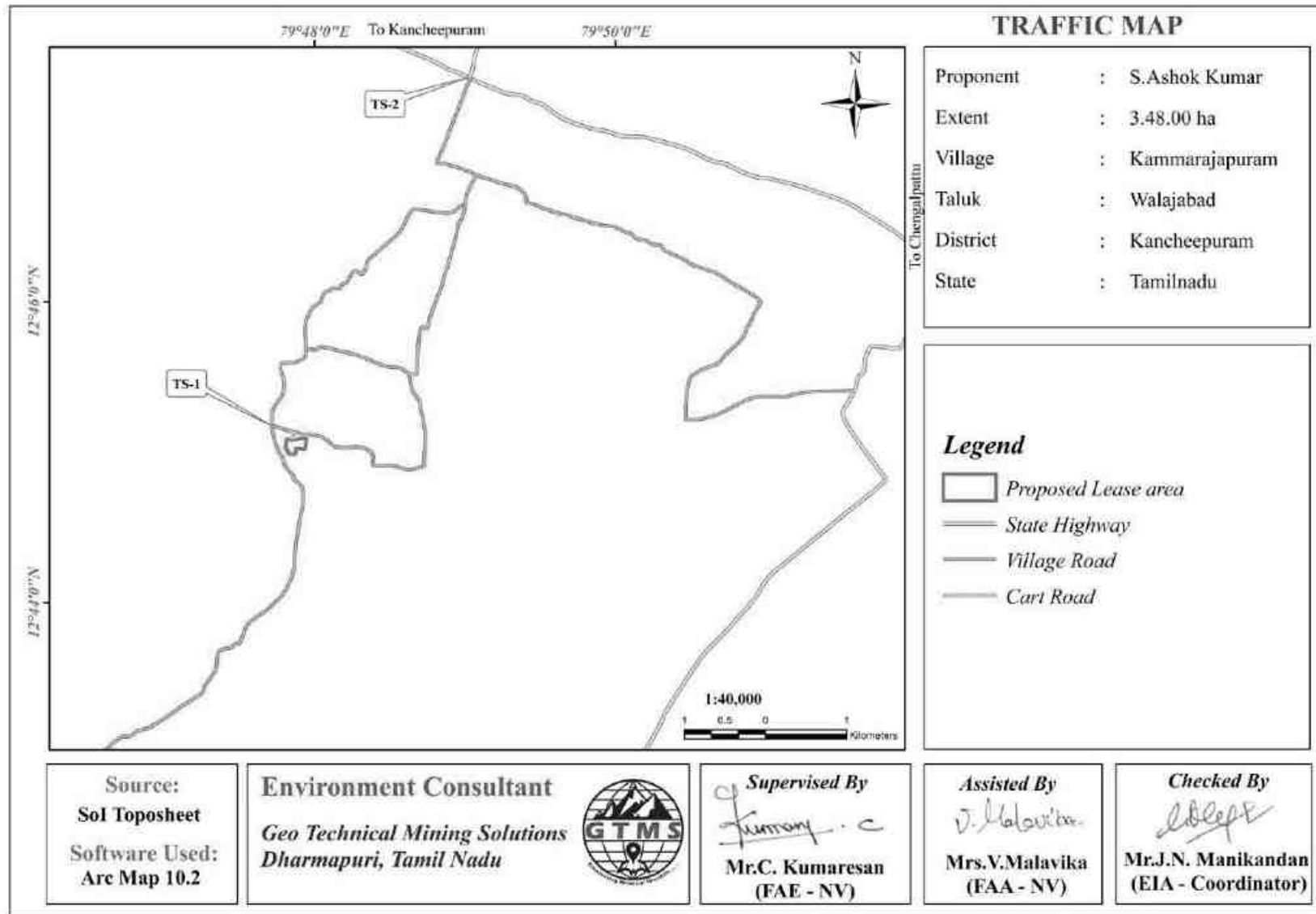


Figure 3.31 Traffic Density Map

3.10 SITE SPECIFIC FEATURES

There are no Wildlife Sanctuaries and National Park within 25km radius. Therefore, there will be no need of acquisition/ diversion of forest land. The details related to the environmentally sensitive areas around the proposed mine lease area i.e., 25km radius and the nearby water bodies are given in the Table 3.39.

Table 3.39 Details of Environmentally Sensitive Ecological Features in the Study Area

S. No.	Sensitive Ecological Features	Name	Areal Distance in km
1	National Park / Wild life Sanctuaries	Karikili Bird Sanctuary	16.84Km – S
		Vedanthangal Bird Sanctuary	23.20km- S
2	Reserve Forest	Edamachi	9.17km- SE
		Kavanipakkam	8.59km- SE
		Marudham	6.76km- S
		Perugoli	16.93km – S
		Koliyalam	22.78 km-S
		Vadakkupattu	15.91 km -NE
		Vattampakkam	19.04 km NE
		Appur	16.4km-NE
		Paranur	19.2km – E
		Maiyur	17.17km -SE
		Anumanthaputheri	19.5 km - SE
		Thirutheri	19.2km – E
		Anjur	24.64km -E
		Senkundram	24.63km- E
3	Lakes /Reservoirs/ Dams/ Streams/ Rivers	Kambarajapuram Lake	0.19km- NE
		Kilputhur Lake	0.53km- W
		Cheyyar River	1.78km- S
		Palar River	4.11km- N
4	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10 km radius
5	Critically Polluted Areas	None	Nil within 10 km radius
6	Mangroves	None	Nil within 10 km radius
7	Mountains/Hills	None	Nil within 10 km radius
8	Centrally Protected Archaeological Sites	None	Nil within 10 km radius
9	Industries/ Thermal Power Plants	None	Nil within 10 km radius
10	Defence Installation	None	Nil within 10 km radius

Source: Survey of India Toposheet

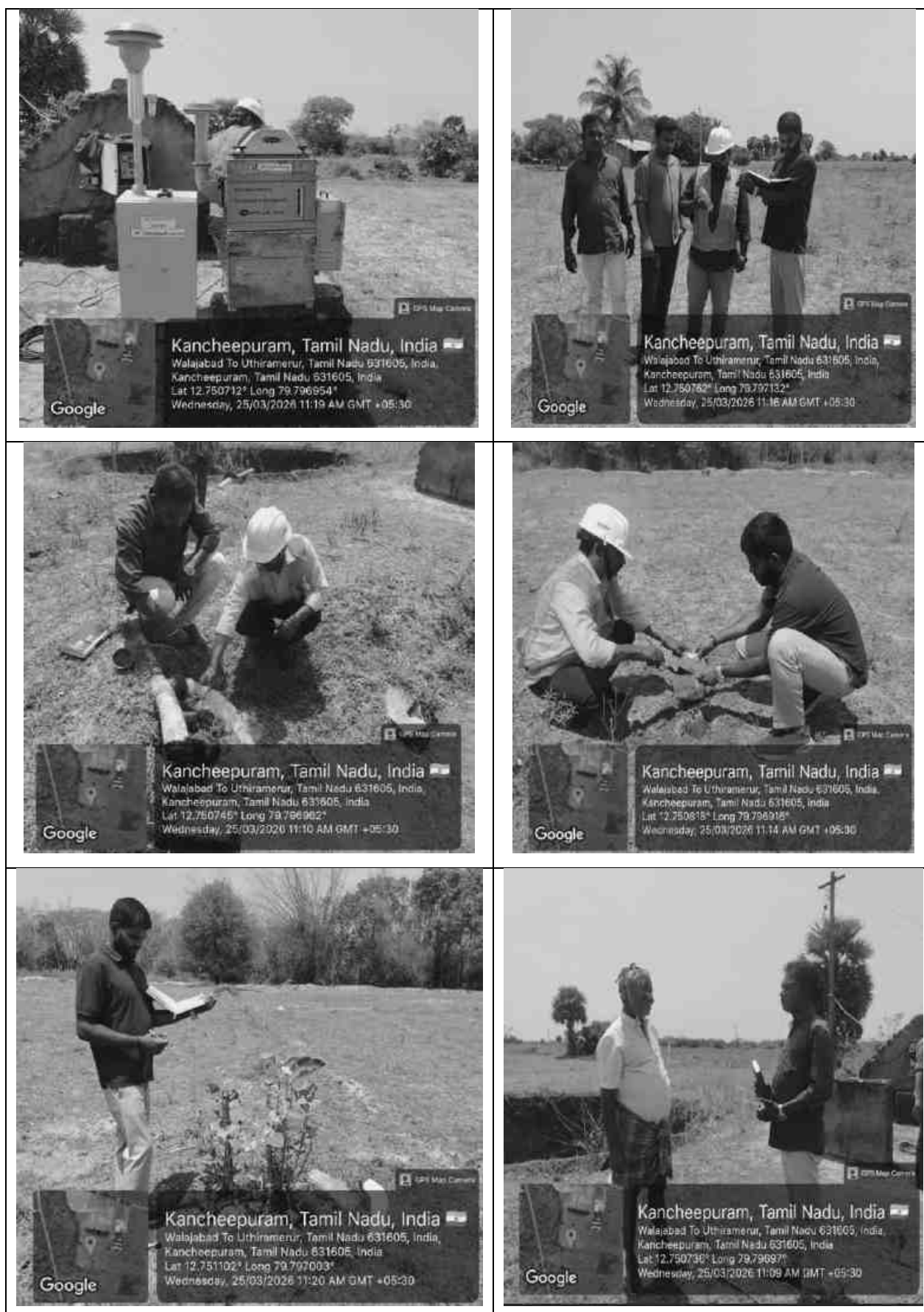


Figure 3.32 Field Study Photographs

CHAPTER- IV

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 GENERAL

The identification of potential environmental impacts is indeed the crucial first step in the Environmental Impact Assessment (EIA) process utilizing various techniques such as checklists, matrices and network diagrams to understand a project's effects. The matrix method used in this study provides a structured way to identify and assess the impacts ensuring the project can be implemented in an eco- friendly manner. This chapter discusses the anticipated impacts on land, soil, water, air, noise, biological and socioeconomic environments.

The proposed stone mining project involves blasting, drilling and screening operations which contribute to environmental impacts is given in Table 4.1. The project is designed to minimize these impacts by implementing mitigation measures and ensuring a marginal environmental footprint with a detailed analysis to follow in subsequent tables.

Table 4.1 Impact identification matrix.

Activities	Environmental Attributes								OHS
	Land	Soil	Water	Air	Noise	Ecology	Socio Economics	Aesthetics	
Site clearing & Site services	√	√		√		√			
Development of Greenbelt			√			√		√	
Operation Phase (Drilling, Blasting Loading and unloading, Transportation)	√	√	√	√	√	√			√
	√	√	√	√	√	√			√
	√	√	√	√	√	√			√
Employment and the material usage							√		
Mine closure (Removal of machineries, structures and Danger due to inadvertent entry)				√	√		√		√

√ Indicates Impact

4.1 LAND ENVIRONMENT

Anticipated Impacts

- ❖ Converting barren land of 3.48.0hectares to rough stone mining creates a significant and usually irreversible change in land use and land cover involving the physical alteration of the land's surface, potential deforestation, loss of biodiversity, altered topography from pits and spoil dumps.
- ❖ Heavy vehicle movement causes significant problems to nearby agriculture and human habitation. These pollutants can degrade soil quality and introduce heavy metals into the environment.
- ❖ During transportation the tippers damage the bituminous roads. The primary damage is caused by the fourth power law (*The law posits that if you double an axle's load, the damage caused to the pavement increases by a factor of 2x4 or 16 times*) where pavement damage increases with the fourth power of the axle load. The immense weight of heavy payloads on an axle exerts a concentrated and repetitive stress on the road surface leading to permanent strain, premature failure and a cumulative damage.
- ❖ Rain drops hitting stone crushing waste can break apart the particles and flowing water detaches them from the surface transports and redeposits these particles especially from sloped surfaces. This a form of splash erosion followed by sheet erosion which can lead to environmental issues.

Mitigation measures

- ❖ After mining there is a huge void of 2.85.0hectares upto a depth of 50m is useful for rain water storage structure has an advantage for local farmers. The artificial pond boundary shall be fences to avoid any mishaps.
- ❖ Union ministry of road transport and highways on July 16th 2018 increased the maximum cap of axle load limit by 20 to 25 percent cross various categories to keep the limit “at par with international standards”.

Maximum Safe Axle Weight		
Sl. No	Axle Tupe	Maximum safe Axle Weight
1	Single Axle	-
1.1	Single Axle with single tyre	3.0 tonnes
1.2	Single Axle with two tyres	7.5 tonnes
1.3	Single Axle with four tyres	11.5 tonnes*
2.	Tandem Axles (Two axles) (where the distance between two axles is less than 1.8 Mtr.)	-
2.1	Tandem axles for rigid vehiles, trailers and semi-trailers	21 tonnes*

2.2	Tandem axles for puller tractors for hydraulic and pneumatic trailers	28.5tonnes
3.	Tri-axles (Three axles) (where the distance between outer axles is less than 3 Mtr.)	-
3.1	Tri-axles for rigid vehicles, trailers and semi- trailers	27 tonnes*
4	Axle Row (two axles with four tyres each) in Modular Hydraulic trailers (9 tonnes load shall be permissible for single axles)	18 tonnes
*Note: If the vehicle is fitted with pneumatic suspension, 1 tonne extra Load is permitted for each axle.		

MoRTH knows that previously built Indian roads are made keeping standard axle loads.

The new national and state highways along with expressways can be built by using new norms but for the existing roads the life will be reduced on average by one year.

- ❖ 6-wheel tipper generally has a maximum legal speed limit which can be up to 60km/h and speeds should be reduced for loaded conditions. The mine management should take care of the speed of vehicles i.e up to 40km/h in village roads constructed under Pradhan Mantri Gram Sadak Yojana and other district roads developed by Highways and Minor Ports Department, Government of Tamil Nadu as each time a truck passes the concentrated stress causes a small amount of permanent strain on the pavement. Over time these small strains accumulate and lead to significant fatigue and eventual failure.
- ❖ 6-wheel tippers of not more than 9tons payload capacity covered with tarpaulin to stop the spillage and dust should use.
- ❖ Protective measures such as establish plants like grasses, cover crops and trees to form a dense layer over the dump absorbing raindrop energy and holding particles in place.

4.2 SOIL ENVIRONMENT

Anticipated Impacts

- ❖ The fertility status of the soil near by the lease area may affect due to extra dust deposition on the soil. Dust deposition from a lease area can harm soil fertility by physically blocking soil pores, reducing aeration and water infiltration, and potentially altering the soil's chemical properties. This damage to the topsoil negatively impacts plant growth by interfering with photosynthesis and nutrient uptake ultimately decreasing crop production.
- ❖ Topsoil will be scraped from the area of 2.85.0hectares in the project site will store in safety area left for 7.5meters in the east side as shown in mining plan.

Mitigation measures

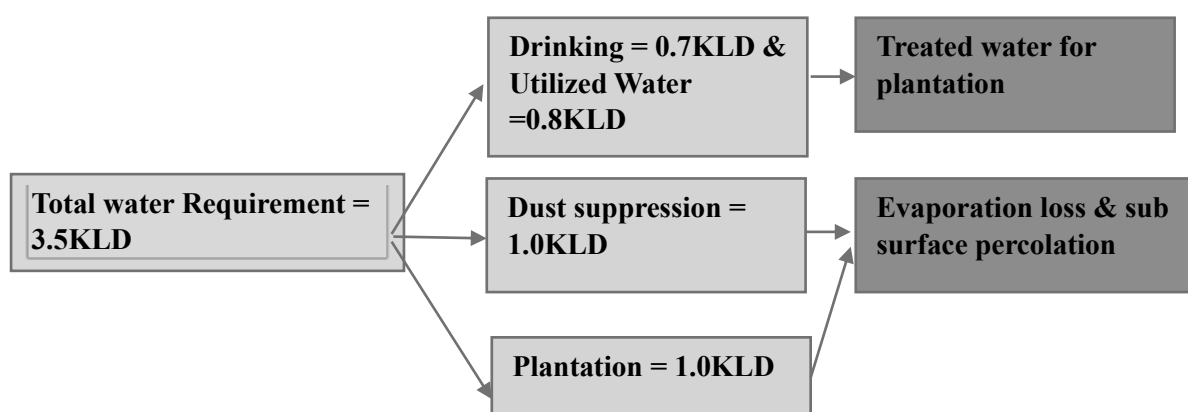
- ❖ When stock piling of top soil is done the mound should not be higher than 1.0m and Weathered Rock 3.0m.
- ❖ To minimize surface runoff and erosion the topography of a graded surface should be designed to create terraces or benches that follow land contours which intercept sheet flow. Additionally, a bulldozer's tracks can be used to create a fine-scale roughened surface perpendicular to the slope and stockpiles should be constructed with a rough surface to improve drainage, reduce erosion and encourage revegetation.
- ❖ Efforts will be made to minimize the storage time to prevent nutrient loss.
- ❖ To protect the quality of stockpiled topsoil immediate re-vegetation is crucial. Temporary seeding should be done within 30 days of stockpile formation to control erosion, prevent weed growth and maintain healthy soil microbes.
- ❖ If the stockpile will not be reused within 12 months it must be stabilized with permanent vegetation to ensure long-term erosion and weed control.
- ❖ The stored topsoil will be utilized for plantations in later phases during the progressive and final closure of the mine.

4.3 WATER ENVIRONMENT

Anticipated Impacts

- ❖ 3.5KLD water requirement for drinking, domestic, dust suppression and plantation.

Water Balance Chart of the Mine



- ❖ The domestic effluents being generated during mine operation.
- ❖ Major impact of opencast mining on groundwater regime is quality deterioration. The proposed mining activities shall be carried out upto a depth of 75m from average ground level. The specific water table depth in the core and buffer zone is between 80m and 85meters below ground level.

Mitigation Measures

- ❖ The hard rock itself has very few interconnected pore spaces, limiting the amount of water it can store or transmit. Groundwater flow and storage occur primarily in secondary openings such as joints, cracks and fissures. The thickness of the weathered layer, where more significant porosity can develop, is typically limited to 1-3meters, particularly in low-lying topographic areas. The groundwater in these shallow zones is under unconfined (or water table) conditions, meaning it is directly connected to the surface and not confined by impermeable layers.
- ❖ The storm water discharge coming out of quarries and dump through a network of garland drains is expected to contain solid particles. These solid particles shall be removed by settling in the settling pond before being used for dust suppression and plantation. Hence, there shall be no change in drainage system due to this mining project in buffer zone.
- ❖ Domestic sewage from site office will be discharged in MAK Anaerobic bacteria digestion bio-septic tank. The treated water will be utilized for watering and maintaining the green belt.
- ❖ Groundwater development efforts would need to focus on the weathered and fractured zones near the surface in the buffer zone.
- ❖ Periodic (every 6 month once) analysis of ground water level and quality from the open well OW2 and bore well BW2 as shown in Figure 3.10 to 3.13 to find the change due to quarrying.
- ❖ The average annual rainfall of the project area is 883.15mm to 1564.32mm and the runoff coefficient factors have been taken as per guidelines of Manual on Norms and Standards for Environmental Clearances by MoEF & CC, Govt. of India.

4.4 AIR ENVIRONMENT

Anticipated Impact

The main cause of air pollution in open-cast mining is the generation of airborne particulate matter (dust) from various mining activities including drilling, blasting, excavation, loading/unloading, vehicle movement on haul roads and the dumps. These activities release large quantities of fugitive dust which are then carried by the wind and can contribute to respiratory health problems for nearby communities and miners. The source of pollution is given in table below.

Activities	Air pollutants
Drilling	PM ₁₀ , PM _{2.5}
Blasting	PM ₁₀ , PM _{2.5} , SO _x , NO _x
Loading & unloading	PM ₁₀ , PM _{2.5}
Haul road	PM ₁₀ , PM _{2.5}
Transportation	PM ₁₀ , PM _{2.5} , SO _x , NO _x , CO
Waste/Top soil handling	PM ₁₀ , PM _{2.5}

The air dispersion modelling study was conducted using the AERMOD Cloud remote version for assessment of incremental Ground level concentration (GLC) for the proposed production. Area source model taken into consideration taking into consideration of the conceptual quarry area and dump area. Further line source model was taken into consideration for transportation of material through haul road.

Model Setup is given in Table below

Parameter	Details
Model Name	Aermod
Model Type	Steady state Gaussian plume air dispersion model
Topography	Plain terrain
Average Time	24 hours
Source Type	Area source
Boundary limit	5km X 5km
Surface Meteorological Data	Site specific data processed by AERMET
Receptor Height	0
Anemometer height	10m

The air pollution modelling correctly focuses on particulate matter as the key pollutant for a mining project given that dust from mining operations and transportation is the primary source of air pollution in such industries rather than SO_x or NO_x which are typically associated with vehicular emissions. The incremental Ground Level Concentrations (GLCs) predicted are specifically for particulate matter reflecting the anticipated contribution of the proposed mining project to local air quality.

Emission Estimation

Emission resulting from different mining activities is estimated using relevant empirical formula developed by Chauha et al.,2001 and Jyothi Prabha, Gurdeep Singh and I.N.Sinha, 2003 “Emission Factor Equations for Haul roads: The Indian Perspective”, Indian Journal of Air Pollution Control Vol. VI No. I March pp 37- 43. The equations used for fugitive emission estimation have been given in Table 4.2.

Table 4.2 Empirical Formula for Emission Rate from Overall Mine

	Pollutant	Source Type	Empirical Equation	Parameters
Overall Mine	SPM	Area	$E = [u^{0.4} a^{0.2} \{9.7 + 0.01p + b/(4+0.3b)\}]$	u = Wind speed(m/s). p = Mineral production (Mt/yr). b = Overburden handling (Mm ³ /yr). a = Lease area(km ²). E = Emission rate(g/s).
Transportation through roads	Fugitive dust	Line	$E = [\{(100-m)/m\}^{0.8} \{s/(100-s)\}^{0.1} u^{0.3} \{2663 + 0.1(v+fc)\} 10^{-6}]$	E = Emission Rate (g/sec/m) m = Moisture Content of the road = 10% s = Silt Content of the Road = 10% u = Wind Speed v = Average Vehicle Speed f = frequency of Vehicle movement in number per hour c = Capacity of the dumper in tons = 12 ton

The emission rate thus calculated using the empirical formula is used as one of the inputs in the AERMOD modelling. It is important to note that PM₁₀ emission rate is derived from the SPM estimation in the background that PM₁₀ constitutes 52% of SPM emission. The PM_{2.5}, PM₁₀ emission results have been given in Table 4.3.

Table 4.3 Estimated Emission Rate

Activity	Pollutant	Calculated Value (g/s)	Lease Area in m ²	Calculated Value (g/s/m ²)
Overall Mine	PM _{2.5}	0.4341	85310	5.092E-06
Overall Mine	PM ₁₀	0.8682	85310	1.02E-005

4.4.1 Modelling of Incremental Concentration

The post project resultant concentrations of PM₁₀, PM_{2.5} is given in Tables 4.4 - 4.5.

Table 4.4 Incremental & Resultant GLC of PM_{2.5}

Station ID	Distance to core area (km)	PM 2.5 concentrations(µg/m ³)				Comparison against air quality standard (60 µg/m ³)	Magnitude of change (%)	Limit
		Direction	Baseline	Predicted	Total			
AAQ1	-	-	20.95	9.29	30.24	Below standard	44.3	60
AAQ2	1.80	NW	21.88	1	22.88		4.6	60
AAQ3	2.41	SW	18.64	0.5	19.14		2.7	60
AAQ4	1.44	NE	19.25	0.7	19.95		3.6	60
AAQ5	3.33	NW	20.68	0.1	20.78		0.5	60

Table 4.5 Incremental & Resultant GLC of PM₁₀

Station ID	Distance to core area (km)	PM ₁₀ concentrations($\mu\text{g}/\text{m}^3$)				Comparison against air quality standard (100)	Magnitude of change (%)	Limit
		Direction	Baseline	Predicted	Total			
AAQ1	-	-	50.51	18.3	68.81	Below standard	36.2	100
AAQ2	1.80	NW	52.39	3	55.39		5.7	100
AAQ3	2.41	SW	48.74	1	49.74		2.1	100
AAQ4	1.44	NE	52.85	1	53.85		1.9	100
AAQ5	3.33	NW	54.16	0.2	54.36		0.4	100

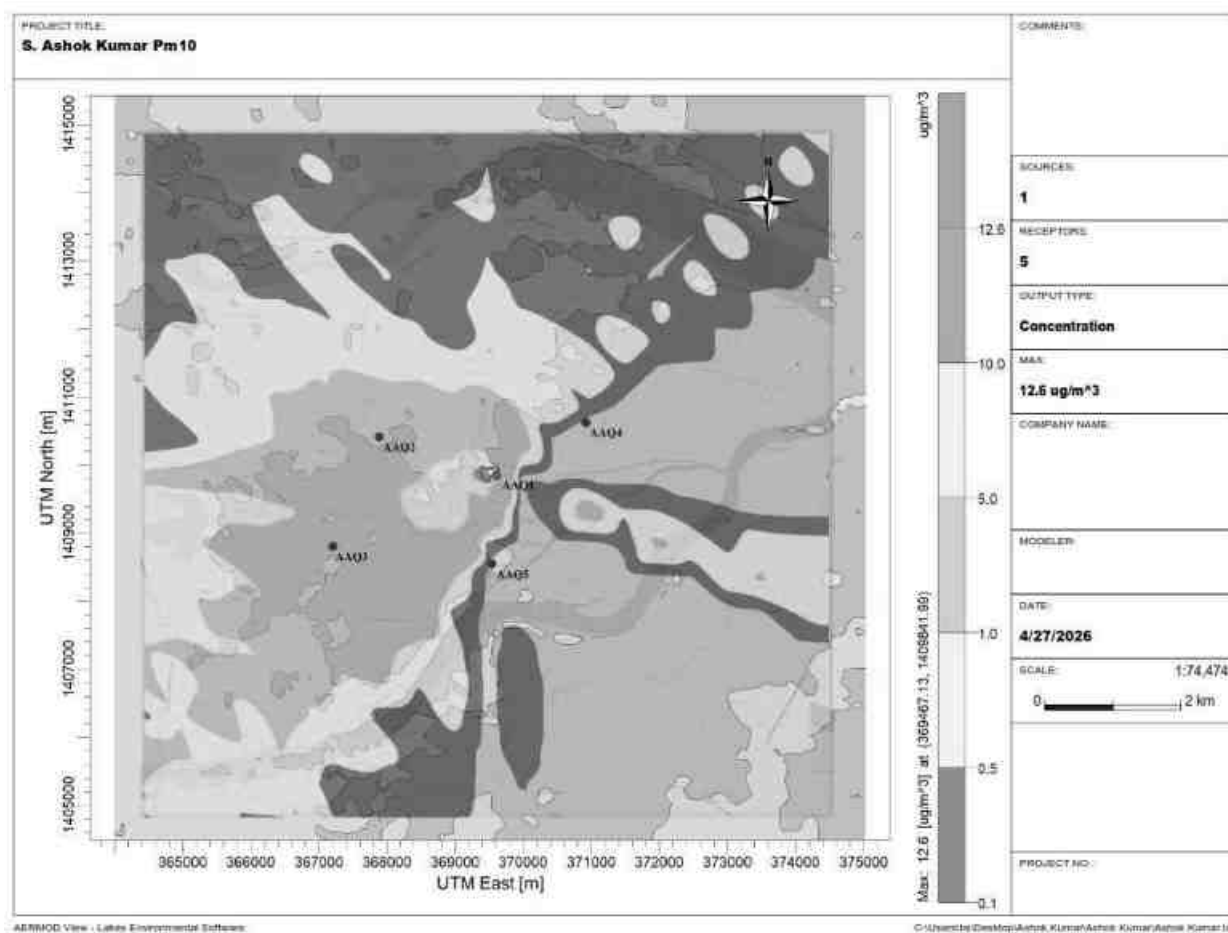


Figure 4.1 Predicted Incremental Concentration of PM₁₀

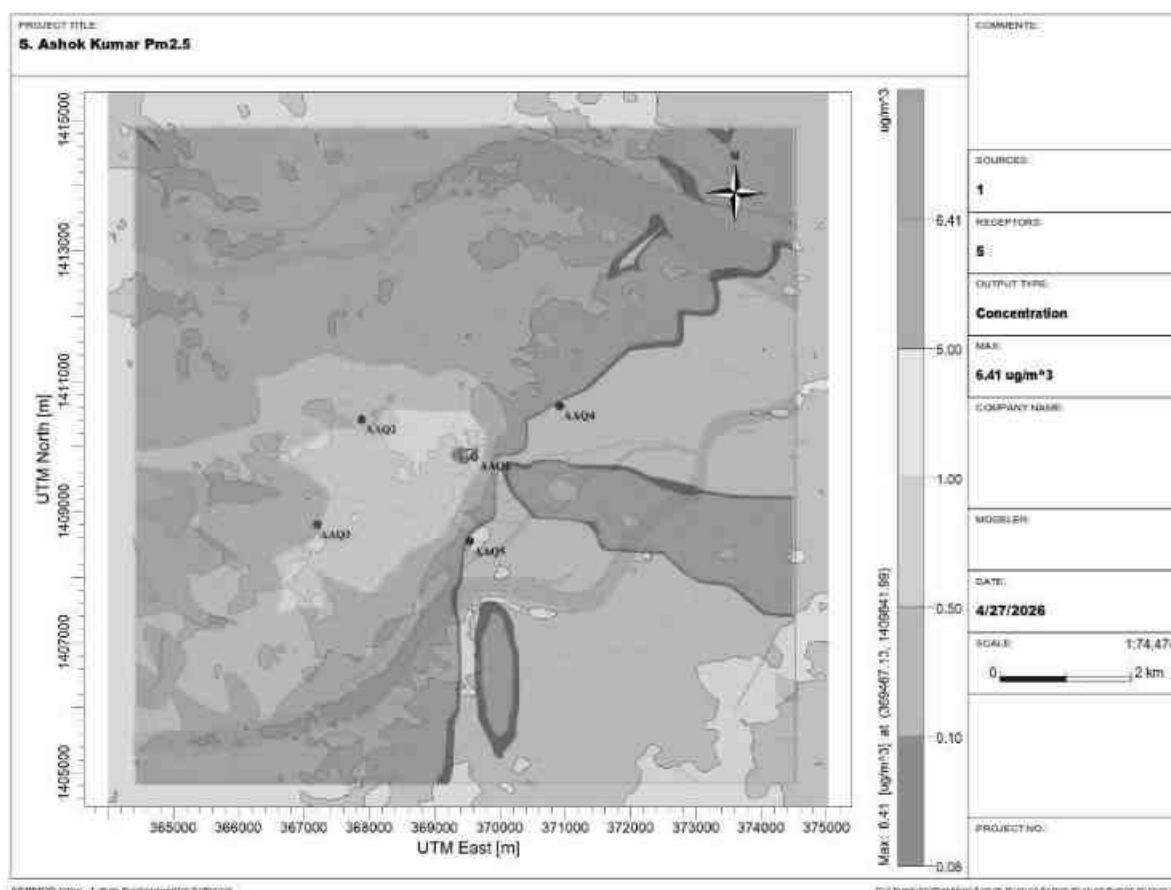
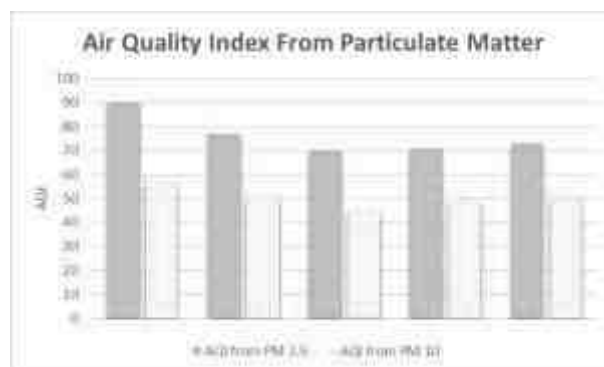


Figure 4.2 Predicted Incremental Concentration of PM_{2.5}

The Air Quality index for the baseline and predicted values of PM_{2.5} and PM₁₀ are given in table below.

Station ID	Distance to core area (km)	Direction	PM _{2.5} (µg/m ³)		AQI for PM _{2.5}	PM ₁₀ (µg/m ³)		AQI for PM ₁₀
			Baseline Conc.	Total (Baseline + Predicted GLC)		Baseline Conc.	Total (Baseline + Predicted GLC)	
AAQ1	-	-	20.95	30.24	90	50.51	68.81	57
AAQ2	1.80	NW	21.88	22.88	77	52.39	55.39	51
AAQ3	2.41	SW	18.64	19.14	70	48.74	49.74	45
AAQ4	1.44	NE	19.25	19.95	71	52.85	53.85	49
AAQ5	3.33	NW	20.68	20.78	73	54.16	54.36	50

<https://www.airnow.gov/aqi/aqi-calculator-concentration/>



In the present study American Meteorological Society and the United States Environmental Protection Agency Dispersion Model (AERMOD) air quality model was run for pre monsoon season under maximum atmospheric temperature conditions. The AERMOD has been run for PM₁₀ and PM_{2.5} distribution with 24-Hr maximum concentration and concentration contours were obtained as given in Figure 4.1 and 4.2. From these Isopleths plots it is observed that the highest pollutants concentrations predicted by AERMOD was near the major source in the core area and a maximum of 68.81 µg/m³ of PM₁₀ and 30.24 µg/m³ of PM_{2.5} were found to be below the prescribed NAAQS near the source. The AQI values of PM₁₀ shows moderate and PM_{2.5} shows good in all the locations. By adopting suitable mitigation measures the pollutant levels in the atmosphere can be controlled further.

Mitigation Measures

There will be transportation of rough stone from the area to the crusher which is located at a distance of about 3km. Considering average annual production of 207776 tons per annum i.e. 769 tons per day of stone there will be movement of around 47 trucks per day for transportation of the stone. This will create additional traffic load to the road and also additional emission due to vehicular movement. The mitigation measures to minimize the air pollution are given in Table 4.6 below.

Table 4.6 Proposed Mitigation Measures for Air pollution

Potential Sources of air pollution	Magnitude of air pollution	Proposed Pollution Control Measure
Excavation	Emission of Particulate Matter	Provide Personal Protective Equipment's for workers
Drilling and Blasting	Emission of Particulate Matter and emission gaseous	Wet drilling and controlled blasting will adopt. Optimized blast parameters and design were given in chapter 2 should follow for blasting. Safety shelter will construct within the lease area. Provide PPEs for workers.

Loading of material on dumper	Air emission	Water sprinkler with wide angle nozzle of angle 150° will be selected for water sprinkling in the dust prone area.
Transportation	High Dust generation	Regular grading of haul roads will be practiced. Planting of trees all along mine haul roads outside the lease. Water sprinklers will install along the haul road. Vehicle without PUC certificate will not be allowed. Cover tarpaulin to the tipper during transportation.
Storage of Topsoil	High Dust generation	High dust generation due to wind from the topsoil storage area. This are will be installed with permanent water sprinkler. Plantation will be provided in the dump slope.
Free silica	Crystalline silica	Crystalline silica is SiO ₂ in a specific structural form distinct from the pure non- combined SiO ₂ known as free silica. Crystalline silica particles in these environments can be very small less than 4µm (PM4). There are no generally accepted methods of monitoring in ambient PM4 air.

4.5 NOISE ENVIRONMENT

According to DGMS Technical Circular No. 18 of 1975 and No.5 of 1990 on “Protection of Workers against noise” it is brought to the knowledge of all concerned that Noise is emerging as an important and challenging health hazard for mine workers. Source data has been computed taking into account of all the machinery and activities used in the open cast mining process had listed in Table 4.7.

Table 4.7 Activity and Noise Produced by Machinery in open cast mines

S. No.	Machinery / activity	Distance of measurement	Noise level dB(A)	
			Idling	Fully accelerated
1.	Jack hammer	1	80	97
2.	Compressor	1	-	96
3.	Bulldozer	2	84	100
4.	Tipper	2	75	92
5.	Drill	1	85	90

The permissible noise exposure levels in Indian mines are based on OSHA standards adapted and enforced by the Indian government through the Factories Act and CPCB norms are given in Table 4.9 below.

Table 4.8 Predicted Noise Incremental Values

Noise Monitoring Location	Distance From Project Site(m)	Baseline Noise Level (dBA)m During Day Time	Predicted Noise Level (dBA)	Total (dBA)
Core	-	57.6	49.98	58.29
Asoor	2190	52.9	17.51	52.90
Kolathur	1120	51.9	22.97	51.90
Thammanur	2660	51.7	15.46	51.70
Seeyamangalam	1310	51.4	21.61	51.40

Table 4.9 Permissible noise levels adopted by CPCB, 2000 and OSHA

Maximum Exposure Noise level Time per Working Day in hours	Noise level	
	CPCB, 2000 in dB (International Standard Organization)	OSHA code in dB (Occupational Safety and Health Act)
8	90	90
4	93	95
2	96	100
1	99	105
0.5	102	110
0.25	105	115

A noise level of 90dB causes disruption, leading to annoyance, cognitive errors, and temporary hearing loss, while 85dB is considered an upper comfort level with potential for cognitive decrements in tasks requiring decision-making with hearing loss possible at 300-1200 Hz frequencies in that range. Prolonged exposure to sounds at or above 85 dB can damage hearing over time. The mitigation measures to minimize the noise pollution are given below

Impact	Mitigation Measures
Noise impact due to mining activities. Noise impact due to vehicular movement. Auditory impact (hearing impairment resulting from excessive noise exposure)	❖ Diesel powered machineries which are major source of noise in open cast environment will be properly maintained as per maintenance schedule to prevent undesirable noise. ❖ Attention shall be paid towards rigorous maintenance of silencers of diesel engines. ❖ Static diesel engines shall be housed as far as possible (not made of sheet metals or surrounded by baffles). If possible, they will be placed on vibration isolators.

	❖ Drill machine operators, blasters and dumper drivers will be issued earplugs and earmuffs. Duty hours of operators of noisy machinery will be regulated to keep their noise exposure levels within limits. ❖ Provision of sound proof cabins for the workers deployed on machines producing higher level of sound like dumpers, shovels etc. ❖ 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 ❖ Greenbelt/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.
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4.5.1 Ground Vibrations due to blasting

The major source of ground vibration from the quarry is blasting. The ground vibrations due to the blasting in the quarry are calculated using the empirical equation for assessment of peak particle velocity (PPV) is given below

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

where,

V = peak particle velocity (mm/s), K = site and rock factor constant (500)

Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

Table 4.10 Predicted PPV values due to Blasting

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s	Fly rock distance in m	Air Blast	
					Pressure (kPa)	Sound Level (dB)
P1	20.72	430	0.346	19	0.09	133

Table 4.11 Predicted PPV values due to Blasting at 100-500m radius

Location ID	Maximum Charge in kgs	Radial Distance in m	PPV in mm/s	Fly rock distance in m	Air Blast	
					Pressure (kPa)	Sound Level (dB)
P1	20.72	100	3.565	19	0.50	148
		200	1.176		0.22	141

		300	0.615		0.13	136
		400	0.388		0.09	133
		500	0.271		0.07	131

The PPV results shows that the ground vibration is well below the permissible limits set by DGMS in the circular 7, 1997.

Mitigation Measures

- ❖ The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators which reduce the ground vibrations
- ❖ Proper quantity of explosives, 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
- ❖ 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.
- ❖ Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire.
- ❖ The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used
- ❖ The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects
- ❖ Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices.
- ❖ Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders
- ❖ Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained
- ❖ The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system.

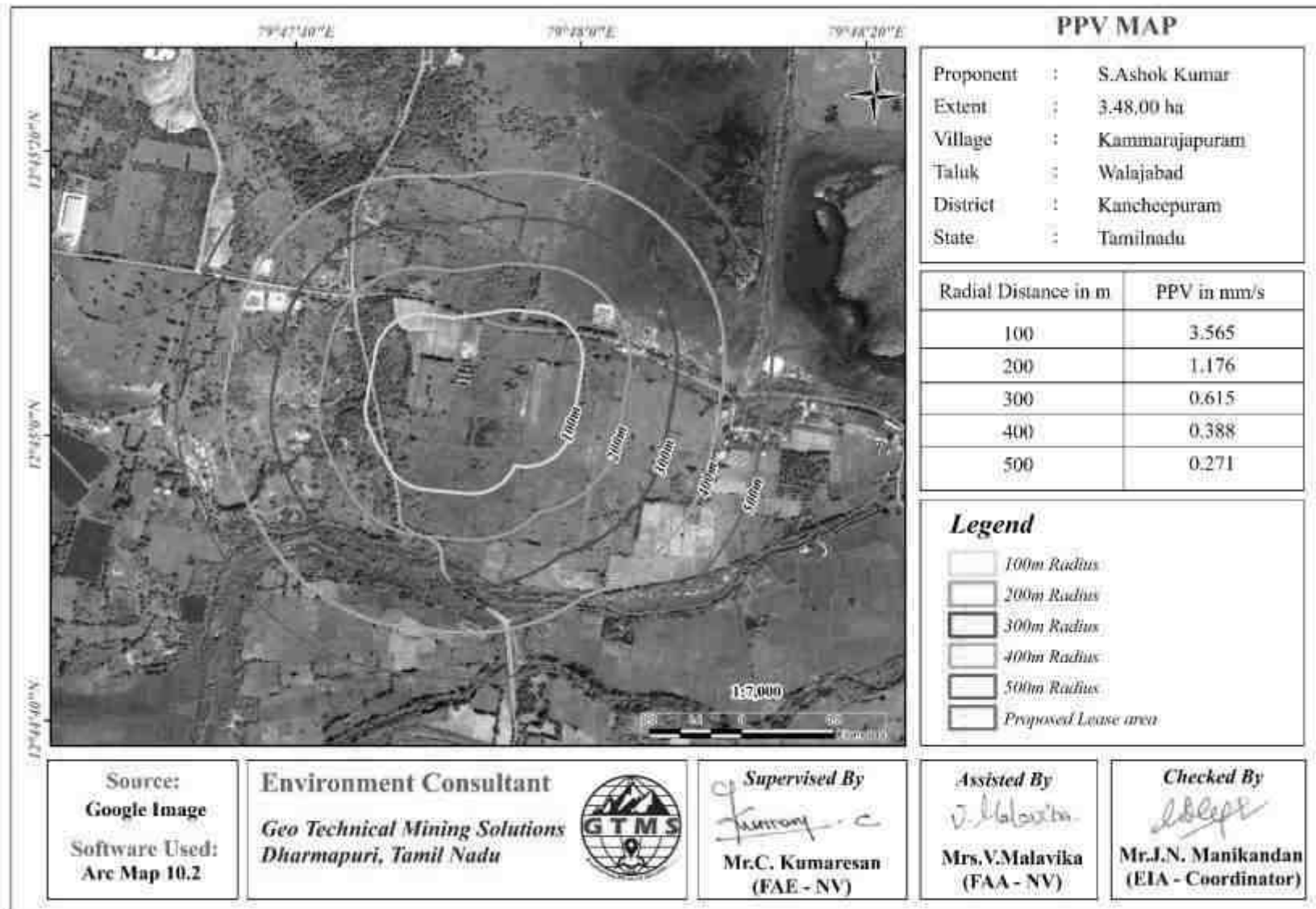


Figure 4.3 100-500m PPV Map

4.6 ECOLOGY AND BIODIVERSITY

4.6.1 Impact on Ecology and Biodiversity

- ❖ During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly
- ❖ The Number of plants in the mining lease area is given in Chapter III Table 3.21 which vegetation in the lease area may be affected during mining.
- ❖ Carbon released from quarrying machineries and tippers during quarrying would be 892kg per day, 240840kg per year and 2408400kg over ten years, as provided in Table 4.9.

Table 4.12 Carbon Released During Ten Years of Rough Stone and Gravel Production

	Per day	Per year	Per ten years
Fuel consumption of excavator	181	48878	488788
Fuel consumption of tipper	892	240840	2408400
Total fuel consumption in Liters	1073	289718	2897188
CO ₂ emission in kg	2875	776423	7764228

4.6.2 Mitigation Measures on Flora

- ❖ During conceptual stage, the top bench will be re-vegetated by planting local /native species and lower benches will be converted into rainwater harvesting structure following completion of mining activities, which will replace habitat resources for fauna species in this locality over a longer time.
- ❖ None of the plants in the lease area will be cut during operational phase of the mine. we recommend uprooting and planting of the 10 trees along the 7.5 m safety zone to prevent environmental pollution during quarrying. As the survival rate due to uprooting was only 30%, 100 seedlings will be procured at the rate of 10 seedlings per tree and planted in 7.5 m safety zone.
- ❖ Existing roads will be used and new roads will not be constructed to reduce impact on flora.
- ❖ Green belt of adequate width will develop around the project site. Dust catching species like *Alstonia scholaris*, *Bombax ceiba*, *Terminalia arjuna*, *Cassia fistula*, *Bombax ceiba*, *Azadirchta indica*, *Nyctanthes arbor-tristis*, *Psidium guajava*, *Tectona grandis* etc will be planted in green belt.
- ❖ To mitigate carbon emission due to mining activities, we recommend planting trees around the quarry to offset the carbon emission during quarrying. A tree can sequester 29504kg of carbon per year. Therefore, we recommend 500 planting large number of

trees around the quarry and near school campuses, government wasteland, roadsides etc.

- ❖ As per the greenbelt development plan as recommended by SEAC (Table 4.14) about 1740 trees (Table 4.15) will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of about 7074000kg of the total carbon as provided in Table 4.13.

Table 4.13 CO₂ Sequestration

CO ₂ sequestration in kg	255	68850	688500
Remaining CO ₂ not sequestered in kg	2620	707400	7074000
Trees required for environmental compensation	29504		
Area required for environmental compensation in hectares	59		

Table 4.14 Recommended Species for Greenbelt Development Plan

S. No	Botanical Name of the Plant	Family Name	Common Name	Category	Dust Capturing Efficiency Features
1	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree	Well distinct thick at both the layer Well distinct in Palisade & Spongy parenchyma. Spongy parenchyma is present at lower epidermis Many vascular bundles arranged almost parallel series.
2	<i>Tectona grandis</i>	Lamiaceae	Teak	Tree	
3	<i>Polyalthia longifolia</i>	Annonaceae	Nettilingam	Tree	
4	<i>Albizia lebbeck</i>	Fabaceae	Vagai	Tree	
5	<i>Delonix regia</i>	Fabaceae	Konrai	Tree	
6	<i>Bauhinia racemose</i>	Fabaceae	Aathi	Tree	
7	<i>Cassia fistula</i>	Fabaceae	Sarakondrai	Tree	
8	<i>Aegle marmelos</i>	Fabaceae	Vilvam	Tree	
9	<i>Pongamia pinnata</i>	Fabaceae	Pungam	Tree	
10	<i>Thespesia populnea</i>	Malvaceae	Puvarasu	Tree	

Table 4.15 Greenbelt Development Plan

	No. of trees proposed for plantation	No. of trees expected to survive @ 80%	Area to be covered (m ²)
Plantation in the construction phase (3 months)	Number of plants inside the mine lease area		
	696	557	6264
	Number of plants outside the mine lease area		
	1044	835	9396
Total	1740	1392	15660

4.6.3. Anticipated Impact on Fauna

- ❖ Direct impact is anticipated on fauna of core zone

- ❖ Insignificant impact is anticipated on fauna in the buffer area due to air emissions, noise, vibration, transportation, waste water discharges, and changes in land use

Mitigation Measures on Fauna

- ❖ Fencing will be constructed around the proposed mine lease area to restrict the entry of stray animals
- ❖ The workers shall be trained not to harm any wildlife near the project site
- ❖ The quarry operation using in NONAL blasting Method Technic so controlled in sound and vibration.

4.6.4 Impact on agriculture and horticulture crops in 1km Radius

- ❖ Problems to agricultural and horticulture land due to dust caused by movement of heavy vehicles.
- ❖ Soil erosion and sediment deposition in the nearby water bodies due to earthworks during the rainy season.
- ❖ The fugitive dust released from the mining operations may cause effect on the agricultural and horticulture land who are directly exposed to the fugitive dust.
- ❖ Dust from the quarries is likely to affect reproductive systems in nearby agricultural and horticulture lands.
- ❖ Dust from quarries can affect plant growth and reduce vegetable yields.

4.6.5 Mitigation Measures on agriculture and horticulture crops.

- ❖ The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. In order to compensate the loss of vegetation cover, it is suggested to carry out afforestation program mainly inside and outside of the lease area in different phases.
- ❖ A green belt will be created in 7.5m & 10m safety zone around the quarry to contain the dust from the quarry and prevent the dust from spreading to the adjacent agricultural land.
- ❖ Transportation of material will be carried out during day time and material will be covered with tarpaulin.

4.7 SOCIO ECONOMIC ENVIRONMENT

Anticipated Impact from Proposed and Existing Projects

- ❖ Dust generation from mining activity can have negative impact on the health of the workers and people in the nearby area.
- ❖ Approach roads can be damaged by the movement of tippers.

- ❖ Increase in Employment opportunities both direct and indirect thereby increasing economic status of people of the region.

Common Mitigation Measures for Proposed Project

- ❖ Good maintenance practices will be adopted for all machinery and equipment, which will help to avert potential noise problems.
- ❖ Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- ❖ Air pollution control measure will be taken to minimize the environmental impact within the core zone.
- ❖ For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules.
- ❖ Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc., from this project directly and indirectly.
- ❖ From above details, the quarry operations will have highly beneficial positive impact in the area

4.8 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 85dB(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 85dB(A) the peak sound levels reach 140dB(C) or the average maximum sound level reaches 110dB(A)
- ❖ Ear muffs provided will be capable of reducing sound levels at the ear to at least 85dB(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;
- ❖ 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, spirometry tests, periodic medical examination- yearly, lung function test- yearly, those who are exposed to dust, and 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 from any of the proposed quarries.

4.10 Mine Closure

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. Therefore, progressive mine closure plan should be specifically dealt with in the mining plan and is to be reviewed along with mining plan. As progressive mine closure is a continuous series of activities, it is

obvious that the proposals of scientific mining have included most of the activities to be included in the closure plan. While formulating the closure objectives for the site, it is important to consider the existing or the pre mining land use of the site and how the operation will affect this activity.

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

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

4.10.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

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.,

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 discharges 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.

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.
- ❖ Where it is desirable to get a quick growth response from the native flora during those times.

When moisture is not a limiting factor. For example, development of green barriers the Mine closure plan should be as per the approved mining plan. The mine closure is a part of approved mine plan and activities of closure shall be carried out as per the process described in mine closure plan.

CHAPTER V

ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 General

Consideration of alternatives to a proposed project is a requirement of EIA process. During the scoping process, alternatives to a proposed project 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.

The quarrying operation like drilling, blasting, excavation, loading & transportation are being carried out. The site has been selected based on geological investigation and exploration as below:

- ❖ Transportation facility for materials & manpower.
- ❖ Overall impact on environment and mitigation feasibility.
- ❖ Socio- economic background.

5.1 ANALYSIS OF ALTERNATIVE SITE

- ❖ No alternatives are suggested as the mine site is mineral specific.

5.2 FACTORS BEHIND THE SELECTION OF PROJECT SITE

Manual open cast mining method with secondary blasting will be applied to extract rough stone and gravel in the area. The proposed mining lease areas have following advantages:

- As the mineral deposition is homogeneous and batholith formation, opencast method of working is preferred over underground method.
- The material will be loaded with the help of excavators into tractors/ tippers and transported to the need by customers.
- Semi- Skilled labours fit for quarrying operations are easily available around the nearby villages.

5.3 ANALYSIS OF ALTERNATIVE TECHNOLOGY

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

CHAPTER VI

ENVIRONMENTAL MONITORING PROGRAMME

6.0 GENERAL

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

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- TN as well as the conditions set forth under the order issued by Tamil Nadu Pollution Control Board while granting CTE/CTO.

6.1 METHODOLOGY OF MONITORING MECHANISM

Implementation of EMP and periodic monitoring will be carried out by respective project proponents. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to proposed 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 the respective 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 the proposed quarry. 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 the proposed project proponent. The half-yearly reports are submitted to Ministry of Environment and Forest, Regional Office and SEIAA-TN 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). The Environmental Monitoring Cell will be formed for the proposed project. The structure of the cell will be as shown in Figure 6.1.

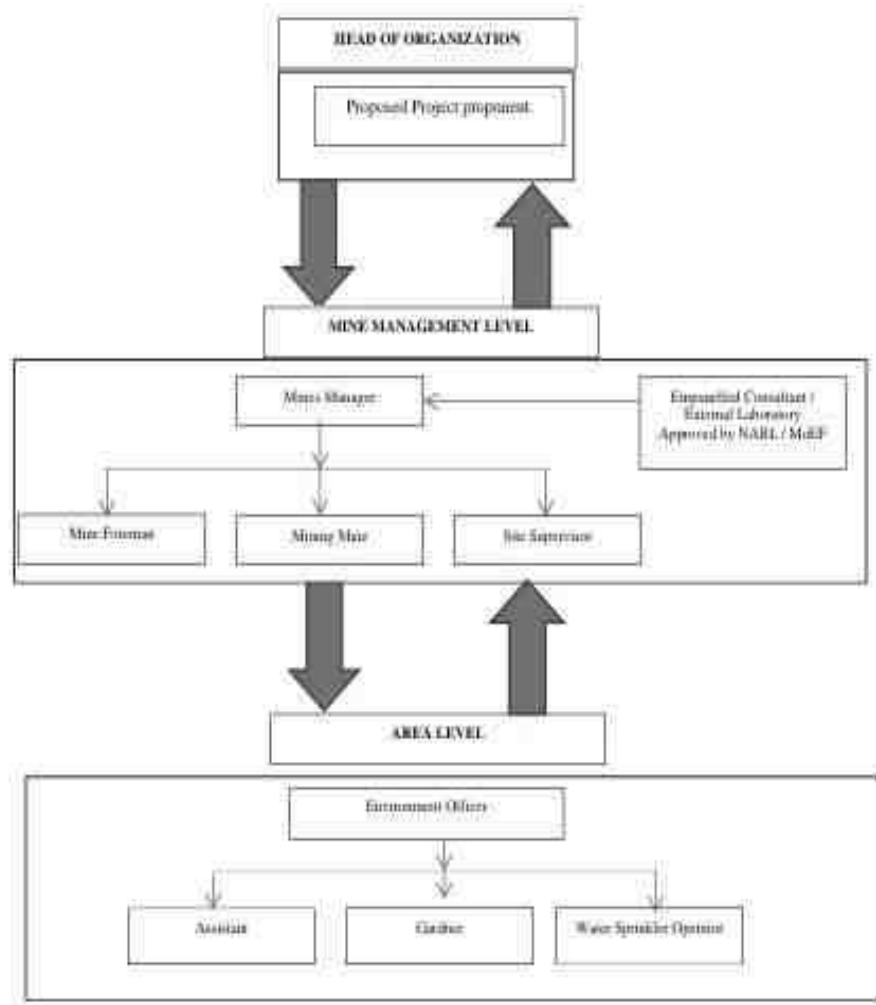


Figure 6.1 Proposed environmental monitoring chart

6.2 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

The mitigation measures proposed in chapter IV 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 for Proposed Project

S. 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

Monitoring shall confirm that commitments are being met. This may take the form of direct measurement and recording of quantitative information, such as amounts and concentrations of discharges, emissions and wastes, for measurement against statutory standards. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of complaints.

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 proposed monitoring schedule have been provided in Table 6.2.

Table 6.2 Proposed Monitoring Schedule Post EC for the Proposed Quarry

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 (1 SW & 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 m 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 ENVIRONMENT MONITORING PROGRAM

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 for **M/s. Ramana Stone Crusher**, Rough Stone Quarry is Rs. 2,95,000 for conducting Air Quality,

Meteorology, Water Quality, Hydrology, Soil Quality, Noise Quality Vibration Study, Greenbelt.

Table 6.3 Environment Monitoring Budget

S. No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	-	Rs 60,000/-
2	Meteorology	-	Rs 15,000/-
3	Water Quality	-	Rs 20,000/-
4	Water Level Monitoring	-	Rs 10,000/-
5	Soil Quality	-	Rs 20,000/-
6	Noise Quality	-	Rs 10,000/-
7	Vibration Study	-	Rs 1,50,000/-
8	Greenbelt	-	Rs 10,000/-
Total		-	Rs 2,95,000 /-

Source: Field Data

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.

CHAPTER VII

ADDITIONAL STUDIES

7.0 GENERAL

Additional studies deal with:

- ❖ Public Consultation for Proposed Project
- ❖ Risk Assessment
- ❖ Disaster Management Plan
- ❖ Cumulative Impact Study
- ❖ Plastic Waste Management

7.1 PUBLIC CONSULTATION FOR PROPOSED PROJECT

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 was made and the public opinions on the proposed project will be updated in the final EIA/EMP report.

7.2 RISK ASSESSMENT FOR PROPOSED PROJECT

Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. The methodology for the risk assessment is 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 proposed project. 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 Table 7.1.

Table 7.1 Risk Assessment & Control Measures for Proposed Project

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. ✓ Working of quarry, as per approved plans and regularly updating the mine plans. ✓ Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut. ✓ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager. ✓ Maintenance and testing of all mining equipment as per manufacturer's guidelines.
2	Drilling	Improper and unsafe practices; Due to high pressure of compressed air, hoses may burst; Drill Rod may break;	✓ Safe operating procedure established for drilling (SOP) will be strictly followed. ✓ Only trained operators will be deployed. ✓ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places, ✓ Drilling shall not be carried on simultaneously on the benches at places directly one above the other. ✓ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. ✓ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. ✓ Operator shall regularly use all the personal protective equipment.
3	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/ fining of blast holes Vibration due to movement of vehicles	✓ The maximum charge per delay and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blast can be conducted safely. ✓ SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation ✓ Shots are fired during daytime only.

			✓ All holes charged on any one day shall be fired on the same day. ✓ The danger zone is and will be distinctly demarcated (by means of red flags)
4	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle Operator of truck leaving his cabin when it is loaded.	✓ Before commencing work, drivers personally check the truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition. ✓ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ✓ Concave mirrors should be kept at all corners ✓ All vehicles should be fitted with reverse horn with one spotter at every tipping point ✓ Loading according to the vehicle capacity ✓ Periodical maintenance of vehicles as per operator manual
5	Natural calamities	Unexpected happenings	✓ Escape Routes will be provided to prevent inundation of storm water ✓ Fire Extinguishers & Sand buckets
6	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	✓ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m.

Source: Analysed and proposed by FAE & EC

7.3 DISASTER MANAGEMENT PLAN FOR PROPOSED PROJECT

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. Structure of the team has been shown in Figure 7.1.

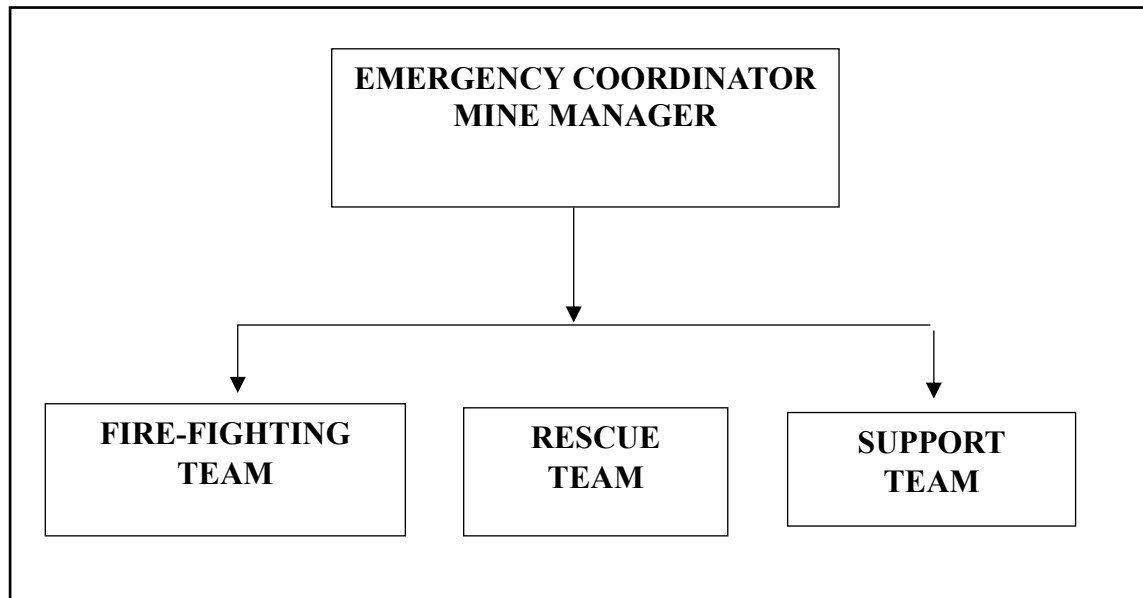


Figure 7.1 Disaster management team layout for proposed project
7.3.1 Emergency Control Procedure

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

7.4 CUMULATIVE IMPACT STUDY

The Cumulative Impact is mainly anticipated due to drilling & blasting and excavation and transportation activities in all the projects within the cluster and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting. For this cumulative study, the proposed project, known as P1 & P2 are taken into consideration details of have been given in Table 7.2 & 7.3.

Table 7.2 Salient Features of P1

Name of the Quarry	S. Ashok Kumar, Rough Stone and Gravel Quarry	
Type of Land	Patta Land	
Extent	3.48.00ha	
S.F. No	290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C	
Toposheet No	57- P/13 & 57- P/14	
Highest Elevation	80m AMSL	
Latitude	12°44'59.17"N to 12°45'5.56"N	
Longitude	79°47'48.19"E to 79°47'56.83"E	
Proposed depth for Ten Years	50m BGL	
Geological Resources	Rough stone in m ³ & Tons	Gravel in m ³ & Tons
	1563345 & 4299199	173705 & 347410
Mineable Reserves	581360 & 1598740	142240 & 284480
Proposed production for 10 years	581360 & 1598740	142240 & 284480
Method of Mining	Open cast mechanized mining method	
Topography	Flat Topography	
Machinery requirements	Jack hammer	3
	Excavator	2
	Compressor	2
	Tipper	10
Proposed Manpower Deployment	23 Nos	
Project Cost	Rs. 2,64,77,805/-	
Proposed Water Requirement	3.5 KLD	

Table 7.3 Salient Features of P2

Name of the Quarry	B.Rajinikanth Rough stone and gravel	
Type of Land	Patta Land	
Extent	5.39.00ha	
S.F. No	287/1A1, 287/1A2, 287/1A3, 287/1B1, 287/1B2, 287/2, 287/3, 288/1A, 288/1B, 288/1C, 288/1D, 288/1E, 288/1F, 288/1G, 288/1H, 288/2, 288/3A, 288/3B, 288/4A, 288/4B, 288/5, 288/6A, 288/6C, 289/1A, 289/2, 289/3, 290/1B, 290/2B2, 298/1 & 299/1.	
Toposheet No	57- P/13 & 57-P/14	
Highest Elevation	80m AMSL	
Latitude	12°44'52.60"N to 12°45'1.53"N	
Longitude	79°47'47.40"E to 79°47'56.77"E	
Proposed depth for ten years	65m BGL	
Geological Resources	Rough stone in m ³ & Tons	Gravel in m ³ & Tons
	3395385 & 9337309	107790 & 215580
Mineable Reserves	1165205 & 3204314	83670 & 167340
Proposed production for 10 years	1165205 & 3204314	83670 & 167340
Method of Mining	Open cast mechanized mining method	
Topography	Flat Topography	
Machinery requirements	Jack hammer	3
	Excavator	2
	Compressor	2
	Tipper	10
Proposed Manpower Deployment	25 Nos	
Project Cost	Rs.3,82,76,800/-	
Proposed Water Requirement	3.5 KLD	

7.4.1 Air Environment

As the production of rough stone & gravel plays a vital role in affecting the air environment. The data on the cumulative production resulting from the proposed project have been given in Tables 7.4 and 7.5.

Table 7.4 Cumulative Production Load of Rough Stone

Proposed Production Details				
Quarry	10 Years in (m³ & Ts)	Per Year in (m³ & Ts)	Per Day in (m³ & Ts)	Number of Lorry Load Per Day
P1	581360 & 1598740	58136 & 159874	215 & 592	36
P2	1165205 & 3204314	116520 & 320431	431 & 1186	72
Grand Total	1746565 & 4803054	174656 & 480305	646 & 1778	108

Table 7.5 Cumulative Production Load of gravel

Proposed Production Details				
Quarry	2 Years in (m³ & Ts)	Per Year in (m³ & Ts)	Per Day in (m³ & Ts)	Number of Lorry Load Per Day
P1	142240 & 284480	71120 & 142240	263 & 526	43
P2	83670 & 167340	27890 & 55780	103 & 206	17
Grand Total	225910 & 451820	99010 & 198020	366 & 732	60

The cumulative study shows that the overall production of rough stone from the quarry is 646m³ or 1778 Ts per day with a capacity of 108 trips of rough stone per day and gravel from the quarry is 366m³ or 732 Ts per day with a capacity of 60 trips of gravel per day.

7.4.1.1 Cumulative Impact of Air Pollutants

The results on the cumulative impact of the proposed project on air environment of the cluster have been provided in Table 7.6. The cumulative values resulting from the project for each pollutant do not exceed the permissible limits set by CPCB.

Table 7.6 Cumulative Impact Results from the proposed project

Pollutants	Baseline Data (µg/m³)	Incremental Values (µg/m³)	Cumulative Value (µg/m³)
		P1	
PM _{2.5}	18.67	8.87	30.24
PM ₁₀	50.42	16.3	58.87

7.4.2 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.

Table.7.7 Cumulative Impact of Noise for one Cluster Projects

Location ID	Distance (m)	Direction	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	445	E	52.8	20.07	52.8	55
Cumulative Noise (dB (A))					52.8	

Source: Lab Monitoring Data

The cumulative analysis of noise due to cluster project shows that habitation will receive about 52.8dB(A) respectively. The cumulative results for all the villages in consideration do not exceed the limit set by CPCB for residential areas for day time.

Ground Vibrations

Cumulative results of ground vibrations due to mining activities from the cluster project have been shown in Table 7.8.

Table 7.8 Cumulative Effect of Ground Vibrations Resulting from cluster Project

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s
P1	20.72	430	0.346
P2	41.53	460	0.541
Total			0.887

Results from the above indicate that the cumulative PPV value of each habitation is well below the peak particle velocity of 8mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

7.4.3 Socio Economic Environment

Socio Economic benefits of the proposed project were calculated and the results have been shown in Table 7.9 the project together will contribute Rs. 10,00,000/-towards CER fund.

Table 7.9 Socio Economic Benefits from the Cluster Project

Location ID	Project Cost	CER Cost
P1	Rs. 2,64,77,805/-	Rs. 5,00,000
P2	Rs.3,82,76,800/-	Rs. 5,00,000
Grand Total	Rs.6,47,54,605/-	Rs. 10,00,000

Table 7.10 Employment Benefits for Cluster Project

Location ID	Employment
P1	23
P2	25
Grand Total	48

A total of 48 people will get employment from the cluster project.

7.4.4 Ecological Environment

"Gap Plantation" procedure:

Developing a three-tier green belt of native plant species around industrial peripheries is a vital environmental guideline for mitigating pollution and enhancing ecosystem services. Dig pits of substantial dimensions (1m x 1m x 1m for large trees, half for smaller ones) fill them with a mixture of earth, sand, silt and manure and then water the saplings generously. Care for the first three years involves nutrient supplementation, plant protection, managing water stress and ensuring exposure to normal atmospheric conditions.

The chosen species should be fast-growing, deep-rooted, wind-firm possess a dense and potentially permeable canopy, tolerate air pollution (SO₂, NO₂) and ideally be indigenous.

Additional preferred characteristics include long-lasting foliage, large, sturdy leaves, abundant stomata, rough bark and a general ability to withstand local environmental stresses such as drought or inundation while also contributing positively to the environment through soil improvement, aesthetic appeal and attracting wildlife.

Activities for Maintenance:

- Regular pruning
- Watering
- Weed removal
- Manuring
- The growing plants are cared at least for the first 3 years under favourable condition of climate and irrigation.
- For healthy and vigorous growth adequate nutrient will be supplied
- To avoid water stress condition regular watering will be done.

Table 7.11 Greenbelt Development

Code	Number of Trees proposed	Area to be covered (m ²)	No. of Trees expected to be grown @ 80% survival rate	Species recommended
P1	1740	15660	1392	<i>Azadirachta indica</i> , <i>Albizia lebbeck</i> , <i>Delonix regia</i> , <i>Tectona grandis</i> , etc.,
P2	2695	24255	2156	
Total	4435	39915	3548	

Cumulative studies show that the proposed project proponent will plant about 4435 native tree species like *Azadirachta indica*, *Albizia lebbeck*, *Delonix regia*, *Tectona grandis*, etc inside and outside the lease area. It is expected that 80% of trees, i.e., 3548 trees will survive in this green belt development program.

7.5 PLASTIC WASTE MANAGEMENT PLAN FOR PROPOSED PROJECT

All the Project Proponent shall comply with Tamil Nadu Government Order (Ms) No. 84 Environment and Forest (EC.2) Department Dated: 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986.

7.5.1 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.

A detailed action plan to manage plastic waste has been provided in Table 7.12.

Table 7.12 Action Plan to Manage Plastic Waste

S. 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 FAEs and EC

CHAPTER VIII

PROJECT BENEFITS

8.0 GENERAL

The proposed project at Kammarajapuram Village, aims to produce **581360m³ or 1598740Ts of rough stone** and **142240m³ or 284480Ts of Gravel** over a period of 10 years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits:

- ❖ Increase in Employment Potential
- ❖ Improvement in Socio-Economic Welfare
- ❖ Improvement in Physical Infrastructure
- ❖ Improvement in Social infrastructure

8.1 EMPLOYMENT POTENTIAL

It is proposed to provide employment to about 23 persons for carrying out mining operations and give preference to the local people in providing employment in this cluster. In addition, there will be an opportunity for indirect employment to the form of contractual jobs, business opportunities and service facilities etc. Because of this, the economic status of the local people will improve.

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 project is located in Kammarajapuram Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu. The area has already well-established communications roads and other facilities. The following physical infrastructure facilities will further improve due to proposed project.

- ❖ 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.,

8.6 CORPORATE SOCIAL RESPONSIBILITY

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

Under this programme, the project proponents will take-up following programmes for social and economic development of villages within 5 km of the project site. For this purpose, separate budget will be provided every year. For finalization of these schemes, proponent will interact with LSG. The schemes will be selected from the following broad areas –

- ❖ Health Services Social Development
- ❖ Infrastructure Development
- ❖ Education & Sports
- ❖ Self-Employment
- ❖ CSR Cost Estimation

- ❖ CSR activities mainly contributing to education, health, training of women self-help groups and infrastructure etc., will be taken up in the Kammarajapuram Village. CSR budget is allocated.

8.7 CORPORATE ENVIRONMENT RESPONSIBILITY

Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III dated 01.05.2018. As per para 6 (II) of the office memorandum, being a green field project & capital investment is ≤ 100 crores, the proposed project shall contribute 5% of capital investment towards CER as per directions of EAC/SEAC. However, the SEAC has suggested to allocate CER fund on the basis of the extent of the project. Therefore, Rs. 5,00,000 is allocated for CER. The proposed utilization of the budget of CER activities is given in Table 8.1.

Table 8.1 CER Action Plan

S. No.	Activity	Budget (Rs.in Lakh)
1	The applicant Indents to involve in corporate environment responsibilities (CER) activities such as renovation of existing toilet, plantation within the school premises, donating environment related books to the nearby school library, etc.	Rs.5,00,000
	Total	Rs.5,00,000

Source: Field survey conducted by FAE in consultation with project proponent

8.8 SUMMARY OF PROJECT BENEFITS

The project would pay about **Rs. 7,28,45,408** to the state government through various ways, as provided in Table 8.2.

Table 8.2 Project Benefits to the State Government

Particulars	Budget for Rough Stone (Rs.)	Budget for Gravel (Rs.)
CER	5,00,000	
Seigniorage @ Rs.90/m ³ of rough stone / Rs.56/m ³ of gravel	5,23,22,400	79,65,440
District Mineral Foundation Tax @ 10% of Seigniorage	52,32,240	7,96,544
Green Tax @ 10% of Seigniorage	52,32,240	7,96,544
Total	Rs. 6,32,86,880	Rs. 95,58,528

CHAPTER IX
ENVIRONMENTAL COST BENEFIT ANALYSIS

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

CHAPTER X

ENVIRONMENTAL MANAGEMENT PLAN

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 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 **S. Ashok Kumar** 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 programs 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.

10.1.1 Description of the Administration and Technical Setup

The environment monitoring cell discussed under chapter VI 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 program.
- ❖ 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 Budgetary Provision for Environmental Management

Adequate budgetary provision has been made by the company for execution of Environmental Management Plan. The Table 10.1 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

Table 10.1 EMP Budget for Proposed Project

Attribute	Mitigation measures	Provision for Implementation	Capital Cost	Recurring Cost/annum
			(Rs.)	(Rs.)
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	35,000	35,000
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice	8,00,000	50,000

		a day) Cost for recurring		
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags/ steel mesh/ old tyre/ used conveyor belts	0	5,000
	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 – 2 Units	75,000	7,500
	No overloading of trucks/tippers/tractors	Monitoring through weighing machines	0	5,60,000
	Stone carrying trucks will be covered	Monitoring if trucks will be covered by tarpaulin	0	10,000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/ Dumper deployed – 5 Units	50,000	5,000
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5,000
	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	70,000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50,000	20,000
Noise Environment	Source of noise will be during operation of transportation vehicles,	Provision made in Operating Cost	0	0

	HEMM for this proper maintenance will be done at regular intervals.			
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Compentent Person (Provision made in Operating Cost)	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50,000	2,000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Bulk density of rock = 2.6 for Rough Stone/Granite; = 2.5 for Limestone;	0	6,00,000

		6 tons of production requires 1 kg pf explosives; Cost of NONEL = Rs. 30 per kg.		
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	25,000	20,000
		Installation of dust bins	5,000	2,000
	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	35,000	17,000
	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	7,00,000	35,000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - 200 trees inside lease area & 300 trees outside the 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	2,60,000	39,000

		area and @ 30 per plant maintenance (recurring)		
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	1,35,000	13,500
	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	1,13,000	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budget and not necessarily implemented in the Project Site	0	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	10,000	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	50,000
	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) – 20 Employees	92,000	23,000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	23,000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/- for 2 kits	0	7,000
	Slope stability action plan	Slope stability action plan in the end of fourth year plan period	2,00,000	0
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10,000	2,000

	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	1,75,000	35,000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30,000	5,000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	7,80,000
Conservation Measures	--	--	--	--
TOTAL			Rs. 28.50 Lakhs	Rs. 24.22 Lakhs

Table 10.2 Estimation of Overall EMP Budget after Adjusting 5% Annual Inflation

Recurring cost in Year 1	Recurring cost @ 5% inflation Rs (in Lakhs)									Total Recurring cost for 10 years in Lakhs	Total Cost (Capital + Recurring) In Lakhs
	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10		
24.22	25.43	26.70	28.03	29.43	30.90	32.44	34.06	35.76	37.54	Rs. 304.51 Lakhs	(Rs. 28.50L + Rs. 304.51L) = Rs.333.01Lakhs

In order to implement the environmental protection measures an amount of **Rs. 28.50Lakhs** as capital cost and recurring cost as **Rs.24.22Lakhs** as recurring cost/ annum is proposed considering present market price for the proposed project. After the adjustment of 5% inflation per year the overall EMP cost for 10 years will be **Rs. 333.01Lakhs** as shown in Table 10.2.

10.3 CONCLUSION

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

CHAPTER XI

SUMMARY AND CONCLUSION

11.1 INTRODUCTION

The proposed rough stone & gravel mining project (P1) falls within the cluster of 500m radius with the total extent of 8.87.0ha and it requires submission of EIA report for grant of Environmental Clearance (EC) after conducting public hearing. The proposed project falling in S.F.No's. 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C, over the extent of 3.48.0ha is situated in Kammarajapuram Village, Walajabad Taluk, Kancheepuram District and Tamil Nadu. The quarries involved in the calculation of cluster extent is two proposed quarries.

11.2 PROJECT DESCRIPTION

- The proposed project area is located between Latitudes from 12°44'59.17"N to 12°45'5.56"N and Longitudes from 79°47'48.19"E to 79°47'56.83"E in Kammarajapuram Village, Walajabad Taluk, Kancheepuram District and Tamil Nadu.
- The mining plan approved for quarrying 581360m³ & 1598740MT of rough stone and 142240m³ & 284480MT of gravel to the ultimate depth of 50m (BGL) for 10 years.
- The quarrying operation is opencast semi mechanized involving drilling, blasting and formation of benches of the prescribed dimensions.

11.3 DESCRIPTION OF THE ENVIRONMENT

Baseline data were collected for 5km radius from the proposed area during January to March 2026 as per CPCB guidelines. The data were collected by both the FAE's and NABL accredited and MoEF notified **Ekdant Enviro Services (P) Limited** for the environmental attributes including soil, water, noise, air and by FAEs for ecology and biodiversity, traffic and socio- economy.

11.3.1 Land Environment

Land use pattern of the area of 5km radius was studied using Sentinel II imagery. LULC types and their extent are given in Table 11.1.

Table.11.1 LULC Statistics of the Study Area

S. No.	Classification	Area (ha)	Area (%)
1	Water bodies	167.72	2.03
2	Plantation	23.26	0.28
3	Crop land	6625.75	80.37
4	Mining/ Industrial area	30.23	0.37
5	Built-up land	716.44	8.69
6	Bare ground	38.91	0.47

7	Fallow land	641.39	7.78
Total		8243.71	100.0

Source: Sentinel II Satellite Imagery

11.3.2 Soil Environment

The soil is nutrient-rich, well-balanced, and structurally suitable for agriculture. No corrective measures are immediately necessary, but continued monitoring and sustainable land management practices are recommended to maintain soil health.

Physical Characteristics & Chemical Characteristics

1. Soil pH and Electrical Conductivity (EC):

- **pH ranged from 7.56 to 7.90** indicating that the soil is **neutral to slightly alkaline**, which is favourable for most crops.
- **EC value ranged from 63.70 to 151.40 μ S/cm**, suggesting low salt concentration and non-saline soil across the sampling area.

2. Physical Properties

- **Density** values ranged from 1.20 to 1.30 g/cc, which are within the typical range for loamy soils and support good root penetration and aeration.

3. Soil Fertility Status:

- **Total Organic matter** levels ranged from 0.49 to 1.24g/100g, classifying soils as low to moderately fertile in terms of organic matter.
- **Nitrogen (N)** content varied from 0.019 to 0.033g/100g indicating moderate nitrogen availability.
- **Potassium (K)** ranged from 0.52 to 1.84mg/kg moderate fertility potential in terms of potassium

4. Base Elements and Cation Ratios:

- **Calcium (Ca)** levels were highest with 22.40mg/kg and lowest with 14.80mg/kg.
- **Magnesium (Mg)** ranged from 4.89 to 14.60mg/kg.

Conclusion:

The soils in the study area are generally non-saline, neutral to slightly alkaline, and moderately fertile with low contamination levels. They exhibit good permeability, porosity, and suitable textural classes for agriculture and greenbelt development. The absence of heavy metals confirms that baseline soil conditions are unpolluted and safe for reclamation and vegetation growth.

11.3.3 Water Environment

The study aims to establish a baseline understanding of the current water quality both surface and groundwater in the area recognizing the crucial role these resources play in its development. This involves assessing the existing water quality to understand its suitability for various uses and to identify potential issues or areas of concern.

Ground Water Quality Result

Physical Parameters:

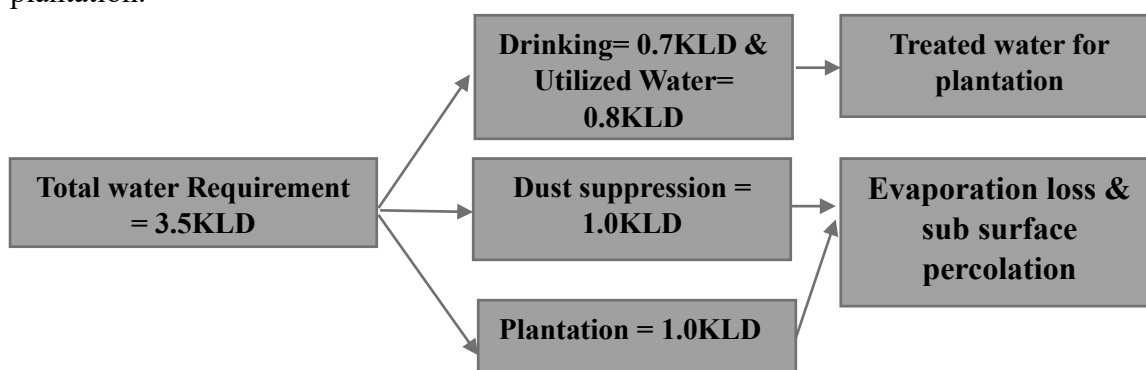
- The **pH** value ranges from 6.95 to 7.76. The World Health Organization (WHO) and the Bureau of Indian Standards (BIS) recommend a pH range of 6.5 to 8.5 for drinking water and the values are within the acceptable limits.
- **Turbidity** is measured by a nephelometric turbidimeter. NTU is the current standard for measure the intensity of scattered light caused by these particles rather than the amount of light transmitted through the sample. The **turbidity** value is less than 1 NTU in open well and bore well water. In surface water it is 5NTU.
- The **TDS levels** ranged from 820mg/L to 1040mg/L. In bore well, water the TDS is higher than the WHO recommendation of 500mg/l for drinking water. High TDS levels can affect the taste of water potentially making it salty or bitter. In the long-term excessive TDS can irritate the stomach and according to some health sources may lead to kidney stones and cardiac issues.

Chemical Parameters:

- The **calcium** levels range from 67.0mg/L to 116.0mg/L which is within the permissible limit of 200mg/L but slightly above the acceptable limit of 75mg/L. High calcium levels can cause scaling in domestic equipment, reduced detergent efficiency and potential health issues like constipation, gas and bloating.
- The **magnesium** levels range from 35.0mg/L to 41.0mg/L which is within both the acceptable and permissible limits. However, elevated magnesium levels can cause diarrhoea and vomiting in children.
- The **chloride** levels range from 160.0mg/L to 236.0mg/L which is within the acceptable and permissible limits of 250mg/L and 1000mg/L respectively. Chloride levels exceeding permissible limits can cause a bitter taste in the water and contribute to corrosion.
- The **total alkalinity** levels ranging from 256.0mg/L to 452.0mg/L are slightly above the acceptable limit of 200mg/L but within the permissible limit of 600mg/L. Excessive alkalinity can impart a soda taste to the water.

- The **hardness** levels ranging from 316.0mg/L to 460.0mg/L, are within the permissible limit but higher than the acceptable limit. Hardness can lead to corrosion and scaling problems, increased soap consumption and a salty taste.

Inference: The surface water quality is compared with the CPCB Water Quality Criteria against A, B, C, D & E class of water. From the test result it is found that both the water does not fit Class A (Drinking Water Source without conventional treatment but after disinfection). But they can be used for outdoor bathing as it meets the requirements shown for class B water. 3.5KLD (3500liters per day) water requirement for drinking, domestic, dust suppression and plantation.



11.3.4 Air Environment

As per the monitoring data PM_{2.5} ranges from 17.56µg/m³ to 20.13µg/m³, PM₁₀ from 45.72µg/m³ to 50.59µg/m³, SO₂ from 4.87µg/m³ to 6.09µg/m³, NO_x from 8.02µg/m³ to 9.16g/m³. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

Air quality Index (AQI)

The AQI shows that the air quality of the study area falls within good category 51 causing minimal impact to human health.

11.3.5 Noise Environment

Noise level in core zone was 52.8dB (A) Leq during day time and 41.3dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 46.5 to 48.3dB (A) Leq and during night time from 38.3 to 40.0dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB.

11.3.6 Biological Environment

Biological study of the ecosystem is essential to understand the impact of rough stone quarry on existing flora and fauna of the study area. Studies on various aspects of ecosystem play an important role in identifying sensitive issues for undertaking appropriate action to mitigate the impact, if any. A survey was conducted to study the flora and fauna in 10km radius by direct and indirect sightings/ data. Some of the information was gathered from the

local habitants. All the collected data were classified to interpret the impact of pollution on the flora and fauna of that region. Survey of the wild plants as well as cultivated crop plants was made, and all the available information was recorded.

Flora Composition in Core Zone

The core zone presents in tree, shrubs, herbs and grasses. Taxonomically total of 18 species belonging to 12 families 31 Plant have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were Herbs 5 followed by Trees 5 Shrubs 4 and Climbers 2. The result of core zone of flora studies shows that Fabaceae and Solanaceae are the main dominating species in the study area it mentioned in Table 3.22 & 3. 23. No species found as threatened category.

Flora Composition in buffer Zone

There are 139 different species identified in the buffer zone. Among the identified, floral (139) species were 30 trees, 19 herbs & climbers, 20 shrubs, 13 Creepers & grasses. According to the findings of the buffer zone flora studies, the dominant species in the study area are Fabaceae, Asteraceae, and Euphorbiaceae, as shown in Table 3.25. 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. Details of flora with the scientific name were mentioned in Table 3.25. A list of floral species has been prepared based on a primary survey (site observations) and discussion with local people.

Fauna in Core Zone

A total of 24 varieties of species were observed in the Core zone (Table.3.27). Among them are 8 Insects, 5 Reptiles, 4 Mammals and 9 Avian. A total of 26 species belonging to 20 families were recorded from the core area. The study shows that number of species decreases towards the mining area. This might be due the lack of vegetation. None of these species in the core zone are threatened or endemic. The survey was conducted to identify species listed in IUCN Red List. According to the field data, any species are not of Schedule I and nine species are of schedule IV. There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in Table 3.27.

Fauna in Buffer Zone

A total of 50 species belonging to 36 families have been recorded from the buffer zone area (Table.3.28). Based on habitat classification the majority of species were Birds 15 (30%), followed by Insects 14 (28%), Reptiles 13 (26%), Mammals 5 (10%) and Amphibians 3 (6%). There are 7 Schedule II species and 27 species are under schedule IV according to Indian wild

life Act 1972. A total fifteen species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable and endemic species were observed.

11.3.7 Socio Economic Environment

The proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area, thus leading to the improvement of people's standard of living.

11.4 Anticipated Environmental Impacts and Mitigation Measures

11.4.1 Land Environment

Anticipated Impact

- ✚ Converting barren land of 3.48.0hectares to rough stone mining creates a significant and usually irreversible change in land use and land cover involving the physical alteration of the land's surface, potential deforestation, loss of biodiversity, altered topography from pits and spoil dumps.
- ✚ Heavy vehicle movement causes significant problems to nearby agriculture and human habitation. These pollutants can degrade soil quality and introduce heavy metals into the environment.
- ✚ During transportation the tippers damage the bituminous roads. The primary damage is caused by the fourth power law (*The law posits that if you double an axle's load, the damage caused to the pavement increases by a factor of 2x4 or 16 times*) where pavement damage increases with the fourth power of the axle load. The immense weight of heavy payloads on an axle exerts a concentrated and repetitive stress on the road surface leading to permanent strain, premature failure and a cumulative damage.
- ✚ Rain drops hitting stone crushing waste can break apart the particles and flowing water detaches them from the surface transports and redeposits these particles especially from sloped surfaces. This a form of splash erosion followed by sheet erosion which can lead to environmental issues.

Mitigation Measures

- ✚ After mining there is a huge void of 2.85.0hectares upto a depth of 50m is useful for rain water storage structure has an advantage for local farmers. The artificial pond boundary shall be fences to avoid any mishaps.
- ✚ Union ministry of road transport and highways on July 16th 2018 increased the maximum cap of axle load limit by 20 to 25 percent cross various categories to keep the limit "at par with international standards".

11.4.2 Soil Environment

Anticipated Impact

- ✚ The fertility status of the soil near by the lease area may affect due to extra dust deposition on the soil. Dust deposition from a lease area can harm soil fertility by physically blocking soil pores, reducing aeration and water infiltration, and potentially altering the soil's chemical properties. This damage to the topsoil negatively impacts plant growth by interfering with photosynthesis and nutrient uptake ultimately decreasing crop production.
- ✚ Topsoil will be scraped from the area of 2.85.0hectares in the project site will store in safety area left for 7.5meters in the east side as shown in mining plan.

Mitigation Measures

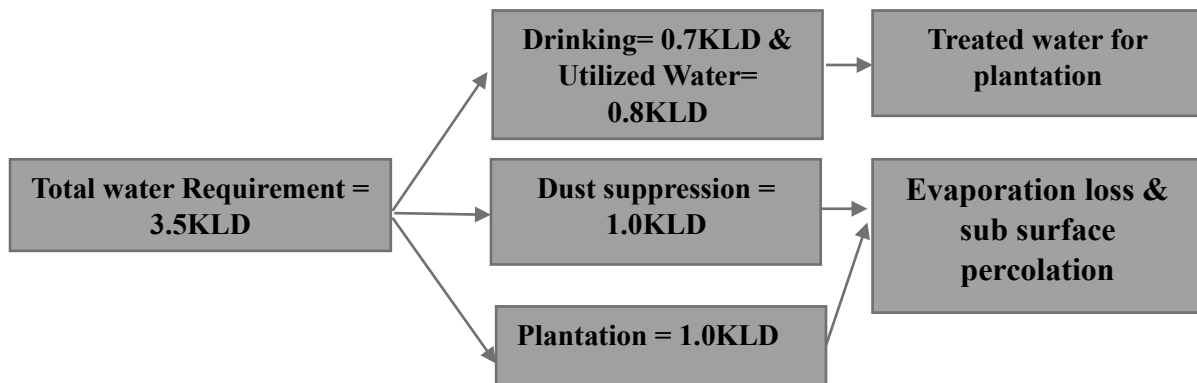
- ✚ When stock piling of top soil is done the mound should not be higher than 1.0m and Weathered Rock 3.0m.
- ✚ To minimize surface runoff and erosion the topography of a graded surface should be designed to create terraces or benches that follow land contours which intercept sheet flow. Additionally, a bulldozer's tracks can be used to create a fine-scale roughened surface perpendicular to the slope and stockpiles should be constructed with a rough surface to improve drainage, reduce erosion and encourage revegetation.
- ✚ Efforts will be made to minimize the storage time to prevent nutrient loss.
- ✚ To protect the quality of stockpiled topsoil immediate re-vegetation is crucial. Temporary seeding should be done within 30 days of stockpile formation to control erosion, prevent weed growth and maintain healthy soil microbes.
- ✚ If the stockpile will not be reused within 12 months it must be stabilized with permanent vegetation to ensure long-term erosion and weed control.
- ✚ The stored topsoil will be utilized for plantations in later phases during the progressive and final closure of the mine.

11.4.3 Water Environment

Anticipated Impacts

- ❖ 3.5KLD water requirement for drinking, domestic, dust suppression and plantation.
- ❖ The domestic effluents being generated during mine operation.
- ❖ Major impact of opencast mining on groundwater regime is quality deterioration. The proposed mining activities shall be carried out upto a depth of 50m from average ground level. The specific water table depth in the core and buffer zone is between 60m and 65meters below ground level.

Water Balance Chart of the Mine



Mitigation Measures

- ❖ The hard rock itself has very few interconnected pore spaces, limiting the amount of water it can store or transmit. Groundwater flow and storage occur primarily in secondary openings such as joints, cracks and fissures. The thickness of the weathered layer, where more significant porosity can develop, is typically limited to 1-3meters, particularly in low-lying topographic areas. The groundwater in these shallow zones is under unconfined (or water table) conditions, meaning it is directly connected to the surface and not confined by impermeable layers.
- ❖ The storm water discharge coming out of quarries and dump through a network of garland drains is expected to contain solid particles. These solid particles shall be removed by settling in the settling pond before being used for dust suppression and plantation. Hence, there shall be no change in drainage system due to this mining project in buffer zone.
- ❖ Domestic sewage from site office will be discharged in MAK Anaerobic bacteria digestion bio-septic tank. The treated water will be utilized for watering and maintaining the green belt.
- ❖ Groundwater development efforts would need to focus on the weathered and fractured zones near the surface in the buffer zone.
- ❖ Periodic (every 6 month once) analysis of ground water level and quality from the open well OW2 and bore well BW2 as shown in Figure 3.10 to 3.13 to find the change due to quarrying.
- 🏠 The average annual rainfall of the project area is 883.15mm to 1564.32mm and the runoff coefficient factors have been taken as per guidelines of Manual on Norms and Standards for Environmental Clearances by MoEF & CC, Govt. of India.

11.4.4 Air Environment

Anticipated Impact

Anticipated increase of the air pollutants due to quarrying activities have been predicted using AERMOD software. The values of cumulative concentration i.e., background + incremental concentration of pollutant in all the receptor locations are still within the prescribed NAAQ limits without effective mitigation measures. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be controlled further.

Mitigation Measures

Haul Road and Transportation

- ✚ There will be transportation of rough stone from the area to the crusher which is located at a distance of about 3km. Considering average annual production of 398660tons per annum i.e. 1476 tons per day of stone there will be movement of around 89 trucks per day for transportation of the stone. This will create additional traffic load to the road and also additional emission due to vehicular movement.
- ✚ 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 to < 20 km/hr to avoid generation of dust
- ✚ Water sprinkling on haul roads and 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 and reduces pollution.
- ✚ The un-metalled haul roads will be compacted weekly before being put into use.
- ✚ Overloading of tippers will be avoided to prevent spillage.
- ✚ It will be ensured that all transportation vehicles carry a valid PUC certificate.
- ✚ Haul roads and service roads will be graded to clear accumulation of loose materials.

Green Belt

- ✚ Planting of trees all along mine haul roads outside the lease and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of tractors/ tippers.
- ✚ Green belt of adequate width will be developed around the project site.

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 and tipper drivers.
- ✚ Ambient air quality monitoring will be conducted every six months to assess effectiveness of mitigation measures proposed

11.4.5 Noise Environment

Anticipated Impact

- ✚ Mining operations generate significant noise impacting both worker health and nearby communities.
- ✚ These impacts can range from annoyance and sleep disturbance to structural damage and hearing loss. Effective management of noise is crucial to mitigate these adverse effects.

Sources of Noise in Mining:

- ✚ **Drilling and Blasting:** Prolonged exposure to high-intensity noise from drilling and blasting can lead to hearing loss and other auditory problems
- ✚ **Heavy Machinery:** Excavators, haul trucks, and other equipment used in mining operations generate substantial noise.
- ✚ **Loading and Transportation:** The movement and handling of materials within the mine site contribute to noise pollution.

Common Mitigation Measures

The following noise mitigation measures are proposed for control of noise:

- ✚ Optimizing blast design to minimize ground noise.
- ✚ Constructing noise barriers or enclosing noisy equipment can help reduce noise propagation.
- ✚ Proper maintenance and operation of mining equipment can help minimize noise generation.
- ✚ Usage of sharp drill bits while drilling which will help in reducing noise
- ✚ Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders
- ✚ Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained
- ✚ The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system
- ✚ Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise

- ✚ Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise
- ✚ Silencers / mufflers will be installed in all machineries
- ✚ Greenbelt/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

Ground Vibrations

Noise and Vibration:

- ✚ Mining operations generate significant noise and vibration impacting both worker health and nearby communities.
- ✚ These impacts can range from annoyance and sleep disturbance to structural damage and hearing loss. Effective management of noise and vibration is crucial to mitigate these adverse effects.

Sources of Noise and Vibration in Mining:

- ✚ ***Drilling and Blasting:*** A primary source of both noise and ground vibrations, with the intensity dependent on the amount of explosives, atmospheric conditions and proximity to the blast.
- ✚ **Heavy Machinery:** Excavators, haul trucks, and other equipment used in mining operations generate substantial noise.
- ✚ **Loading and Transportation:** The movement and handling of materials within the mine site contribute to noise pollution.

Common Mitigation Measures

- ❖ The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators which reduce the ground vibrations
- ❖ Proper quantity of explosives, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting
- ❖ Adequate safe distance from blasting will be maintained as per DGMS guidelines
- ❖ Blasting shelter will be provided as per DGMS guidelines
- ❖ Blasting operations will be carried out only during day time

- ❖ The charge per delay will be minimized and preferably a greater number of delays will be used per blasts
- ❖ During blasting, other activities in the immediate vicinity will be temporarily stopped
- ❖ Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast
- ❖ A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed
- ❖ A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public
- ❖ Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire
- ❖ The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used
- ❖ The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
- ❖ Appropriate blasting techniques shall be adopted in such a way that the predicted peak particle velocity shall not exceed 0.251mm/s.
- ❖ Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices.

11.4.6 Biological Environment

Anticipated Impact

- ❖ During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.
- ❖ Most of the land in the buffer area is undulating terrain with crop lands, grass patches and small shrubs. Hence, there will be no effect on flora of the region. There are no trees in mine lease area.
- ❖ Carbon released from quarrying machineries and tippers during quarrying would be 892kg per day, 240840kg per year and 2408400kg over ten years.

Mitigation Measures

- ❖ During conceptual stage, the top bench will be re-vegetated by planting local /native species and lower benches will be converted into rainwater harvesting structure following completion of mining activities, which will replace habitat resources for fauna species in this locality over a longer time.

- ❖ None of the plants in the lease area will be cut during operational phase of the mine. we recommend uprooting and planting of the 10 trees along the 7.5 m safety zone to prevent environmental pollution during quarrying. As the survival rate due to uprooting was only 30%, 100 seedlings will be procured at the rate of 10 seedlings per tree and planted in 7.5 m safety zone.
- ❖ Existing roads will be used and new roads will not be constructed to reduce impact on flora.
- ❖ Green belt of adequate width will develop around the project site. Dust catching species like *Alstonia scholaris*, *Bombax ceiba*, *Terminalia arjuna*, *Cassia fistula*, *Bombax ceiba*, *Azadirachta indica*, *Nyctanthes arbor-tristis*, *Psidium guajava*, *Tectona grandis* etc will be planted in green belt.
- ❖ To mitigate carbon emission due to mining activities, we recommend planting trees around the quarry to offset the carbon emission during quarrying. A tree can sequester 29504kg of carbon per year. Therefore, we recommend 500 planting large number of trees around the quarry and near school campuses, government wasteland, roadsides etc.
- ❖ As per the greenbelt development plan as recommended by SEAC (Table 4.14) about 1740 trees (Table 4.15) will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of about 7074000kg of the total carbon.

11.4.7 Socio Economic Environment

Anticipated Impact

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

Mitigation Measures

- ✚ Good maintenance practices will be adopted for all machinery and equipment, which will help to avert potential noise problems
- ✚ Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines
- ✚ Air pollution control measure will be taken to minimize the environmental impact within the core zone

- ✚ For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules
- ✚ Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc., from this project directly and indirectly

11.4.8 Occupational Health

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

11.5 Environment Monitoring Program

Table 11.2 Environment Monitoring Program

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 (1 SW & 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 m 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

11.6 ADDITIONAL STUDIES

11.6.1 Risk Assessment

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. 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 proposed project.

11.6.2 Disaster Management Plan

The objective of the disaster management plan is to make use of the combined resources of the mine and the outside services to:

- ✚ Rescue and treat casualties;
- ✚ Safeguard other people;
- ✚ Minimize damage to property and the environment;
- ✚ Initially contain and ultimately bring the incident under control;
- ✚ Secure the safe rehabilitation of affected area; and
- ✚ Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency.

11.6.3 Cumulative Impact Study

- ✚ The results on the cumulative impact of the two proposed projects on air environment of the cluster do not exceed the permissible limits set by CPCB for air pollutants.
- ✚ The cumulative results of noise for the habitation in consideration do not exceed the limit set by CPCB for residential areas for day time.
- ✚ PPV resulting from two proposed project is well below the permissible limit of Peak Particle Velocity of 5mm/s.
- ✚ The project will allocate Rs. 5,00,000/- towards CER as recommended by SEAC
- ✚ The project will directly provide jobs to 23 local people, in addition to indirect jobs
- ✚ The project will plant 1740 about trees in and around the lease area.
- ✚ The project will add 459PCU per day to the nearby roads.

11.7 Project Benefits

Various benefits are envisaged due to the two proposed mine and benefits anticipated from the proposed project to the locality, neighbourhood, region and nation as a whole are:

- ✚ Direct employment to 23 local people
- ✚ Creation of community assets (infrastructure) like school buildings, village roads/ linked roads, dispensary & health Centre, community Centre, market place etc.,

- ✚ Strengthening of existing community facilities through the Community Development Program
- ✚ Skill development & capacity building like vocational training.
- ✚ Rs. 5,00,000 will be allocated for CER

11.8 ENVIRONMENT MANAGEMENT PLAN

In order to implement the environmental protection measures an amount of **Rs. 28.50Lakhs** as capital cost and recurring cost as **Rs.24.22Lakhs** as recurring cost/ annum is proposed considering present market price for the proposed project. After the adjustment of 5% inflation per year the overall EMP cost for 10 years will be **Rs. 333.01Lakhs** as shown in Table 10.2.

11.9 CONCLUSION:

The environmental impact assessment (EIA) study for a proposed mining operation exposed the potential negative impacts such as

- **Dust emission impact:**

The project is expected to have a negligible impact on overall dust emissions, with levels remaining less than 0.5% of the existing levels.

- **Blasting restriction:**

Blasting with slurry mixtures should be minimized to avoid causing shockwaves and damage to nearby properties and populations.

- **Erosion control measures:**

Terracing, planting vegetation and soil stabilization techniques should be implemented to manage erosion.

- **Dust suppression equipment:**

Dust suppression machines should be readily available on site to minimize dust generation during material handling.

- **Green belt development**

Creating a vegetative barrier that absorbs gaseous and particulate pollutants reduces noise levels and mitigates soil erosion. By planting native tree species with their vast leaf surfaces, green belts effectively reduce pollutant concentrations in the ambient air and improve the aesthetic environment making them crucial for controlling the impacts of activities like proposed mining operations.

- **Comprehensive environmental management:**

All recommended environmental management practices should be implemented throughout the project lifecycle.

CHAPTER XII

DISCLOSURES OF CONSULTANT

The Project Proponent, **S. Ashok Kumar** has engaged **Geo Technical Mining Solutions**, a NABET accredited consultancy for carrying out the EIA study as per the ToR issued.

Address of the consultancy:

No: 1/213B Natesan Complex,
Oddapatti, Dharmapuri – 636705,
Tamil Nadu, India.
Email: info.gtmsdpi@gmail.com
Web: www.gtmsind.com
Phone: 04342 232777.

The accredited experts and associated members who were engaged in this EIA study are given below:

S. No	Name of the expert	In house/ Empanelled	Sector	Functional Area	Category
Approved Functional Area Experts & EC					
1	J.N. Manikandan	EIA Coordinator (EC) Empanelled	1(a)(i)	RH, SHW	B
2	Dr. G. Prabhakaran	In-house, FAE	1(a)(i)	SE	B
3	Dr. R. Arunbalaji	In-house, FAE	1(a)(i)	AQ	B
4	R. Revathy	In-house, FAE	1(a)(i)	WP	B
5	P. Vellaiyan	In-house, FAE	1(a)(i)	HG, GEO	B
6	C. Kumaresan	In-house, FAE	1(a)(i)	NV	B
7	J.N. Manikandan	In-house, FAE	1(a)(i)	AP	B
8	Dr. D. Kalaimurugan	In-house, FAE	1(a)(i)	SC, EB	B
9	G. Kottai Manmadhan	Empanelled	1(a)(i)	LU, LC	B
Approved Functional Area Associates					
9	K. Prithivi	FAA	1(a)(i)	HG	B
10	V. Malavika	FAA	1(a)(i)	NV, SHW	B
11	P. Dhatchayini	FAA	1(a)(i)	AQ	B
12	C. Raghul	FAA	1(a)(i)	Geo, LU	B
Team Member					
1	M. Muralidharan	TM	1(a)(i)	HW, NV	B
2	A. Jothibas	TM	1(a)(i)	AP, AQ	B

Abbreviations			
EC	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 modelling, and prediction	HW	Hazardous Wastes
EB	Ecology and bio-diversity	GIS	Geographical Information System

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA & EMP

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

Signature : 

Date :

Name : **J.N. Manikandan**

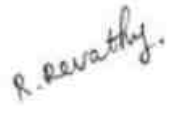
Designation : EIA Coordinator

Name of the EIA Consultant Organization : Geo Technical Mining Solutions

Period of Involvement : Till date

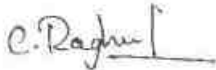
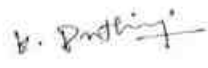
We, the FAEs, FAAs and TM hereby declare that information furnished in this EIA/EMP report for **S. Ashok Kumar**, rough stone and gravel quarry project with the extent of 3.48.0ha situated in the cluster with the extent of 8.87.10ha in Kammarajapuram Village, Walajabad Taluk, Kancheepuram District, and Tamil Nadu is true and correct to the best of our knowledge.

List of Functional Area Experts Engaged in this Project

S. No.	Functional Area	Involvement	Name of the Experts	Signature
1	AP	○ Identification of different sources of air pollution due to the proposed mine activity ○ Prediction of air pollution and propose mitigation measures / control measures	J.N. Manikandan	
2	WP	○ Suggesting water treatment systems, drainage facilities ○ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures.	R. Revathy	
3	HG	○ Interpretation of ground water table and predict impact and propose mitigation measures. ○ Analysis and description of aquifer Characteristics	P. Vellaiyan	
4	GEO	○ 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.	P. Vellaiyan	
5	SE	○ Revision in secondary data as per Census of India, 2011. ○ Impact Assessment & Preventive Management Plan ○ Corporate Environment Responsibility.	Dr.G.Prabhakaran	
6	EB	○ Collection of Baseline data of Flora and Fauna. ○ Identification of species labelled as Rare, Endangered and threatened as per IUCN list.	Dr. D. Kalaimurugan	

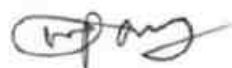
		○ Impact of the project on flora and fauna. ○ Suggesting species for greenbelt development.		
7	RH	○ Identification of hazards and hazardous substances ○ Risks and consequences analysis ○ Vulnerability assessment ○ Preparation of Emergency Preparedness Plan ○ Management plan for safety.	J.N. Manikandan	
8	LU	○ Construction of Land use Map ○ Impact of project on surrounding land use ○ Suggesting post closure sustainable land use and mitigative measures.	G.KottaiManmadhan	
9	NV	○ Identify impacts due to noise and vibrations ○ Suggesting appropriate mitigation measures for EMP.	C. Kumaresan	
10	AQ	○ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. ○ Recommending mitigations measures for EMP	Dr.R. Arun Balaji	
11	SC	○ Assessing the impact on soil environment and proposed mitigation measures for soil conservation	Dr.D. Kalaimurugan	
12	SHW	○ 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.	J.N. Manikandan	

List of Functional Area Associate Engaged in this Project

S.No.	Name	Functional Area	Involvement	Signature
1	C. Raghul	GEO, LU&LC	- Field visits along with FAA - Assistance to FAE in both primary and secondary data collection	
2	K.Prithivi	HG	- Site visit with FAA - Provide inputs & Assisting FAE for HG	
3	P. Dhatchayini	AQ	- Site visit with FAA - Assistance to FAE in collection of both primary and secondary data	
4	V. Malavika	HW, NV	- Site visit with FAA - Assistance to FAE in collection of both primary and secondary data	
Team Member				
1	M. Muralidharan	HW, NV	- Site visit with FAE - Assistance to FAE in collection of both primary and secondary data	
2	A. Jothibas	AP, AQ	- Site visit with FAE - Assistance to FAE in collection of both primary and secondary data	

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, **Dr. S. KARUPPANNAN**, Managing Partner, **Geo Technical Mining Solutions**, hereby, confirm that the above mentioned functional area experts and team members prepared the EIA/ EMP report for **S. Ashok Kumar**, rough stone & gravel quarry project with the extent of 3.48.0ha situated in the cluster with the extent of 8.87.10ha in Kammarajapuram Village, Walajabad Taluk, Kancheepuram District and Tamil Nadu is true and correct to the best of our knowledge.

Signature : 

Date :

Name : **Dr. S. Karuppannan**

Designation : Managing Partner

Name of the EIA Consultant Organization : Geo Technical Mining Solutions

NABET Certificate No & Issue Date : NABET/EIA/23-26/RA 0319

Validity : Till 31.12.2026



File No: 13267
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA),
TAMIL NADU)



Dated: 05/03/2026



To,

S ASHOK KUMAR

S/o.Sekar,No.83, V.V. Kovil Street,Walajabad Taluk,Kancheepuram District - 631605.,TAMIL NADU,
 ashokkumarsekar12@gmail.com

Subject: Grant of Terms of Reference along with Public Hearing under the provision of the EIA Notification 2006-regarding.

Sir/Madam,

Sub: SEIAA, TN - Proposed Rough Stone and Gravel quarry over an extent of 3.48.00 Ha in S.F. Nos. 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C of Kammarajapuram Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu by **Thiru. S. Ashok Kumar** - 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/562475/2026 Dated 02/01/2026.
2. Your application submitted for Terms of Reference dated: 08.01.2026.
3. Minutes of the 675th SEAC-1 meeting held on 04.02.2026.
4. Minutes of the 970th SEIAA meeting held on 26.02.2026.

2. The particulars of the proposal are as below:

(i) TOR Identification No.	TO25B0108TN5329454N
(ii) File No.	13267
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals,1(a) Mining of minerals
(vii) Name of Project	Kammarajapuram Village Rough Stone and Gravel Quarry
(viii) Name of Company/Organization	S ASHOK KUMAR
(ix) Location of Project (District, State)	KANCHIPURAM, TAMIL NADU
(x) Issuing Authority	SEIAA
(xi) Applicability of General Conditions	no

1. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1 (Part A and B) were submitted to the SEIAA for an appraisal by the SEAC under the provision of EIA notification 2006 and its subsequent amendments.
2. The above-mentioned proposal has been considered by SEIAA in the meeting held on 26.02.2026. The minutes of the meeting and all the Application and documents submitted [viz. Form-1 Part A, Part B] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
3. The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations on all technical aspects recommended the proposal for grant of Terms of Reference with public hearing under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).
4. The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the SEAC hereby decided to issue the following Terms of Reference with public hearing for instant proposal of **Thiru. S. Ashok Kumar** under the provisions of EIA Notification, 2006 and as amended thereof.
5. The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.
6. The Terms of Reference with public hearing to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/Regulations or Statutes, as applicable, to the project.
7. This issues with the approval of the Competent Authority.
8. The TORs with public hearing prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

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, Kancheepuram District.
6. Stock File.

Annexure 1

Specific Terms of Reference s for (Mining Of Minerals)

1. Seac Conditions - Site Specific

S. No	Terms of Reference
1.1	1. The PP shall submit the proof/photographic evidence of poultry farm removal as committed during the meeting, during the submission of EIA report. 2. A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster

S. No	Terms of Reference
	through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: - Copy of the agreement forming CMC. - The Organization chart of the Committee with defining the role of the members - The 'Standard Operating Procedures' (SoP) executing the planned activities. 3. The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/video graphic evidence along with the EIA report.

2. Seac Standard Conditions

S. No	Terms of Reference
2.1	- In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: - Original pit dimension - Quantity achieved Vs EC Approved Quantity - Balance Quantity as per Mineable Reserve calculated. - Mined out Depth as on date Vs EC Permitted depth - Details of illegal/illicit mining - Violation in the quarry during the past working. - Quantity of material mined out outside the mine lease area - Condition of Safety zone/benches - Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. - 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 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. - 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. - The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report. - 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. - 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. - 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
	of the working is extended beyond 30 m below ground level. 9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent. 10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site. 11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences. 12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? 14. Quantity of minerals mined out. Highest production achieved in any one year Detail of approved depth of mining. Actual depth of the mining achieved earlier. Name of the person already mined in that leases area. If EC and CTO already obtained, the copy of the same shall be submitted. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. 15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone). 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc., 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same. 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment. 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of 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

S. No	Terms of Reference
	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. 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

S. No	Terms of Reference
	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.

3. Seiaa Specific Conditions :

S. No	Terms of Reference
3.1	After detailed discussions, the Authority accepts the recommendation of SEAC-I and decided to grant Terms of Reference (ToR) along with Public Hearing for the quantity of 5,81,360 m³ of Rough Stone and 1,42,240 m³ of Gravel up to the depth of 50m BGL and the annual peak production should not exceed 75,555 m³ of Rough Stone & 86,080 m³ of Gravel as per the approved mining plan, 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-I & normal conditions & the SEIAA Standard conditions.

4. Seiaa Standard Conditions :

S. No	Terms of Reference
4.1	<u>Cluster Management Committee</u> - 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. - 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 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. - 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. - The committee shall deliberate on risk & emergency management plan, fire safety & evacuation plan and sustainable development goals pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan. - The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the Environmental policy devised shall be given in detail in the EIA Report. - The committee shall furnish action plan regarding the restoration strategy with respect to the

S. No	Terms of Reference
	individual quarry falling under the cluster in a holistic manner. 8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity. <u>Agriculture & Agro-Biodiversity</u> 9. Impact on surrounding agricultural fields around the proposed mining Area. 10. Impact on soil flora & vegetation around the project site. 11. Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP. 12. The Environmental Impact Assessment should study the agro-biodiversity, agro- forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. 13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. 14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. <u>Forests</u> 15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife. 16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna. 17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. 18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site. <u>Water Environment</u> 19. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period. 20. Erosion Control measures. 21. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural Environment, by the activities. 24. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts. 25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: - 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. <u>Energy</u> 28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently

S. No	Terms of Reference
	utilise the Energy shall be furnished. <u>Climate Change</u> 29. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities. 30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features. 31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood. <u>Mine Closure Plan</u> 32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued. <u>EMP</u> 33. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs. 34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan. <u>Risk Assessment</u> 35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining. <u>Disaster Management Plan</u> 36. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued. <u>Others</u> 37. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc. 38. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan. 39. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the Environment. The ecological risks and impacts of plastic & microplastics on aquatic Environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994

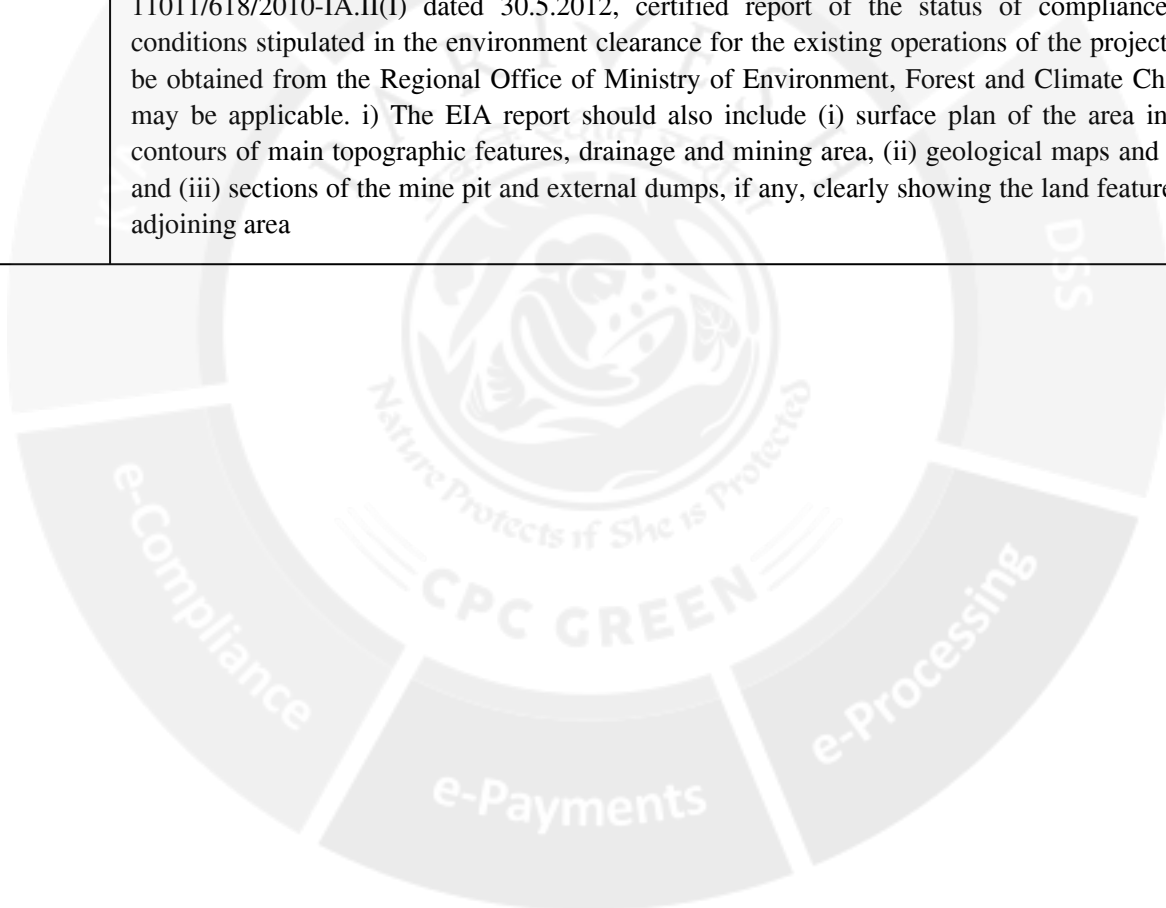
S. No	Terms of Reference
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given
1.3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee
1.4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone)
1.5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics
1.6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority
1.7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report
1.8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided
1.9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period
1.10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given
1.11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given
1.12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it

S. No	Terms of Reference
	would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees
1.13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished
1.14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated
1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given
1.16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted
1.17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished
1.18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost
1.19	Proximity to Areas declared as Critically Polluted or the Project areas likely to come under the Aravali Range, (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered
1.20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority)
1.21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in

S. No	Terms of Reference
	the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report
1.22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given
1.23	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map
1.24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated
1.25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided
1.26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided
1.27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided
1.28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished
1.29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out
1.30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same
1.31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating

S. No	Terms of Reference
	the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution
1.32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report
1.34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report
1.35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed
1.36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations
1.37	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation
1.38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project
1.39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project
1.40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out
1.42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report
1.43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc

S. No	Terms of Reference
1.44	Besides the above, the below mentioned general points are also to be followed:- a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed. g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation. h) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable. i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area



A. STANDARD TERMS OF REFERENCE

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

proposed safeguard measures in each case should also be provided.

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

the Standing Committee of National Board of Wildlife and copy furnished.

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

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

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

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

proposed Project.

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

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

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

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

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

increase in the above study shall be substantiated with mitigation measures.

14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

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

From

Tmt. S. Safiya, M.Sc.,
Assistant Director,
Dept of Geology and Mining,
Kancheepuram.

To

Thiru. S. Ashok kumar,
S/o. Sekar,
No.83, V.V. Kovil Street,
Walajabad Taluk,
Kancheepuram District-631605

Roc.No.342/Mines/2025 Dated:03.12.2025

Sir,

Sub: Quarries and Minerals – Minor Mineral - Rough Stone and Gravel – Kammarajapuram Village - Patta land in S.F.Nos. 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C - over an extent of 3.48.00 Hectares of patta lands - Application preferred by Thiru. S. Ashok kumar- Other quarries situated in 500 mtrs radial distance - Details furnished - reg.

- Ref:**
- 1 Application preferred by Thiru. S. Ashok kumar application dated 11.07.2025
 - 2 This Office Memorandum Letter No. 342/Mines/2025 dated 27.11.2025.
 - 3 Draft Mining plan submitted by Thiru. S. Ashok kumar dated 28.11.2025.
 - 4 Thiru. S. Ashok kumar letter dated:28.11.2025.
 - 5 Mining plan approved by the Assistant Director of Geology and Mining, Kancheepuram vide Letter.No.342/Mines/2025 dated:03.12.2025.

Kind attention is invited to the references cited above.

2. Thiru. S. Ashok kumar has preferred an application for quarrying Rough stone and Gravel over an extent of 3.48.00 Hectares of patta land in S.F.Nos. 290/1A (0.39.00), 290/2B1 (0.30.50), 291/1A (0.14.00), 291/1B (0.13.50), 291/1C1 (0.21.50), 291/1C2 (0.06.00), 291/1D1 (0.16.50), 291/1D2 (0.06.00), 291/2A (0.17.50), 291/2B (0.19.00), 291/2D (0.16.50), 292/1A (0.44.50), 292/1B (0.44.50), 292/2A (0.19.50), 292/2B



(0.20.00) & 292/2C (0.19.50) in Kammarajapuram Village, Walajabad Taluk, Kancheepuram District for a period of 15 years under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959. In this regard, based on the recommendation of the Sub-Collector, Kancheepuram and Assistant Geologist (Mines), Kancheepuram precise area communication was issued for an extent of 3.48.00 hectares for a period of 10 years vide memo dated: 27.11.2025 with a direction to submit approved mining plan and Environment Clearance.

3. Accordingly, Thiru. S. Ashok kumar has submitted three copies of draft Mining Plan vide letter dated: 28.11.2025 and the same has been examined in detail and approved by Assistant Director of Geology and Mining, Kancheepuram vide Letter.No.342/Mines/2025 dated. 02.12.2025.

4) In this connection, Thiru. S. Ashok kumar vide letter dated.01.12.2025 has requested the details of other quarries situated within 500 meters radial distance from the subject quarry.

5) As requested by the applicant, the details of existing, abandoned/old and Proposed/applied quarries within 500 radial distance are tabulated below:-

I. Details of Existing quarries.

Sl. No	Name of the Lessee	Village and Taluk	SF.No	Extent in Hect	GO.No./Proceeding No. & Date	Lease Period
-NIL-						

II. Details of abandoned/Old quarries.

Sl. No	Name of the Lessee	Village	SF.No	Extent in Hect	GO.No./Proceeding No. & Date	Lease Period
-NIL-						



III. Details of other Proposed/applied quarries

Sl. No	Name of the lessee	Name of the Mineral	Village & Taluk	S.F No.	Extent in Het	Lease period.
1.	Thiru. S. Ashok kumar, S/o. Sekar, No.83, V.V. Kovil Street, Walajabad Taluk, Kancheepuram -631605	Rough stone and Gravel	Kammarajapuram Walajabad	290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C	3.48.00	Proposed quarry
2.	Thiru. B. Rajinikanth S/o. Bakthavachalam, No.1451, Chinna Obulapuram, Periya Obulapuram, Kummudipoondi Taluk Thiruvallur District- 601201.	Rough stone and Gravel	Kammarajapuram Walajabad	287/1A1, 287/1A2, 287/1A3, 287/1B1, 287/1B2, 287/2, 287/3, 288/1A, 288/1B, 288/1C, 288/1D, 288/1E, 288/1F, 288/1G, 288/1H, 288/2, 288/3A, 288/3B, 288/4A, 288/4B	5.39.00	New Proposal


 Assistant Director,
 Dept. of Geology and Mining,
 Kancheepuram.

Copy to :-

The Chairman, Tamil Nadu State Environment
 Impact Assessment Authority,
 3rd Floor, Panakal Maligai,
 No. 1 Jeenes Road,
 Saidapet, Chennai -15.





Annexure- III

From

Tmt. S. Safiya, M.Sc.,
Assistant Director,
Dept of Geology and Mining,
Kancheepuram.

To

Thiru. S. Ashok kumar,
S/o. Sekar,
No.83, V.V. Kovil Street,
Walajabad Taluk,
Kancheepuram District-631605.

Rc.No.342/Mines/2025, Dated.03.12.2025.

Sir,

Sub: Quarries and Minerals – Minor Mineral - Rough Stone and Gravel – Kancheepuram District – Walajabad Taluk – Kammarajapuram Village - Patta land in S.F.Nos. 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C - over an extent of 3.48.00 Hectares of patta lands - Application preferred by Thiru. S. Ashok kumar - Precise area communicated - Draft Mining Plan submitted - Approved - reg.

- Ref:**
1. Application preferred by Thiru. S. Ashok kumar application dated 11.07.2025
 2. This Office Memorandum Letter No. 342/Mines/2025 dated 27.11.2025.
 3. Draft Mining plan submitted by Thiru. S. Ashok kumar dated 28.11.2025.

Kind attention is invited to the references cited above.

2. Thiru. S. Ashok kumar has preferred an application for quarrying Rough stone and Gravel over an extent of 3.48.00 Hectares of patta land in S.F.Nos. 290/1A (0.39.00), 290/2B1 (0.30.50), 291/1A (0.14.00), 291/1B (0.13.50), 291/1C1 (0.21.50), 291/1C2 (0.06.00), 291/1D1 (0.16.50), 291/1D2 (0.06.00), 291/2A (0.17.50), 291/2B (0.19.00), 291/2D (0.16.50), 292/1A (0.44.50), 292/1B (0.44.50), 292/2A (0.19.50), 292/2B (0.20.00) & 292/2C (0.19.50) in Kammarajapuram Village, Walajabad Taluk, Kancheepuram District for a period of 15 years under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959. In this regard, based on the recommendation of the Sub-Collector, Kancheepuram and Assistant



Geologist (Mines), Kancheepuram precise area communication was issued for an extent of 3.48.00 hectares for a period of 10 years vide memo dated: 27.11.2025 with a direction to submit approved mining plan and Environment Clearance.

3. Accordingly, Thiru. S. Ashok kumar had submitted three copies of draft Mining Plan vide letter dated: 28.11.2025 and the same has been examined in detail and it is found correct.

4. As per the mining plan the year wise production for the proposed Ten years is detailed below.

	Year	Mineable Reserves	
		Rough Stone (MT)	Gravel (MT)
Ten years	1 st Year	207776	172160
	2 nd year	191042	112320
	3 rd year	180593	0
	4 th year	180125	0
	5 th year	180757	0
	6 th year	124410	0
	7 th year	131161	0
	8 th year	133086	0
	9 th year	137610	0
	10 th year	132180	0
	Total	1598740	284480

5. Hence, as per the power delegated under Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the guidelines/instructions issued by the Commissioner of Geology and Mining, vide letter Rc.No.3868/LC/2012 dated 19.11.2012, the said draft mining plan submitted by the applicant is hereby approved subject to the following conditions.

i) 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.

ii) This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act 1957, or any other connected Laws Industry Forest (Conservation) Act 1980, Forest Conservation Rules 1981 Environment protection Act 1980, Indian Explosive Act 1884 (Central Act IV of 1884) and the rules made there under, Minor Mineral Conservation and Development Rules, and The Tamil Nadu Minor Mineral Concession rules, 1959.

iii) That the mining plan is approved without prejudice to any other order or directions from any court of competent jurisdiction.

iv) All the conditions mentioned in the precise area letter should be followed during quarry operation as per rules.

v) The applicant should get prior Environmental clearance from the appropriate authority and same has to be submitted to the Assistant Director, Geology and Mining, Kancheepuram.

[Signature]
02/12/2015
Assistant Director
Dept of Geology and Mining,
Kancheepuram.

Copy submitted to

1. The Director,
Dept of Geology and Mining,
Guindy, Chennai -32.
2. The Chairman, Tamil Nadu State Environment
Impact Assessment Authority,
3rd Floor, Panakal Maligai,
No. 1 Jeenes Road, Saidapet, Chennai -15

[Signature]
02/12/15

[Signature]

MINING PLAN



FOR

**KAMMARAJAPURAM VILLAGE ROUGH STONE AND GRAVEL MINING LEASE WITH
PROGRESSIVE QUARRY CLOSURE PLAN**

Patta land /Open Cast-Semi-Mechanized Mining/Non- Forest/Non-Captive Use

Lease period 10 Years from the date of lease execution

(Prepared under rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959)

LOCATION OF THE LEASE AREA

STATE : TAMILNADU
DISTRICT : KANCHEEPURAM
TALUK : WALAJABAD
VILLAGE : KAMMARAJAPURAM
EXTENT : 3.48.00Hectares
S.F. No's : 290/1A, 290/2B1, 291/1A, 291/1B,
291/1C1, 291/1C2, 291/1D1, 291/1D2,
291/2A, 291/2B, 291/2D, 292/1A,
292/1B, 292/2A, 292/2B & 292/2C

ADDRESS OF THE APPLICANT

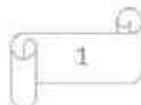
S. ASHOK KUMAR,

S/o. Sekar,
No. 83, V.V. Kovil Street,
Walajabad Taluk,
Kancheepuram District - 631605.

PREPARED BY

P.VELLAIYAN, M.Sc., M.Phil.,

Qualified Person
D.No.6-106-B, Athirampatti Village,
Amaragundhi Panchayat & Post,
Omalur Taluk,
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S. Ashok Kumar



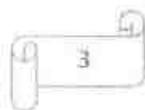
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LIST OF PLATES

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1	Key Map	I	Not to scale
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S.Ashok Kumar,
 S/o. Sekar,
 No. 83, V.V. Kovil Street,
 Walajabad Taluk,
 Kancheepuram District - 631605.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of rough stone and gravel quarry lease in patta land at S.F.No's: 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C, over an extent of 3.48.00hectares of Kammarajapuram Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu State has been prepared by

P. VELLAIYAN. M.Sc., M.Phil., (QUALIFIED PERSON)

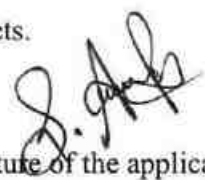
I request "The Assistant Director", Department of Geology and Mining, Kancheepuram District to make further correspondence regarding modifications of the Mining Plan with the said Qualified Person on this following address,

P.VELLAIYAN, M.Sc., M.Phil.,
 Qualified Person
 D.No.6-106-B, Athirampatti Village,
 Amaragundhi Panchayat & Post,
 Omalur Taluk,
 Salem District-636 503.
 Mob: 9751256465
 E-mail: pvellaiyangp@gmail.com.

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

Place: Kancheepuram, TN.

Date:


 Signature of the applicant
 (S. Ashok Kumar)

S. Ashok Kumar,
S/o. Sekar,
No. 83, V.V. Kovil Street,
Walajabad Taluk,
Kancheepuram District - 631605.

DECLARATION

The Mining Plan in respect of rough stone and gravel quarry lease in Patta land at S.F.No's: 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C over an extent of 3.48.00hectares of Kammarajapuram Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu State have been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Place: Kancheepuram, TN.
Date:


Signature of the applicant
(S. Ashok Kumar)



P.VELLAIYAN, M.Sc., M.Phil.,

Qualified Person

D.No.6-106-B, Athirampatti Village,

Amaragundhi Panchayat & Post,

Omalur Taluk, Salem District-636 503.

Mob: 9751256465

E-mail: pvellaiyangp@gmail.com,

CERTIFICATE

This is to certify that, the provisions of 19(1) & 20 Tamil Nadu Minor Minerals Concession Rules, 1959 have been observed in the Mining Plan for the grant of rough stone and gravel quarry lease in S.F.No's: 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C, over an extent of 3.48.00hectares of Kammarajapuram Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu State granted to **Mr. S. Ashok Kumar**, Kancheepuram District.

Wherever specific permission / exemptions / relaxations or approvals are required, the applicant will approach the concerned authorities of State and Central governments for granting such permissions etc.

Place: Salem, TN

Date: 28/11/28


Signature of the Qualified Person

P.VELLAIYAN, M.Sc., M.Phil.,
Qualified Person
D.No. 6-106-B, Athirampatti (Vill),
Amaragundhi Panchayat & Post,
Omalur Taluk, Salem District - 636503.





P.VELLAIYAN, M.Sc., M.Phil.,

Qualified Person

D.No.6-106-B, Athirampatti Village,

Amaragundhi Panchayat & Post,

Omalur Taluk, Salem District-636 503.

Mob: 9751256465

E-mail: pvellaiyangp@gmail.com,

CERTIFICATE

I certify that, in preparation of Mining Plan for rough stone and gravel quarry lease in S.F.No's : 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C, over an extent of 3.48.00hectares of Kammarajapuram Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu State prepared to **Mr. S. Ashok Kumar**, Kancheepuram District, covers all the provisions of Mines Act, Rules, and Regulations etc., made there under and whenever specific permission are required, the applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Place: Salem, TN

Date: 28/11/22

Signature of the Qualified Person

P. VELLAIYAN, M.Sc., M.Phil.,
Qualified Person
D.No. 6-106-B, Athirampatti (Vill),
Amaragundhi Panchayat & Post,
Omalur Taluk, Salem District - 636503



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MINING PLAN

FOR KAMMARAJAPURAM VILLAGE ROUGH STONE AND GRAVEL MINING

LEASE WITH PROGRESSIVE QUARRY CLOSURE PLAN

Patta land / Open cast-Semi-Mechanized Mining/ Non-forest/ Non-Captive Use

Lease period 10 Years from the date of lease execution

(Prepared under rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959)

INTRODUCTORY NOTES:

- a) **Introduction:** The Mining plan with progressive quarry closure plan is prepared for **Mr. S. Ashok Kumar**, S/o. Sekar, No.83, V.V. Kovil Street, Walajabad Taluk, Kancheepuram -631605, Tamilnadu State and filed with onl ne application for new proposals has submitted to the Department of Geology and Mining (ADG & M), Kancheepuram, dated 11.07.2025 had requested to grant the quarry lease for rough stone and gravel in S.F.No's: 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C over an extent of 3.48.00hectares of Kammarajapuram Village, Walajabad Taluk, Kancheepuram District, Tamil Nadu State.
- b) **The Precise area communication letter:** The Assistant Director, Department of Geology and mining, Kancheepuram has directed to the applicant **Mr. S. Ashok Kumar** through his precise area communication letter vide **Roc.No. 342/Mines/2025, Dated: 27.11.2025**, for quarrying lease rough stone and gravel at Tamil Nadu State, Kancheepuram District, Walajabad Taluk, Kammarajapuram Village in S.F.No's: : 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C over an extent of 3.48.00hectares has recommended as following conditions for a period of Ten (10) years under Rule 19(1) & 20 Tamil Nadu Minor Mineral concession rules, 1959.
 - i. The mining Plan approved as per Rules No. 41 and 42 of the Tamil Nadu Minor Mineral Concession Rules, 1959, the Environmental Impact Assessment Commission's No Objection Certificate should be obtained and submitted.
 - ii. Quarrying work should be carried out with a safety distance of 10 meters and 7.5 meters respectively for the Government poromboke and Patta lands adjacent to the applied lease area.
 - iii. Two low-voltage power lines run north-south across the field for which permission is being requested. Before excavation work begins, proper

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permission must be obtained and the power lines running through the field must be relocated.

- iv. Since there is grazing land in field no. 285 near the application fields, quarrying should be carried out without any encroachment and with appropriate safety clearance.
 - v. There are approximately 6 palm trees and 3 coconut trees in the area for which permission is sought. In case of removal of the above palm trees, appropriate permission must be obtained and removed.
- c) **Preparation and Submission of Mining Plan:** The Mining Plan with progressive quarry closure plan has been prepared under rule 41 and submitted under rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 for mining lease as per conditions mentioned in the precise area communication letter **Roc.No. 342/Mines/2025, Dated: 27.11.2025.**
- d) **Geological resources and Mineable reserves:** Geological resource of estimated as **1737050m³ / 4646608.5MT** (Note: MT = Metric Ton) including the resources of safety zone, gravel etc. Of which, rough stone resources of about **1563345m³ / 4299198.75MT** and gravel is **173705m³/347410MT**. The total mineable reserve is estimated to be **723600m³ / 1883220MT** by deducting the reserve safety zone, block in benches from the total Geological resources. of which, rough stone is about **581360m³ / 1598740MT** and gravel is **142240m³ / 284480MT** up to a depth of 50m below ground level (Refer Plate No. IIIA & IVA).
- e) **Proposed Production Schedule:** Total proposed production of rough stone is **581360m³ / 1598740MT** and gravel is **142240m³ / 284480MT** up to a depth of 50m below ground level for ten years plan period. (Refer Plate No. VIA).
- f) **Environmental Sensitivity of the proposed lease area: -**
- i). **Interstate boundary:** There is no interstate boundary around 10Km radius periphery of proposed lease area.
 - ii). **Wildlife Sanctuaries any:** There is no wild life sanctuary situated around 10km radius from the lease area.
 - iii). **Forest (conservation) Act, 1980:** No forest land granted for quarrying and there is no reserve forest around 60m radius.
 - iv). **CRZ Notification, 2019:** There is no Sea coastal zone found within radius of 10km and this project site doesn't attract CRZ Notification, 2019.

h) Environmental measures to be adopted during the ongoing activity period,

- 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.
- Green Belt/ Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise.
- 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.
- And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.

1.0 GENERAL:

a.	Name of the Applicant	:	Mr. S. Ashok Kumar,
	Applicant address	:	S/o. Sekar, No. 83, V.V. Kovil Street, Walajabad Taluk, Kancheepuram District - 631605.
	District	:	Kancheepuram.
	State	:	Tamilnadu
	Pin code	:	631605
	Phone	:	+91 7708809384
	Fax	:	Nil
	Gram	:	Nil
	Telex	:	Nil
	E-mail	:	.....
b.	Status of the Applicant		
	Private individual	:	Private Individual
	Cooperative Association	:	---
	Private company	:	---
	Public Company	:	--
	Public Sector Undertaking	:	---
	Joint Sector Undertaking	:	---
	Other (pl. specify)	:	---

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c.	Mineral(s) Which are occurring in the area and which the applicant intends to mine	:	Rough Stone and Gravel Quarry Lease
d.	Period for which the mining lease granted /renewed/ proposed to be applied	:	The precise area has been communicated to the applicant for quarrying period of Ten (10) Years.
e.	Name of the QP preparing the Mining Plan	:	P.VELLAIYAN, M.Sc., M.Phil.,
	Address	:	D.No.6-106-B, Athirampatti Village, Amaragundhi Panchayat & Post, Omalur Taluk, Salem District-636 503.
	Phone	:	+91 9751256465
	Fax	:	Nil
	e-mail	:	pvellaiyangp@gmail.com
	Telex	:	Nil
f.	Reference No. and date of consent letter from the state government	:	The precise area communication letter issued by the Deputy Director (i/c), Department Geology and Mining, Kancheepuram vide Roc.No. 342/Mines/2025, Dated: 27.11.2025.

2.0 LOCATION AND ACCESSIBILITY:

a.	Details of the Area:	:	Refer plate no: IA & IB				
	District & State	:	Kancheepuram, Tamil Nadu				
	Taluk	:	Walajabad				
	Village	:	Kammarajapuram				
Khasra No./ Plot No./ Block Range/ Felling Series etc.:							
S.No	Survey No	Sub Division	Total Extent in Hect	Patta No.	Village and Name of the Land Owner	Mine lease Applied S.F.No.	Mine lease Applied area out of total area in hect.
1	290	1A	0.39.00	1468	Ashokkumar	290/1A	0.39.00
2	290	2B1	0.30.50		S/o Sekar	290/2B1	0.30.50
3	291	1A	0.14.00	1292	Vinayagam	291/1A	0.14.00
4	291	1B	0.13.50		S/o. Krishna	291/1B	0.13.50
5	291	1C1	0.21.50		Nayakkar	291/1C1	0.21.50
6	291	1C2	0.6.00	1294	Tirumalai	291/1C2	0.6.00
					S/o. Krishna		
					Nayakkar		



7	291	1D1	0.16.50	1292	Vinayagam S/o. Krishna Nayakkar	291/1D1	0.16.50
8	291	1D2	0.6.00	1294	Tirumalai S/o. Krishna Nayakkar	291/1D2	0.6.00
9	291	2A	0.17.50			291/2A	0.17.50
10	291	2B	0.19.00			291/2B	0.19.00
11	291	2D	0.16.50			291/2D	0.16.50
12	292	1A	0.44.50	1468	Ashokkumar S/o Sekar	292/1A	0.44.50
13	292	1B	0.44.50			292/1B	0.44.50
14	292	2A	0.19.50			292/2A	0.19.50
15	292	2B	0.20.00			292/2B	0.20.00
16	292	2C	0.19.50			292/2C	0.19.50
Total			3.48.00				3.48.00
Lease area (hectares)				:	3.48.00 Hectares		
Whether the area is recorded to be in forest (please specify whether protected, reserved, etc)				:	The proposed lease area is recorded as patta land. Copy of land documents are enclosed. (Ref. Anne. No's: IV & V)		
Ownership / Occupancy				:	This is a patta land S.F.No's. 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C is registered on the name of Ashokkumar S/o. Sekar, Vinayagam S/o. Krishna Nayakkar & Tirumalai S/o. Krishna Nayakkar vide patta no. 1468, 1492 & 1494.		
Existence of Public Road / Railway line if any nearby and approximate distance				:	✓ Exploited quarry materials will be transported through the approach road is situated on the east side. ✓ There is an MDR- 132B is situated on the Northeastren side about 4.81km which is connecting kancheepuram-Chengalpattu Road.		
Toposheet No. with latitude and longitude				:	Toposheet No. 57- P/13 & 57- P/14 Latitude: From 12°44'59.17"N to 12°45'5.56"N Longitude: From 79°47'48.19"E to 79°47'56.83"E		



Geo-Coordinates of the lease boundary:

PILLAR ID	LATITUDE	LONGITUDE	PILLAR ID	LATITUDE	LONGITUDE
1	12°45'5.39"N	79°47'56.83"E	10	12°45'0.70"N	79°47'48.68"E
2	12°45'1.09"N	79°47'56.04"E	11	12°45'1.80"N	79°47'48.77"E
3	12°45'1.25"N	79°47'55.46"E	12	12°45'1.78"N	79°47'48.19"E
4	12°45'1.45"N	79°47'52.55"E	13	12°45'5.28"N	79°47'48.84"E
5	12°45'0.36"N	79°47'52.73"E	14	12°45'4.98"N	79°47'51.00"E
6	12°45'0.34"N	79°47'52.48"E	15	12°45'5.18"N	79°47'52.85"E
7	12°44'59.17"N	79°47'52.32"E	16	12°45'5.56"N	79°47'55.18"E
9	12°44'59.44"N	79°47'49.39"E			

Land use pattern (Forest, Agricultural, Grazing, Barren etc.)

:

It is an barren Land.

- b. *Attach a general location and vicinity map showing area boundaries and existing and proposed access routs. It is preferred that the area to be marked on a survey of India topographical map or a cadastral map or forest map as the case may be. However if none of these are available, the area should be shown on an accurate sketch map on scale of 1 : 5000.*

:

Refer plate no- IA & IB

i) INFRASTRUCTURE AND COMMUNICATION:

S.No	Description	Place	Distance	Direction
a.	Nearest post office	Thammanur	2.10Km	Northeast
b.	Nearest police station	Walajabad	4.90km	Northeast
c.	Nearest fire station	Kancheepuram	12.88km	Northwest
d.	Nearest medical facility	Avalur	3.66km	North
e.	Nearest school	Kammarajapuram	1.33km	East
f.	Nearest railway station	Walajabad	5.47km	North
g.	Nearest port facility	Chennai	66.41km	Northeast
h.	Nearest airport	Chennai	46.04km	Northeast
i.	Nearest DSP office	Kancheepuram	13.30km	Northwest
j.	Nearest villages	Thammanur	1.26km	Northeast
		Kammarajapuram	1.13km	East
		Vallimedu	1.07km	South
		Asoor	1.58km	West



PART – A

3.0 GEOLOGY AND MINERAL RESERVES:

(a) Briefly describe the topography and general geology and local/mine geology of the mineral deposit including drainage pattern:

(i)	Topography	:	The proposed lease area is flat topography. The maximum elevation (80m) was observed north side of the site. The slope is towards southern side and falls in Toposheet no. 57- P/13 & 57- P/14						
(ii)	a) Geomorphology: The Kancheepuram area is endowed with a complex geological set up with crystalline rocks occurring in the southern part of the area and the northern part of the area the crystalline rocks occur at depths covered by sedimentary formations ranging from gondwana to recent. The depth at which the crystalline rocks occur progressively increase towards north. The eastern part comprises unconsolidated sediments of fluvio-marine and marine origin. The Precambrian crystalline rocks are represented by charnockites and contain several enclave's mafic granulite. Garnetiferous and biotite gneisses are also encountered as linear bands. b) Soils: The analysis of the soil type reveals that the proposed lease area is predominantly covered by river alluvium is transported and is seen in coastal area. c)Lineaments: The general trend of the gneiss is NE-SW direction and the regional trend observed is NNE- SSW to NW-SE direction. The deposition of Gondwana rocks, the sedimentary rocks, in faulted troughs and in the rugges topography of crystalline rocks took place during jurassic period. The insitu soils laterites and alluvial deposits were deposited along the Palar and Cheyyar rivers during the quaternary period. The data have been checked by field studies and survey of India topographical maps at the 1: 1,00,000 scale. Order of superposition of the proposed lease area, <table><tr><th>Age</th><th>Group</th><th>Rock Formation</th></tr><tr><td>Recent</td><td>Alluvium and beach sands</td><td>Sand, gravel, silt and clay</td></tr></table>			Age	Group	Rock Formation	Recent	Alluvium and beach sands	Sand, gravel, silt and clay
Age	Group	Rock Formation							
Recent	Alluvium and beach sands	Sand, gravel, silt and clay							

	Pleistocene	Laterite, soils, talus	Laterites, sandy clay, silt
	-----Unconformity-----		
	Archean	Charnockite Group	Pyroxene Granulite, Charnockite (acid to intermediate)/ Crystalline limestone / Quartzite
	Lower Cretaceous to Jurassic	Sandstones & Shales	Fine to medium grained sand stone with clay intercalations of greenish soft shale
	Archean	Crystalline formations	Charnockites, granites and associated basic and ultrabasic intrusive
(iii)	Local / Mine Geology of The Mineral Deposit: Topography of the proposed lease area: The applied lease area exhibits an flat topography and The maximum elevation (80m) was observed north side of the site. The rocks exhibits layered, medium to coarse grained hornblende biotite, orthopyroxene charnockite gneiss. The Gravel is obtained the average of 0-5.0m and a rough stone starts from 5.0m to 50m (R.L.80- 30m) from the surface level. The Surface plan showing elevation, contour, accessibility road and Geological map was prepared the proposed lease area. Mode of origin: The Charnockite series originally was assumed to have developed by the fractional crystallization of silicate magma. Subsequent studies have shown, however, that many, if not all, of the rocks are metamorphic, formed by recrystallization at high pressures and moderately high temperatures. Physiography of the rocks: Dark colour and clouding of the feldspars are typical features of these rocks as bluish in quartz. Chemical composition of rocks: Charnockite, any member of a series of metamorphic rocks with variable chemical composition, the term is often limited to the characteristic ortho pyroxene granite of the series. The alkali feldspar may be intermediate between microcline and orthoclase, the fine micro perthitic texture being common.		

Order of superposition of the proposed lease area,		
	Age	Group
	Recent to Sub recent	----
	Archaean	Charnockite Group
		Rock Formation
		Fine to medium grained clayey soil
		Charnockites.
(iv)	Drainage Pattern	: There is no major river found within 50m radius. The drainage in the area is sub-dendritic in nature.
(b)	<i>The topographic plan of the lease area prepared on a scale of 1 : 1000 or 1 : 2000 with contour interval of 3 to 10m depending upon the topography of the area should be taken as the base plan for preparation of geological plan. The details of exploration already carried out including evidences of mineral existence should be shown on the geological plan:</i>	
	a. Present status:	: The QP examined the surface features during survey. It is a fresh quarry lease.
	b. Surface Plan	: Surface plan showing elevation contour and accessibility road was prepared at the scale of 1: 1000, as shown in Plate No. III.
(c)	Geological sections should be prepared at suitable intervals on a scale of 1: 1000 / 1: 2000:	: Longitudinal and transverse geological cross sections were prepared at the horizontal scale of 1: 1000 and at the vertical scale of 1:500, as shown in Plate No. IIIA
(d)	<i>Broadly indicate the Yearwise future programme of exploration, taking into consideration the future production programme planned in next five years as in table below:-</i> No future programmed proposed in this area. Its massive homogeneous parent rock. Hence exploration proposal is not required to this mining project.	
(e) Indicate geological and recoverable reserves and grade, duly supported by standard method of estimation and calculations along with required sections (giving split up of various categories i.e. proved, probable, possible). Indicate cut-off grade. Availability of resources should also be indicated for the entire leasehold. The geological resources were computed by cross section method with respect to the boundaries of the lease area. In this method, the lease area was divided into three longitudinal and three transverse section to calculate the volume of material up to the depth of 50m below ground level for ten years plan period. (Refer Plate No. III & IIIA). The one longitudinal and one transverse cross section were assigned XY-AB as respectively. Using the cross-sectional method, total reserve is estimated to be 1737050m³ / 4646608.5MT including the resources of safety zone, and gravel, etc. Of which, rough stone resources of about 1563345m³ / 4299198.75MT and gravel is 173705m³/347410MT .		

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Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in M ³	Rough Stone in M ³	Gravel in M ³	Bulk Density	Rough Stone in (MT)	Gravel in (MT)
XY-AB	I	124	103	5	63860		63860	2		127720
	II	124	103	5	63860	63860		2.75	175615	
	III	124	103	5	63860	63860		2.75	175615	
	IV	124	103	5	63860	63860		2.75	175615	
	V	124	103	5	63860	63860		2.75	175615	
	VI	124	103	5	63860	63860		2.75	175615	
	VII	124	103	5	63860	63860		2.75	175615	
	VIII	124	103	5	63860	63860		2.75	175615	
	IX	124	103	5	63860	63860		2.75	175615	
	X	124	103	5	63860	63860		2.75	175615	
TOTAL					638600	574740	63860		1580535	127720
XY-CD	I	116	119	5	69020		69020	2		138040
	II	116	119	5	69020	69020		2.75	189805	
	III	116	119	5	69020	69020		2.75	189805	
	IV	116	119	5	69020	69020		2.75	189805	
	V	116	119	5	69020	69020		2.75	189805	
	VI	116	119	5	69020	69020		2.75	189805	
	VII	116	119	5	69020	69020		2.75	189805	
	VIII	116	119	5	69020	69020		2.75	189805	
	IX	116	119	5	69020	69020		2.75	189805	
	X	116	119	5	69020	69020		2.75	189805	
TOTAL					690200	621180	69020		1708245	138040
XIY1- AB	I	115	71	5	40825		40825	2		81650
	II	115	71	5	40825	40825		2.75	112268.75	
	III	115	71	5	40825	40825		2.75	112268.75	
	IV	115	71	5	40825	40825		2.75	112268.75	
	V	115	71	5	40825	40825		2.75	112268.75	

XY-CD	I	108	104	5	56160	.....	56160	2	.....	112320
	II	103	94	5	48410	48410	.....	2.75	133127	.....
	III	98	84	5	41160	41160	.....	2.75	113190	.....
	IV	93	74	5	34410	34410	.....	2.75	94628	.....
	V	88	64	5	28160	28160	.....	2.75	77440	.....
	VI	83	54	5	22410	22410	.....	2.75	61627	.....
	VII	78	44	5	17160	17160	.....	2.75	47190	.....
	VIII	73	34	5	12410	12410	.....	2.75	34128	.....
	IX	68	24	5	8160	8160	.....	2.75	22440	.....
	X	63	14	5	4410	4410	.....	2.75	12128	.....
TOTAL					272850	216690	56160		595898	112320
X1Y1- AB	I	98	64	5	31360	.....	31360	2	.....	62720
	II	88	59	5	25960	25960	.....	2.75	71390	.....
	III	78	54	5	21060	21060	.....	2.75	57915	.....
	IV	68	49	5	16660	16660	.....	2.75	45815	.....
	V	58	44	5	12760	12760	.....	2.75	35090	.....
	VI	48	39	5	9360	9360	.....	2.75	25740	.....
	VII	38	34	5	6460	6460	.....	2.75	17765	.....
TOTAL					123620	92260	31360		253715	62720
GRAND TOTAL					723600	581360	142240	.....	1598740	284480



4.0 MINING:

a)	Briefly describe the existing / proposed method for developing / working the deposit with all design parameters. (Note: In case of pocket deposits, sequence of development/working may be indicated on the same plan)	:	The mining operation is open-cast, semi-mechanized method are adopted and on single shift basis only. Under the regulation 106 of the Metalliferous Mines Regulations, 1961, in all open cast workings in hard rock, the benches and sides should be properly benched and sloped. The bench height should not exceed 6m and the bench width should not less than the bench height. The slope of the benches should not exceed 45° from horizontal.																																																																																																												
b)	Indicate quantum of development and tonnage and grade of production expected pit wise as in table below. Total proposed production rough stone is about 581360m³ / 1598740MT and gravel is 142240m³ / 284480MT up to a depth of 50m below ground level for ten years plan period. (Refer Plate No's. VI & VIA). <table><tr><th>Year</th><th>Pit No.(s)</th><th>Topsoil/Overburden (m³)</th><th>ROM (m³)</th><th>Saleable rough stone ((MT) @ 100%</th><th>Rough stone rejects((MT)</th><th>Sub grade/Weathered rock ((MT)</th><th>Saleable Gravel ((MT)</th><th>Rough stone to waste ratio</th></tr><tr><td>I</td><td>I</td><td>...</td><td>161635</td><td>207776</td><td>...</td><td>...</td><td>172160</td><td>...</td></tr><tr><td>II</td><td>I</td><td>...</td><td>125630</td><td>191042</td><td>...</td><td>...</td><td>112320</td><td>...</td></tr><tr><td>III</td><td>I</td><td>...</td><td>65670</td><td>180593</td><td>...</td><td>...</td><td>...</td><td>...</td></tr><tr><td>IV</td><td>I</td><td>...</td><td>65500</td><td>180125</td><td>...</td><td>...</td><td>...</td><td>...</td></tr><tr><td>V</td><td>I</td><td>...</td><td>65730</td><td>180757</td><td>...</td><td>...</td><td>...</td><td>...</td></tr><tr><td>VI</td><td>I</td><td>...</td><td>45240</td><td>124410</td><td>...</td><td>...</td><td>...</td><td>...</td></tr><tr><td>VII</td><td>I</td><td>...</td><td>47695</td><td>131161</td><td>...</td><td>...</td><td>...</td><td>...</td></tr><tr><td>VIII</td><td>I</td><td>...</td><td>48395</td><td>133086</td><td>...</td><td>...</td><td>...</td><td>...</td></tr><tr><td>IX</td><td>I</td><td>...</td><td>50040</td><td>137610</td><td>...</td><td>...</td><td>...</td><td>...</td></tr><tr><td>X</td><td>I</td><td>...</td><td>48065</td><td>132180</td><td>...</td><td>...</td><td>...</td><td>...</td></tr><tr><td>Total</td><td>---</td><td>...</td><td>723600</td><td>1598740</td><td>...</td><td>...</td><td>284480</td><td>...</td></tr></table>			Year	Pit No.(s)	Topsoil/Overburden (m ³)	ROM (m ³)	Saleable rough stone ((MT) @ 100%	Rough stone rejects((MT)	Sub grade/Weathered rock ((MT)	Saleable Gravel ((MT)	Rough stone to waste ratio	I	I	...	161635	207776	...	...	172160	...	II	I	...	125630	191042	...	...	112320	...	III	I	...	65670	180593	...	...	...	...	IV	I	...	65500	180125	...	...	...	...	V	I	...	65730	180757	...	...	...	...	VI	I	...	45240	124410	...	...	...	...	VII	I	...	47695	131161	...	...	...	...	VIII	I	...	48395	133086	...	...	...	...	IX	I	...	50040	137610	...	...	...	...	X	I	...	48065	132180	...	...	...	...	Total	---	...	723600	1598740	...	...	284480	...
Year	Pit No.(s)	Topsoil/Overburden (m ³)	ROM (m ³)	Saleable rough stone ((MT) @ 100%	Rough stone rejects((MT)	Sub grade/Weathered rock ((MT)	Saleable Gravel ((MT)	Rough stone to waste ratio																																																																																																							
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Total	---	...	723600	1598740	...	...	284480	...																																																																																																							
c)	Composite plans and Year wise sections (In case of 'A' class mines):	:	Not applicable. It is a "B" class quarry lease																																																																																																												

YEARWISE PRODUCTION RESERVES											
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M ³	Rough Stone in M ³	Gravel in M ³	Bulk Density	Rough Stone in (MT)	Gravel in (MT)
I	XY-AB	I	114	96	5	54720	.....	54720	2	.....	109440
		II	109	91	5	49595	49595	.....	2.75	136386	.....
	XIYI-AB	I	98	64	5	31360	.....	31360	2	.....	62720
		II	88	59	5	25960	25960	.....	2.75	71390	.....
TOTAL						161635	75555	86080	.....	207776	172160
II	XY-CD	I	108	104	5	56160	.....	56160	2	.....	112320
		II	103	94	5	48410	48410	.....	2.75	133127	.....
	XIYI-AB	III	78	54	5	21060	21060	.....	2.75	57915	.....
TOTAL						125630	69470	56160	.....	191042	112320
III	XY-CD	III	98	84	5	41160	41160	.....	2.75	113190	.....
	XY-AB	III	57	86	5	24510	24510	.....	2.75	67403	.....
TOTAL						65670	65670	0	.....	180593	0
IV	XY-AB	III	47	86	5	20210	20210	.....	2.75	55577	.....
		III	93	74	5	34410	34410	.....	2.75	94628	.....
	XY-CD	V	34	64	5	10880	10880	.....	2.75	29920	.....
		TOTAL				65500	65500	0	.....	180125	0
V	XY-CD	V	49	64	5	15680	15680	.....	2.75	43120	.....
		VI	73	54	5	19710	19710	.....	2.75	54202	.....
		VII	63	44	5	13860	13860	.....	2.75	38115	.....
		VIII	53	34	5	9010	9010	.....	2.75	24778	.....
		IX	43	24	5	5160	5160	.....	2.75	14190	.....
		X	33	14	5	2310	2310	.....	2.75	6352	.....





TOTAL											
VI	XIYI-AB	IV	68	49	5	65730	65730	0	.....	180757	0
		V	58	44	5	16660	16660	.....	2.75	45815	.....
		VI	48	39	5	12760	12760	.....	2.75	35090	.....
		VII	38	34	5	9360	9360	.....	2.75	25740	.....
TOTAL						45240	45240	0	.....	124410	0
VII	XY-AB	IV	99	81	5	40095	40095	.....	2.75	110261	.....
		V	20	76	5	7600	7600	.....	2.75	20900	.....
TOTAL						47695	47695	0	.....	131161	0
VIII	XY-AB	V	74	76	5	28120	28120	.....	2.75	77330	.....
		V	5	64	5	1600	1600	.....	2.75	4400	.....
		VI	10	54	5	2700	2700	.....	2.75	7425	.....
		VI	45	71	5	15975	15975	.....	2.75	43931	.....
TOTAL						48395	48395	0	.....	133086	0
IX	XY-AB	VI	44	71	5	15620	15620	.....	2.75	42955	.....
		VII	84	66	5	27720	27720	.....	2.75	76230	.....
		VII	15	44	5	3300	3300	.....	2.75	9075	.....
		VIII	20	34	5	3400	3400	.....	2.75	9350	.....
TOTAL						50040	50040	0	.....	137610	0
X	XY-AB	VIII	79	61	5	24095	24095	.....	2.75	66262	.....
		IX	74	51	5	18870	18870	.....	2.75	51893	.....
		IX	25	24	5	3000	3000	.....	2.75	8250	.....
		X	30	14	5	2100	2100	.....	2.75	5775	.....
TOTAL						48065	48065	0	.....	132180	0
GRAND TOTAL						723600	581360	142240	.....	1598740	284480

d)	Attach supporting composite plan and section showing pit layouts, dumps, stacks of sub-grade mineral, if any, etc.	:	Composite plan not prepared in this proposed lease area																																																																											
e)	Indicate proposed rate of production when the mine is fully developed and the expected life of the mine and the year from which effected: At this rate of production, the expected life of quarry is calculated as given below: Rough stone: Mineable reserves of rough stone (10 Years) = 581360m³ / 1598740MT Annual Peak production = 75555m³ / 207776 MT Gravel: Mineable reserves of gravel = 142240m³ / 284480 MT																																																																													
f)	Attach a note furnishing a conceptual mining plan for the entire lease period (for "B" category mines) and upto the life of the mine (for "A" category mines) based on the geological, mining and environments considerations:																																																																													
i)	Time frame of completion of mineral exploration program in leasehold area: Give broad description identified potential areas to be covered in the given time frame:	:	Considering the indefinite depth persistence of the rough stone deposit is proved beyond the workable limits about up to a depth of 50m below ground level (R.L.80m to 30m) from the petrogenetic character of the charnockite rock as well as from the actual mining practice in the area and with the current trend of rough stone production the quarry may sustain for 10 years.																																																																											
ii)	Whether ultimate pit limit has been determined and demarcated on surface and geological plan :- The ultimate pit limit has been determined and demarcated in the conceptual plan																																																																													
ii)	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th colspan="6">SECTION XY-AB</th> </tr> <tr> <th>Bench</th> <th>Period</th> <th>Overburden/ Mineral</th> <th>L (m)</th> <th>W (m)</th> <th>D (m)</th> </tr> <tr> <td>I</td> <td rowspan="9">Ten years Period</td> <td>Gravel</td> <td>114</td> <td>96</td> <td>5</td> </tr> <tr> <td>II</td> <td rowspan="8">Rough stone</td> <td>109</td> <td>91</td> <td>5</td> </tr> <tr> <td>III</td> <td>104</td> <td>86</td> <td>5</td> </tr> <tr> <td>IV</td> <td>99</td> <td>81</td> <td>5</td> </tr> <tr> <td>V</td> <td>94</td> <td>76</td> <td>5</td> </tr> <tr> <td>VI</td> <td>89</td> <td>71</td> <td>5</td> </tr> <tr> <td>VII</td> <td>84</td> <td>66</td> <td>5</td> </tr> <tr> <td>VIII</td> <td>79</td> <td>61</td> <td>5</td> </tr> <tr> <td>IX</td> <td>74</td> <td>51</td> <td>5</td> </tr> <tr> <td colspan="5">Total Depth</td> <td>45</td> </tr> <tr> <th colspan="6">SECTION XY-CD</th> </tr> <tr> <th>Bench</th> <th>Period</th> <th>Overburden/ Mineral</th> <th>L (m)</th> <th>W (m)</th> <th>D (m)</th> </tr> <tr> <td>I</td> <td></td> <td>Gravel</td> <td>108</td> <td>104</td> <td>5</td> </tr> </table>			SECTION XY-AB						Bench	Period	Overburden/ Mineral	L (m)	W (m)	D (m)	I	Ten years Period	Gravel	114	96	5	II	Rough stone	109	91	5	III	104	86	5	IV	99	81	5	V	94	76	5	VI	89	71	5	VII	84	66	5	VIII	79	61	5	IX	74	51	5	Total Depth					45	SECTION XY-CD						Bench	Period	Overburden/ Mineral	L (m)	W (m)	D (m)	I		Gravel	108	104	5
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	II	Ten years Period	Rough stone	103	94	5
	III			98	84	5
	IV			93	74	5
	V			88	64	5
	VI			83	54	5
	VII			78	44	5
	VIII			73	34	5
	IX			68	24	5
	X			63	14	5
	Total Depth					50
	SECTION XIYI-AB					
	Bench	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
	I	Ten years Period	Gravel	98	64	5
	II		Rough stone	88	59	5
	III			78	54	5
	IV			68	49	5
V	58			44	5	
VI	48			39	5	
VII	38			34	5	
Total Depth					35	
iii)	Whether the site for disposal of waste rock or an un-saleable material have/ has been examined for adequacy of land and suitability of long term use in the event of continuation of mining activity: -		:	The recovery of rough stone in this quarry is 100%. There is no waste rock will be proposed in this lease area.		
iv)	Whether back filling of pits after recovery of mineral up to techno -economically feasible depth envisaged. If so, describe the broad features of the proposal: -		:	As the depth of persistence of the deposit may likely to continue for further depth, it is proposed not to backfilled the quarry pit.		
v)	Whether post mining land use envisaged: -		:	At the end of mining activities over the quarry pit may be utilized for storage of rain water and may be converted in to dumping yards for solid waste by adopting suitable technologies.		
g)	Open cast mining					
i)	Describe briefly giving salient features of the mode of working (Mechanized, Semi-		:	It is a fresh quarry lease. The mining operation is opencast, semi-mechanized methods are adopted and on single shift basis		



	Mechanized, manual)	only. Under the regulation 106 of the Metalliferous Mines Regulations, 1961 in all opencast workings in hard rock, the benches and sides should be properly benched and sloped. The bench height should not exceed 5m and the bench width should not less than the bench height. The slope of the benches should not exceed 45° from horizontal.																					
ii)	Describe briefly the layout of mine workings, the layout of faces and sites for disposal of overburden/waste. A reference to the plans enclosed under 4(b) and 4(d) will suffice	The rough stone is proposed to quarry at 5m bench height & width conventional opencast semi mechanized quarrying operation using shot hole drilling with the help of tractor mounted compressor attached with jack hammers, smooth blasting and waste and are removal using Hydraulic excavator and loaded directly to the tippers and transported to the needy customer. Bench height = 5mts. Bench width = 5mts.																					
	a. Details of Topsoil/Overburden	No separate of topsoil will be removed.																					
	b. Rough Stone waste and side burden waste:-	The recovery of rough stone in this quarry is 100%. There is no rough stone waste or side burden will be removed.																					
H	Underground Mining	Not applicable																					
i)	Extent of mechanization: Describe briefly including the calculation for adequacy and type of machinery and equipment proposed to be used in different mining operations.																						
	(1) Drilling Machines: Drilling of shot holes will be carried out using tractor mounted compressor and jack hammer. Details of drilling equipment's are given below.																						
	<table border="1"> <thead> <tr> <th>Type</th><th>Nos</th><th>Dia of hole (mm)</th><th>Size / Capacity</th><th>Make</th><th>Motive power</th><th>H.P.</th></tr> </thead> <tbody> <tr> <td>Jack Hammer</td><td>3</td><td>32 mm</td><td>Hand held</td><td>--</td><td>Diesel</td><td>--</td></tr> <tr> <td>Compressor</td><td>2</td><td>---</td><td>Air</td><td>--</td><td>Diesel</td><td>--</td></tr> </tbody> </table>	Type	Nos	Dia of hole (mm)	Size / Capacity	Make	Motive power	H.P.	Jack Hammer	3	32 mm	Hand held	--	Diesel	--	Compressor	2	---	Air	--	Diesel	--	
Type	Nos	Dia of hole (mm)	Size / Capacity	Make	Motive power	H.P.																	
Jack Hammer	3	32 mm	Hand held	--	Diesel	--																	
Compressor	2	---	Air	--	Diesel	--																	
	(2) Loading Equipment:																						
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Hydraulic Excavator	2	2.9- 4.5m ³	--	Diesel	--																		



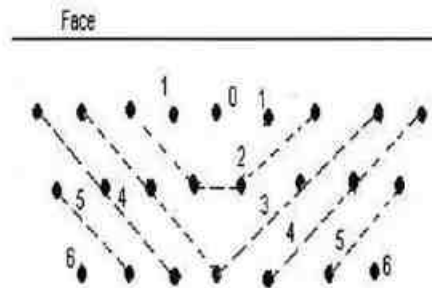
(3) Haulage and Transport Equipment					
(a) Haulage within the mining leasehold:					
Type	Nos	Size / Capacity	Make	Motive power	H.P.
Tipper	10	--	--	Diesel	--
<i>Whether the dumpers are fitted with exhaust conditioner should be indicated:</i> The dumpers not used in this quarry area, hence it's a small "B" category mine.					
b)	Transport from mine head to the destination		Tipper will be used for transport rough stone from the mine head to needy customer.		
c)	Describe briefly the transport system (please specify)		Hydraulic excavator and tippers utilized for internal transport sizeable rough stone lumps and deliver to the customer's area.		
	i) Ore transported by: own trucks / hired trucks		Hired trucks for initially production purposes.		
	ii) Main destination to which ore is transported (giving to and from distance)		The excavated stone materials road metal will be supplied to the consumers like road laying, earth filling, building construction, etc		
a)	Details of hauling / transport equipment:				
	Type	Nos	Size / Capacity	Motive power	H.P.
	--	--	--	--	--
4)	(4). Miscellaneous: Describe briefly any allied operations and machineries related to the mining of the deposit not covered earlier.				
	(A) Operations		The mining operation is open-cast, semi-mechanized methods are adopted and on single shift basis only.		
	(B) Machineries deployed		Machineries like Tractor mounted compressor attached with Jack hammers is proposed to drilling and blasting. Hydraulic Excavators and tipper combination are adapted.		
5.	BLASTING: a) Broad blasting parameters like charge per hole, blasting pattern, charge per delay, maximum number of holes blasted in a round, manner and sequence of firing, etc. Blasting pattern: The quarrying operation is proposed to carried by open cast mining in conjunction with conventional method using jack hammer drilling and blasting for				

shattering effect and loosen the rough stone.

Rough stone production for 10 years = $581360\text{m}^3 / 1598740\text{ MT}$

BLAST DESIGN	
Blasthole Diameter (D) in mm	32
Burden (B) in m	1.2
Spacing (S) in m	1.38
Subdrill in m	0.5
Charge length (C) in m	0.70
Stemming	0.5
Hole Length (L) in m	1.2
Bench Height (BH) in m	2.5
Mass of explosive/hole in g	437.5
Stemming material size in mm	3.2
Burden stiffness ratio	2.08
Blast volume/hole in m^3	4.14
Production of rough stone/day in m^3	208
Number of blast holes/day	50
Number of blast round/day	2
Blasthole pattern	Staggered
Mass of explosive /day in kg	21.94
Powder factor in kg/m^3	0.11
Loading density	0.63
Type of explosives	Slurry
Diameter of packaging in mm	25
Initiation system	NONEL

Note: If $>2\text{kg}$ of explosives per day use for blasting if proponent get the permission from the DGMS



Staggered method of mining

b) Type of explosives used / to be used:

Following explosives are recommended for efficient blasting with safe practice.

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.

c) Measures proposed to minimize ground vibration due to blasting:

The control blasting measures is being adopted for minimizing ground vibration and fly rock.

Shallow depths jack hammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give hearing effect in rough stone for easy excavation and to control fly rock.

Delay detonators:

Delay blasting permits to divide the shot 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	: 50holes
Yield	: 208m ³
Total explosive required	: 21.94kg-Slurry explosives
Charge per hole	: 0.5kg
Blasting at day time only	: 12.0p.m-1.0p.m

c) Powder factor in ore and overburden / waste / development heading / stope : Powder factor is proposed as 0.11kg per hole of explosives

d) Whether secondary blasting is needed, if so describe it briefly : There is no secondary blasting involved.

e) Storage of explosives (like capacity and type of explosive magazine)

1. The applicant is advised to engage an authorized explosive agency to carry out blasting.
2. First Aid Box will be keeping ready at all the time.
3. Necessary precautionary announcement will be carried out before the blasting operation.

6. **MINE DRAINAGE:**

a) Likely depth of water table based on observations from nearby wells and water bodies : The ground water table is reported as of 65m in summer and 60m in rainy season from the general ground level observed in the adjacent bore well.

[Signature]



b)	Workings expected to be _____ m. above / reach below water table by the year _____.	:	Proposed mining depth is 50m below ground level. Now, the present Mining lease shall be proposed above the water table and hence, quarrying may not affect the ground water.
c)	Quantity and quality of water likely to be encountered, the pumping arrangements and places where the mine water is finally proposed to be discharged	:	The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300 L pm and it shall be pumped out periodically by a stand by diesel powered Centrifugal pump motivated with 7.5 H.P. Motor. The quality of water is potable and it is not contaminated with any hazardous things.
7.	STACKING OF MINERAL REJECTS AND DISPOSAL OF WASTE:		
a).	Indicate briefly the nature and quantity of top soil, overburden / waste and mineral rejects likely to be generated during the years: No other wastes are removed during years.		
b).	Land chosen for disposal of waste with proposed justification	:	There is no waste are proposed.
c).	Attach a note indicating the manner of disposal and configuration, sequence of buildup of dumps along with the proposals for the stacking of sub-grade ore, to be indicated Year wise.	:	The recovery of rough stone in this quarry is 100%. If rough stone may be unsold will be keep within the lease boundary.
8.	USE OF MINERAL:		
a).	Describe briefly the end-use of the mineral (sale to intermediary parties, captive consumption, export, industrial use)	:	The excavated stone materials will be supplied to the consumers like stone pillar, sized stone, etc. For instance, aggregates are mostly used for building, roads and footpaths., etc

[Signature]



b).	Indicate physical and chemical specifications stipulated by buyers	:	Basically, the materials produced at this quarry are rough stone (charnockite) and gravel the same are used for building materials and road metal. So, there is no chemical specifications are specified. Only physical specifications are involved.																								
c).	Give details in case blending of different grades of ores is being practiced or is to be practiced at the mine to meet specifications stipulated by buyers.	:	Not blending process is involved, after blasting the rough stone and gravel will be directly loaded to the needy customer.																								
9.	OTHERS																										
	Describe briefly the following a) Site services	:	Infrastructure required for such mines like office, stores, canteen, first aid station, shelter latrine and bath rooms have been provided as per the Metalliferous Mines Regulations, 1961 as a welfare amenity for our quarry laborers.																								
	b) Employment potential: As per Mines safety under the provisions of Metalliferous Mines Rules, 1961 under the Mines Act, 1952, whenever the workers are employed more than 10, it is preferred to have a qualified Mining Mate to keep all the production workers directly under his control and supervision. The following man power is proposed for quarrying stone material during the five years period the same manpower will be utilize for this mining plan period to achieve the proposed production and to comply the provisions of as per the MMR, 1961 norms. <table border="1"> <tr> <td>1.</td> <td>Highly Skilled</td> <td>Mines Manager</td> <td>1No.</td> </tr> <tr> <td></td> <td></td> <td>Mine Engineer</td> <td>1No.</td> </tr> <tr> <td></td> <td></td> <td>Mine Geologist</td> <td>1No</td> </tr> <tr> <td></td> <td></td> <td>Blaster</td> <td>1No</td> </tr> <tr> <td>2.</td> <td>Unskilled</td> <td>Musdoor / Labours</td> <td>19 No's</td> </tr> <tr> <td colspan="3">Total =</td> <td>23 No's</td> </tr> </table>			1.	Highly Skilled	Mines Manager	1No.			Mine Engineer	1No.			Mine Geologist	1No			Blaster	1No	2.	Unskilled	Musdoor / Labours	19 No's	Total =			23 No's
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10	MINERAL PROCESSING/BENEFICIATIONS:																										
(a)	If processing / beneficiations of the ore or minerals mined is planned to be conducted on site	:	Excavated rough stone minerals directly will be used by the applicant for required size ½, ¾ and 1½ inches Jelly which are mainly used																								



	or adjacent to the extraction area, briefly describe the nature of the processing /beneficiation. This should indicate size and grade of feed material and concentrate (finished marketable product), recovery rate.	in road and building construction purpose. The recovery of rough stone in this quarry is 100%.
(b)	Explain the disposal method for tailings or waste from the processing plant (quantity and quality of tailings proposed to be discharged, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such effect before their disposal and dealing of excess water from the tailing dam).	: No water shall be used for quarrying or any other processing except drinking water to be drawn from public sources. Some stagnation of rain water in the pit shall be used for drilling and spraying haul roads. Therefore, need for tailing dam doesn't arise. But tailing control of rain water flow during rainy season has to be done by decanting the SPM in a pit before passing the water in to natural system.
(c)	A flow sheet or schematic diagram of the processing procedure should be attached.	: Not applicable.
(d)	Specify quantity and type of chemicals to be used in the processing plant.	: Not applicable
(e)	Specify quantity and type of chemicals to be stored on site / plant.	: Not applicable
(f)	Indicate quantity (cu.m. per day) of water required for mining and processing and sources of supply of water. Disposal of water and of recycling.	: Drinking is 0.7KLD, utilized water is 0.8KLD, Dust suppression is 1.0KLD and Green Belt is 1.0KLD. Minimum quantity of water 3.5KLD per day. It is proposed to make an authorized water vendors for drinking water, dust suppression. The workers utilized water will be used for green belt development. The sewage water to a tune of 0.9KLD generated from the mine office toilet and mine labour toilet will be diverted to the septic tank followed by soak pit.



PART – B

11.0 ENVIRONMENTAL MANAGEMENT PLAN:

a) Attach a note on the status of Baseline information with regard to the Following :

11.1	Fresh lease land use pattern indicating the area already degraded due to quarrying /pitting, dumping, roads, processing plant, workshop, township etc in a tabular form. The present land use pattern is given as below.																									
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11.2	Water Regime	: Water table in this area is noticed at a depth of 65m in summer and 60m in rainy season from the general ground level and presently the quarrying of rough stone is ultimate up to a depth of 50m below ground level. Hence, it will not affect the ground water depletion of this area. It is proposed to make an authorized water vendors for drinking water, dust suppression. The workers utilized water will be used for green belt development.																								
11.3	Flora and Fauna	: There is no major flora observed in this area and except bushes, shrubs, no other valuable trees are noticed in the lease area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.																								
11.4	Quality of air, ambient noise level and water	: Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying. Quarrying of rough stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out every six months around the quarry site.																								



11.5	Climatic conditions: Rainfall:- The district receives rainfall from southwest monsoon (June – September), northeast monsoon (October – December) and non-monsoon periods (January – May). The rainfall is generally heavy during low-pressure depressions and cyclones during the northeast monsoon period. The normal annual rainfall is 1119.8 mm (1901-1980) and the higher is towards coast. Climatic Conditions: - The area falls under tropical climate with temperature in the summer months of March to May. The average temperature varies from 26 to 410 C. The humidity is also high in the order of 80%. The wind speed is high during the months of July and August. The wind speed ranges from 7.4 to 12.6 km/hr, which increases from 100 to 120 km/hr during cyclone period.																												
11.6	Human Settlement: The nearest villages are found in the buffer zone with population as per 2011 census. <table border="1"> <thead> <tr> <th>S.No</th><th>Village</th><th>Direction</th><th>Distance in Kms</th><th>Population</th></tr> </thead> <tbody> <tr> <td>1</td><td>Thammanur</td><td>Northeast</td><td>1.26km</td><td>2116</td></tr> <tr> <td>2</td><td>Kammarajapuram</td><td>East</td><td>1.13km</td><td>1527</td></tr> <tr> <td>3</td><td>Vallimedu</td><td>South</td><td>1.07km</td><td>2333</td></tr> <tr> <td>4</td><td>Asoor</td><td>West</td><td>1.58km</td><td>1234</td></tr> </tbody> </table>				S.No	Village	Direction	Distance in Kms	Population	1	Thammanur	Northeast	1.26km	2116	2	Kammarajapuram	East	1.13km	1527	3	Vallimedu	South	1.07km	2333	4	Asoor	West	1.58km	1234
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11.7	Public buildings, places of worship and monuments	:	No infrastructure like residential building, are found within radius of 300m. The places of special interest like archeological monuments, Sanctuaries, etc., are found around 10km radius.																										
11.8	Attach plans showing the locations of sampling stations	:	The proposed Ambient air quality, Water quality Ambient noise level and vibration are periodically tested for every season (6 months once) around 5km radius as per the guidance of MoEF and EIA Notification 2006 and also covering DGMS norms.																										
11.9	Does area (partly or fully) fall under notified area under Water (Prevention & Control of Pollution), Act, 1974	:	The proposed area not fall under notified area under Water (Prevention & Control of Pollution), Act, 1974																										

b) Attach an Environmental Impact Assessment Statement describing the impact of Mining and beneficiation on environment on the following over the next five years (and upto conceptual plan period for 'A' category mines)

i).	Land area indicating the area likely to be degraded due to quarrying / pitting, dumping, roads, workshop, processing plant, township etc: Due to quarrying and exploitation of the rough stone, there will impact in the form i.e. change in the ground profile, pits, and dumps. The details of the land use pattern, during the ensuing plan period and till lease period is shown in the tabular form: <table> <tr> <th>Sl. No.</th><th>Land Use</th><th>Area in use during the quarrying period (Hect.)</th></tr> <tr> <td>1</td><td>Area under Mining</td><td>2.85.00</td></tr> <tr> <td>2</td><td>Infrastructure</td><td>0.02.0</td></tr> <tr> <td>3</td><td>Roads</td><td>0.05.0</td></tr> <tr> <td>4</td><td>Green Belt</td><td>0.47.50</td></tr> <tr> <td>5</td><td>Un-Utilized Area</td><td>Nil</td></tr> <tr> <td>6</td><td>Drainage & Settling Tank</td><td>0.08.50</td></tr> <tr> <td colspan="2">Grand Total</td><td>3.48.00</td></tr> </table>		Sl. No.	Land Use	Area in use during the quarrying period (Hect.)	1	Area under Mining	2.85.00	2	Infrastructure	0.02.0	3	Roads	0.05.0	4	Green Belt	0.47.50	5	Un-Utilized Area	Nil	6	Drainage & Settling Tank	0.08.50	Grand Total		3.48.00
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ii).	Air Quality	Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying.																								
iii).	Water quality	A water sample from the open/bore wells was tested to NABL approved lab to assess hardness, Salinity, colour, Specific gravity, etc.																								
iv).	Noise levels	Quarrying of rough stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out every six months around the quarry site.																								
v).	Vibration levels (due to blasting)	No deep hole blasting envisaged. Small dia shot holes are used for breaking boulders. The maximum peak particles velocity shall be recorded using mini seismograph devises as per the guidance of MoEF and EIA Notification 2006 and also covering DGMS norms.																								
vi).	Water regime	No major river or any odai track are found around 50m radius.																								

vii).	Socio-economics	1. To provide Employment opportunities of the nearby villagers. 2. For the cultural development of the nearby villagers.
viii).	Historical monuments etc.	There are no historical monuments, etc found around 300m radius.

c) Attach an Environmental Management Plan (supported by appropriate plans and sections) defining the time bound action proposed to be taken with sequence & timing in the following areas (or diagrams should be used):

i).	temporary storage and utilization of topsoil	:	No separate of topsoil will be removed.
ii).	Yearwise proposal for reclamation of land affected by abandoned quarries and other mining activities during ten years (and upto conceptual plan period for 'A' category mines) clarifying the extent of back filling and re-contouring and / or alternative use of unfilled / partially filled excavations / road sides / slopes and mine. In case abandoned quarries/ pits are proposed to be used as reservoir, their size, water holding capacity and proposal for utilization of such water be given.	:	The present mining is proposed depth of 50m from below the ground level has been envisaged as workable depth for safe & economic mining during the lease period. The mined-out area will be fenced on top of working bench with S1 fencing. No immediate proposals for closure of pit as the rough stone persist still at deeper level.

iii). *Programme of afforestation, Yearwise for the initial ten years (and upto conceptual plan period for 'A' category mines) indicating the number of plants with name of species to be afforested under different areas in hectares.*

Green Belt Development:

Safety barrier, nearby school area and Nearest Panchayat approach Roads has been identified to be utilized for Greenbelt appropriate native species of Neem, Pungan and other regional trees will be planted in a phased manner as described below

Year	Place	Area in Sq.m	No.of Plants	Rate of survival	Rate	Amount in Rs
First	Lease Boundary	4750	740	80%	@100 Rs Per sapling	74,000/-
Second	Approach	--	500	80%		50,000/-



	road and Nearby Village Road						
Third	Schools	--	500	80%		50,000/-	
Total						1,74,000/-	
iv).	Stabilization and vegetation of dumps along with waste dump management Year wise for the ten years (and upto conceptual plan period for 'A' category mines).	:	No waste or rejects shall be proposed.				
v).	Measures to control erosion / sedimentation of water courses.	:	Not applicable. There is no major dumps are stabilize in this quarry area.				
vi).	Treatment and disposal of water from mine.	:	It will not be harmful and it does not require any treatment before discharging into the natural courses.				
vii).	Measures for minimizing adverse effects on water regime.	:	There is no water to be pumped out will be very pure and portable and therefore, it will not affect any water regime surrounding the quarry.				
viii).	Protective measures for ground vibrations / air blast caused by blasting,	:	It is a small "B" category open cast, semi mechanized mining and no heavy machinery shall be used. The only smooth blasting is proposed, therefore no change for ground vibration or noise from the quarry.				
ix).	Measures for protecting historical monuments and for rehabilitation of human settlements likely to be disturbed due to mining activity.	:	No historical monuments and for rehabilitation of human settlements doesn't to be disturbed during mining activity.				
x).	Socioeconomic benefits arising out of mining.	:	The nearest villages are will get employment benefits.				

d). *Monitoring schedules for different environmental components after the commencement of mining and other related activities. (for 'A' category mines only)*
Not applicable. It is B category quarry

12.0 PROGRESSIVE QUARRY CLOSURE PLAN:

12.1	Steps proposed for phased restoration, reclamation of already mined out area.	:	The Ultimate mining is proposed to an average depth of 50m below ground level. The mined-out area will be fenced on top				
------	---	---	---	--	--	--	--

			of working bench with S1 fencing to arrest the entry of cattle's and public in to the quarry site.
12.2	Measures to be under taken on mine closure as per Act & Rules	:	Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by Barbed wire fencing. Green belt development at the rate of 500 trees will be proposed in the quarry area. No immediate proposals for closure of pit as the rough stone persist still at deeper level.
12.3	Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area	:	The quarry lease is a fresh mining lease, no mitigation measures observed.
12.4	Mine closure activity	:	The present mining plan is proposed to depth of 50m below ground level has been envisaged as workable depth for safe & economic mining during the lease period. The mined-out area will be fenced on top of open cast working with S1 fencing. No immediate proposals for closure of pit as the rough stone persist still at deeper level.
12.5	Safety and security	:	Safety measures implement to the prevent access to surface opening excavations will be taken as Metalliferous mine regulations, 1961, it is a small open cast mining method adopted. Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a mechanized operation.
12.6	Disaster management and Risk Assessment	:	Open cast mining method is adopted in this quarry. If the benches are made with



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		proposed height and with no risk will be there. Even then if any minor or major accident happens the quarry staffs having First aid facilities with first aid box with all necessary medicine and stretches etc., to give first aid treatment at the site and will arrange immediately the vehicle to reach nearest hospital, if any disaster happens the lessee is capable to meet such eventualities. At the time of any accident during mining activity, proposal of first aid facility at quarry and one vehicle always ready at quarry site.
12.7	Care and maintenance during temporary discontinuance	: A board of discontinuance will be changed on the main entrance of the working place. One watch man will be kept on the quarry area for security purposes also look after the survival of the plants.
12.8	Economic repercussions of closure of quarry and man power entrenchments	: During the five years mining period the employment potential will be generated, general financial status and socio-economic conditions of approx. 23 labors will be improved.

12.9 Proposed Financial Estimate / Budget for (EMP) Environment Management:

A	Fixed Asset Cost:	
	1. Land Cost (https://tnreginet.gov.in/)	: Rs. 2,03,13,805/-
	2. Labour Shed	: Rs. 1,00,000/-
	3. Sanitary Facility	: Rs. 1,00,000/-
	4. Fencing	: Rs. 3,50,000/-
	5. Other expenses (Security guard, dust bin, etc)	: Rs. 4,00,000/-
	Total	: Rs. 2,12,63,805/-
B	B. Machinery cost	: Rs. 20,00,000/- (Hire Basis)

C	Total Expenditure of EMP cost (for ten years)	
	1. Drinking Water Facility	: Rs. 1,00,000/-
	2. Sanitary facility & Maintenance	: Rs. 2,00,000/-
	3. Permanent water sprinkler	: Rs. 1,50,000/-
	4. Afforestation and its maintenance	: Rs. 1,74,000/-
	5. Safety Kits	: Rs. 1,00,000/-
	6. Provision of tyre washing facility	: Rs. 1,50,000/-
	7. Blasting materials with blast mat cost	: Rs. 15,00,000/-
	8. Drainage & Settling Tank (0.08.5Hect or 850 Sq.m x 400)	Rs. 3,40,000/-
	9. Environment monitoring	: Rs. 5,00,000/-
	Total	: Rs. 32,14,000/-
D	Total Project Cost (A+B+C)	: Rs. 2,64,77,805/-

13.0 FINANCIAL ASSURANCE:

Not applicable, it is a small "B" rough stone and gravel quarry.

14.0 CERTIFICATES:

All required certificates are enclosed.

15.0 PLAN AND SECTIONS, ETC:

Plan and Sections are submitted along with mining plan.

16.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

- (i) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.
- (ii) The applicant will endeavor every attempt to quarry the rough stone economically without any wastage and to improve the environment and ecology.
- (iii) The Mining Plan is prepared by incorporating the conditions stipulated in the precise area communication issued by the Deputy Director, Department of Geology and Mining, Kancheepuram vide letter **Roc.No.342/Mines/2025, Dated: 27.11.2025.**
- (iv) Total proposed production rough stone **581360m³ / 1598740MT** and gravel is **142240m³ / 284480MT** up to a depth of 50m below ground level for ten years plan period.

17.0 CSR Expenditure:

CSR (Corporate Social responsibility) shall provide by the applicant @ 2.0% of average net profit of the company for the last three financial years to the nearby village on the Ministry has notified the amendments in section 135 of the Act as well in the CSR Rules on 22nd January 2021 as circular no. CSR-05/01/2021-CSR-MCA dated 25th August 2021.

Place: Dharmapuri, TN

Date: 28/11/23

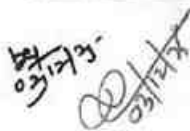

Signature of the Qualified Person

P. VELLAIYAN, M.Sc, M.Phil.,
Qualified Person
D.No. 6-106-B, Athirampatti (Vill),
Amaragundhi Panchayat & Post,
Omair Taluk, Salem District - 636503.

**This Mining Plan is approved subject
to the conditions / stipulations
indicated in the Mining Plan approval
Letter No. 342/Mines/2023
Dated. 03.12.2023**

**This Mining Plan is approved as per the
powers conferred Under Rule 41 (2) of
Tamil Nadu Minor Mineral Concession
Rules, 1959**


**Assistant Director of Geology and Mining,
Kancheepuram District.**


03/12/23





நக.எண்.342/கனிமம்/2025
நாள்.27.11.2025.

உதவி இயக்குநர் அலுவலகம்,
புனியியல் மற்றும் சுரங்கத்துறை,
காஞ்சிபுரம்.

குறிப்பாணை

பொருள்:- கனிமங்களும் சுரங்கங்களும் - சிறுகனிமம் - சாதாரண கற்கள் - காஞ்சிபுரம் மாவட்டம் - வாலாஜாபாத் வட்டம் - கம்மராஜபுரம் கிராமம் - பட்டா புல எண்கள். 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C-ல் மொத்த பரப்பு 3.48.00 ஹெக்டேர்ஸ் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் குவாரிப்பணி மேற்கொள்ள திரு. S. அசோக் குமார் த/பெ. சேகர் என்பவர் 15 ஆண்டுகளுக்கு அனுமதிக்கோரி விண்ணப்பம் செய்தது - அறிக்கைகள் வரப்பெற்றது - புலத்தணிக்கை செய்யப்பட்டது - விதிகளின்படி மேற்படி புலங்களில் 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க தகுதியான நிலப்பரப்பாக கருதி ஏற்பளிக்கப்பட்ட சுரங்கதிட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெற்று சமர்ப்பிக்க கோருதல் - தொடர்பாக.

- பார்வை:-
1. திரு. S. அசோக் குமார் த/பெ. சேகர், எண்.83, விவி கோயில் தெரு, வாலாஜாபாத் வட்டம், காஞ்சிபுரம் மாவட்டம் -631 605 என்பவரிடமிருந்து இணையவழி மூலம் பெறப்பட்ட விண்ணப்பம் எண். 25KPM0403878 நாள்.11.07.2025.
 2. இவ்வலுவலக நக.எண்.342/கனிமம்/2025 நாள் 16.07.2025.
 3. வாலாஜாபாத், வட்டாட்சியர் அவர்களின் கடித நக.1013/2025/அ1, நாள்.20.08.2025.
 4. காஞ்சிபுரம் சார் ஆட்சியர் அவர்களின் கடித நக. எண்.3415/2025/அ1, நாள் 10.10.2025.
 5. உதவி புனியியலாளர் (கனிமம்), காஞ்சிபுரம் அவர்களின் புலத்தணிக்கை அறிக்கை நாள் 26.11.2025.
 6. மற்றும் உரிய ஆவணங்கள்.

காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், கம்மராஜபுரம் கிராமம் பட்டா புல எண்கள். 290/1A, 290/2B1, 291/1A, 291/1B, 291/1C1, 291/1C2, 291/1D1, 291/1D2, 291/2A, 291/2B, 291/2D, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C-ல் மொத்த பரப்பு 3.48.00 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் / கிராவல் மண் குவாரி செய்ய பதினைந்து ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்கக்கோரி திரு. S. அசோக் குமார் த/பெ. சேகர் என்பவர் 11.07.2025 நாளிட்ட விண்ணப்பித்தினை இணையவழி மூலம் உரிய ஆவணங்களுடன் சமர்ப்பித்துள்ளார்.

2. மேற்கண்ட விண்ணப்பம் தொடர்பாக வட்டாட்சியர், வாலாஜாபாத், சார் ஆட்சியர், காஞ்சிபுரம், உதவி புலியியலாளர் (கனிமம்), காஞ்சிபுரம் ஆகியோர் மேற்படி புலங்களில் கனிமவிதிகளின் படி சில நிபந்தனைகளுக்குட்பட்டு குவாரி குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

3. இயக்குநர், புலியியல் மற்றும் சுரங்கத்துறை, சென்னை அவர்களின் 10.08.2020 நாளிட்ட கடிதத்துடன் இணைத்து வரப்பெற்ற அரசாணை எண்.169 தொழில் துறை (எம்.எம்.சி-1) நாள் 04.08.2020ன்படி பட்டா புலங்களில் கிராவல், சாதாரண வகை கற்கள் ஆகிய சிறுகனிம உரிமம் வழங்கும் நேர்வுகளில் நடவடிக்கை எடுக்க விதி 19(1) மற்றும் 20-ல் மாவட்ட ஆட்சியருக்கு வழங்கப்பட்ட அதிகாரம் தற்போது சம்மந்தப்பட்ட உதவி/துணை இயக்குநர் அவர்களுக்கு மாற்றி வழங்க உத்திரவிடப்பட்டுள்ளது.

4. எனவே, பார்வை 3 முதல் 5 வரை காணும் வட்டாட்சியர், வாலாஜாபாத், சார் ஆட்சியர், காஞ்சிபுரம், உதவி புலியியலாளர் (கனிமம்), காஞ்சிபுரம் ஆகியோரின் பரிந்துரை அறிக்கைகள் மற்றும் நிபந்தனைகளின் அடிப்படையில், காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், கம்மராஜபுரம் கிராமம் பட்டா புல எண்கள். 290/1A (0.39.00), 290/2B1 (0.30.50), 291/1A (0.14.00), 291/1B (0.13.50), 291/1C1 (0.21.50), 291/1C2 (0.06.00), 291/1D1 (0.16.50), 291/1D2 (0.06.00), 291/2A (0.17.50), 291/2B (0.19.00), 291/2D (0.16.50), 292/1A (0.44.50), 292/1B (0.44.50), 292/2A (0.19.50), 292/2B



(0.20.00) & 292/2C (0.19.50)-ல் மொத்த பரப்பு 3.48.00 ஹெக்டேர்ஸ் பரப்பில் 1959-ம் வருட தமிழ்நாடு சிறுகனிம விதிகள், விதி எண்.19(1) மற்றும் 20-ன்படி கீழ்க்காணும் நிபந்தனைகளுக்குட்பட்டு 10 (பத்து) வருட காலத்திற்கு திரு. S. அசோக் குமார் த/பெ. சேகர் என்பவருக்கு சாதாரண கற்கள் மற்றும் கிராவல் குவாரி உரிமம் வழங்குவதற்குரிய தகுதியான நிலப்பரப்பாக கருதப்படுகிறது.

5. மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள் -1959 விதி எண்.41-ன்படி குவாரிப் பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறு மனுதாரரைக் கேட்டுக் கொள்ளப்படுகிறது. மேலும் ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தின் தொடர்ச்சியாக 1959-ம் வருடத்திய தமிழ்நாடு சிறு கனிம சலுகை விதிகள், விதி எண்.42-ன்படி சுற்றுச் சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும் என இதன் மூலம் தெரிவிக்கப்படுகிறது.

நிபந்தனைகள்

1. 1959-ம் வருடத்திய தமிழ்நாடு சிறு கனிம சலுகை விதிகள் விதி எண்.41 மற்றும் 42-ன்படி ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்றினை பெற்று சமர்ப்பிக்க வேண்டும்.
2. விண்ணப்ப புலங்களுக்கு அருகிலுள்ள அரசு புறம்போக்கு மற்றும் பட்டா நிலங்களுக்கு முறையே 10 மீட்டர் மற்றும் 7.5 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு குவாரிப்பணி செய்யப்பட வேண்டும்.
3. அனுமதி வழங்க கோரும் புலத்தில் வடக்கு தெற்காக 2 தாழ்மின்னழுத்த கம்பி செல்கின்றது. குவாரிப்பணி துவங்குவதற்கு முன் உரிய அனுமதி பெற்று புலத்தில் செல்லும் மின்னழுத்த கம்பிகளை மாற்றி அமைக்கப்பட வேண்டும்.



4. விண்ணப்ப புலங்களுக்கு அருகில் உள்ள புல எண்.285-ல் மேய்க்கால் நிலம் உள்ளதால், எவ்வித ஆக்கிரமிப்பும் இல்லாமல், உரிய பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
5. அனுமதி கோரும் புலத்தில் சுமார் 6 பனை மரங்கள், 3 தென்னை மரங்கள் உள்ளது. மேற்படி பனை மரங்களை அகற்றும் பட்சத்தில் உரிய அனுமதி பெற்று அகற்றப்பட வேண்டும்.

உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
காஞ்சிபுரம்.

பெறுநர்

திரு. S. அசோக் குமார் த/பெ. சேகர்,
எண்.83, விவி கோயில் தெரு,
வாலாஜாபாத் வட்டம்,
காஞ்சிபுரம் மாவட்டம் -631 605.

நகல்.

1. தலைவர், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை
2. இயக்குநர் , புவியியல் மற்றும் சுரங்கத்துறை, சென்னை-32.



5. குவாரி குத்தகை அனுமதி கோரும் புலத்தின் மீது மனுதாரரின் ஸ்தல உரிமை தொடர்பான விவரம்:

காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், கம்மராஜபுரம் கிராமம் பட்டா புல எண்கள். 290/1A, 290/2B1, 292/1A, 292/1B, 292/2A, 292/2B & 292/2C-ஆகிய புலங்கள் முறையே பட்டா எண்.1468-ன்படி, விண்ணப்பதாரர் சேகர் மகன் அசோக்குமார் என்பவர் பெயரில் பட்டாவாக தாக்கலாகி உள்ளது மற்றும்

புல எண்கள். 291/1A, 291/1B, 291/1C1, 291/1D1-ஆகிய புலங்கள் முறையே பட்டா எண்.1292-ன்படி கிருஷ்ண நாயக்கர் மகன் கே. விநாயகம் என்பவர் பெயரில் பட்டாவாக தாக்கலாகியுள்ளது. மேற்படி புலங்களில் கல்குவாரி பணிசெய்ய ஆவண எண்.5193/2025, நாள்.09.07.2025-ன்படி திரு. S. அசோக் குமார் என்பவர் குவாரி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றப்படும் தேதியிலிருந்து 15 ஆண்டு காலத்திற்கு உரிமம் பெற்றுள்ளார்.

புல எண்கள்.291/1C2, 291/1D2, 291/2A, 291/2B, 291/2D- ஆகிய புலங்கள் முறையே பட்டா எண்.1294-ன்படி கிருஷ்ண நாயக்கர் மகன் திருமலை என்பவர் பெயரில் பட்டாவாக தாக்கலாகியுள்ளது. மேற்படி புலங்களில் கல்குவாரி பணிசெய்ய ஆவண எண்.5151/2025, நாள்.08.07.2025-ன்படி திரு. S. அசோக் குமார் என்பவர் குவாரி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றப்படும் தேதியிலிருந்து 15 ஆண்டு காலத்திற்கு உரிமம் பெற்றுள்ளார். எனவே மேற்படி புலங்களில் கல்குவாரி பணிசெய்ய விண்ணப்பதாரர் திரு. S. அசோக் குமார் என்பவருக்கு ஸ்தல பாத்தியம் உள்ளது.

6. குவாரி குத்தகை அனுமதி கோரும் புலத்தில் ஏற்கனவே மாவட்ட ஆட்சியரின் ஆணைப்படி குவாரி குத்தகை நடத்தியிருந்தால் அது தொடர்பான விவரங்கள்:

புதிய இனம் (Virgin Land). நாளது வரை இப்புலத்தில் குவாரி குத்தகை உரிம அனுமதி எதுவும் வழங்கப்படாத புதிய இனம் ஆகும்.

7. குவாரி குத்தகை கோரும் புலத்தில் உள்ள கனிமத்தின் விவரங்கள்:

விண்ணப்ப புலம் தரிசாக, மேடுபள்ளங்கள் இன்றி சமதளமாக உள்ளது. மேற்பகுதி முழுவதும் கிராவல் மண் காணப்படுகிறது. விண்ணப்ப புலத்தில் சார்னகைட் வகை பாறை படிவுகள் காணப்படுகிறது. இவ்வகை பாறை படிவுகள் எம்-சாண்ட், சாதாரண கற்கள் மற்றும் ஜல்லிக்கற்கள் உற்பத்தி செய்ய ஏற்றதாகும்.



8. நிலையான அமைப்புகள் இருப்பு குறித்தான விவரங்கள்:

அனுமதி கோரும் புலத்திற்கு பட்டா புல எண்.284/2ஏ1 (ம) வாலாஜாபாத் - மாகரல் வரை செல்லும் தார் சாலையே அணுகுபாதையாக அமைந்துள்ளது. மேற்படி பட்டா புல எண்.284/2ஏ2ஏ1 பரப்பு 0.04.00 ஏர்ஸ் நிலத்தில் அணுகுபாதையாக பயன்படுத்த திரு.இளம்பரிதி என்பரிடமிருந்து மனுதாரர் பதிவு செய்யப்படாத ஆவணம் மூலம் குத்தகை ஒப்பந்தம் செய்துள்ளார்.

மேற்குறிப்பிட்ட புலத்தில் இரண்டு கோழிப்பண்ணைகள், சுமார் 6 பனை மரங்கள், 3 தென்னை மரங்கள் உள்ளது.

மேலும் அனுமதி வழங்க கோரும் புலத்தில் வடக்கு தெற்காக 2 தாழ்மின்னழுத்த கம்பி செல்கின்றது. மேலும் புல எண்.291/1சி-ல் ஒரு வட்டக்கிணறு உள்ளது.

மேற்படி அனுமதி வழங்க கோரும் புலத்திற்கு கிழக்கு பக்கத்தில் புல எண்.285 மேய்க்கால் நிலம் அமைந்துள்ளது.

அனுமதி வழங்க கோரும் புலத்திலிருந்து 300 மீட்டர் சுற்றளவிற்குள் வரலாற்று சின்னங்கள் மற்றும் தொல்பொருள் பாகங்கள் பகுதியாக அறிவிக்கப்பட்ட இடங்கள் மற்றும் 1 கிலோமீட்டர் சுற்றளவிற்குள் சுற்றுச்சூழல் மற்றும் வனத்துறையால் அறிவிக்கப்பட்ட சுற்றுச்சூழல் பாதுகாப்பு பகுதிகள், தேசிய பூங்காக்கள், வனவிலங்கு சரணாலயங்கள், புலிகள் சரணாலயங்கள், யானை வழித்தடங்கள் மற்றும் 60 மீட்டர் சுற்றளவிற்குள் காப்பு காடுகள் ஏதும் இல்லை. மேலும், அனுமதி வழங்கும் புலத்தின் எண்களில் இருந்து 300 மீ சுற்றளவிற்குள் கிராம நத்தம் அங்கீகரிக்கப்பட்ட குடியிருப்பு மனைகள் மற்றும் நிரந்தர கட்டுமானங்கள் ஏதும் இல்லை.

9. குறிப்பு:

காஞ்சிபுரம் சார் ஆட்சியர் அவர்களின் கடிதம் ந.க. எண்.3415/2025/அ1, நாள்.10.10.2025-ல் குறிப்பிட்டுள்ள நிபந்தனைகளை கடைபிடிக்க வேண்டும்.

10.பரிந்துரை:

காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், கம்மராஜபுரம் கிராமம் பட்டா புல எண்கள். 290/1A (0.39.00), 290/2B1 (0.30.50), 291/1A (0.14.00), 291/1B (0.13.50), 291/1C1 (0.21.50), 291/1C2 (0.06.00), 291/1D1 (0.16.50), 291/1D2 (0.06.00), 291/2A (0.17.50), 291/2B (0.19.00), 291/2D (0.16.50), 292/1A (0.44.50), 292/1B (0.44.50), 292/2A (0.19.50), 292/2B (0.20.00) & 292/2C (0.19.50)-ல் மொத்த பரப்பு 3.48.00 ஹெக்டேர்ஸ் பரப்புள்ள நிலத்திலிருந்து

8. [Signature]



சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுத்து குவாரிப்பணி செய்ய திரு. S. அசோக் குமார் என்பவருக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959-ன் விதி 19(1), 20 மற்றும் 33-ன் கீழ் 10 (பத்து) வருடங்களுக்கு குவாரி குத்தகை உரிம அனுமதி வழங்க கீழ்க்காணும் நிபந்தனைகளுக்குட்பட்டு பரிந்துரை செய்யப்படுகிறது.

நிபந்தனைகள்

1. 1959-ம் வருடத்திய தமிழ்நாடு சிறு கனிம சலுகை விதிகள் விதி எண்.41 மற்றும் 42-ன்படி ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்றிணை பெற்று சமர்ப்பிக்க வேண்டும்.
2. விண்ணப்ப புலங்களுக்கு அருகிலுள்ள அரசு புறம்போக்கு மற்றும் பட்டா நிலங்களுக்கு முறையே 10 மீட்டர் மற்றும் 7.5 மீட்டர் பாதுகாப்பு இடைவெளிவிட்டு குவாரிப்பணி செய்யப்பட வேண்டும்.
3. அனுமதி வழங்க கோரும் புலத்தில் வடக்கு தெற்காக 2 தாழ்மின்னழுத்த கம்பி செல்கின்றது. குவாரிப்பணி துவங்குவதற்கு முன் உரிய அனுமதி பெற்று புலத்தில் செல்லும் மின்னழுத்த கம்பிகளை மாற்றி அமைக்கப்பட வேண்டும்.
4. விண்ணப்ப புலங்களுக்கு அருகில் உள்ள புல எண்.285-ல் மேய்க்கால் நிலம் உள்ளதால், எவ்வித ஆக்கிரமிப்பும் இல்லாமல், உரிய பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
5. அனுமதி கோரும் புலத்தில் சுமார் 6 பனை மரங்கள், 3 தென்னை மரங்கள் உள்ளது. மேற்படி பனை மரங்களை அகற்றும் பட்சத்தில் உரிய அனுமதி பெற்று அகற்றப்பட வேண்டும்.

உதவி புவியியலாளர்,
புவியியல் மற்றும் சுரங்கத்துறை,
காஞ்சிபுரம்.

AD-Mines Kancheepuram,
Officer in Charge, Dept of
Geology & Mining, Govt. of
Tamil Nadu. Date: 27-11-2025
06:07 pm

District : Kancheepuram

Taluk : Walajabad

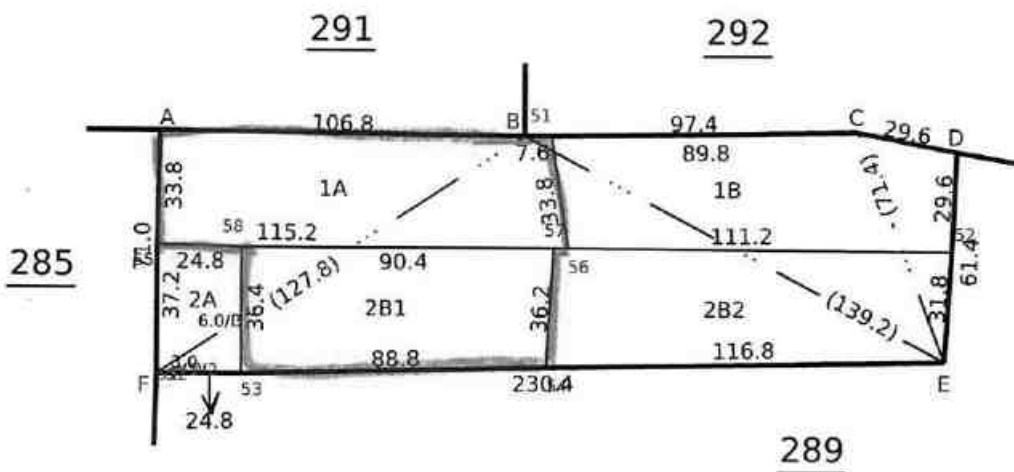
Village : Kammarajapuram [183]



Survey No : 290

Area : Hect 01 Ares 50

Scale : 1 : 2000



LEASE APPLIED AREA



Signed By Tahsildar

Name of approver : kpm

Date of Approval : 07-02-2009



Date of Issue: 08-07-2025 10:17:46

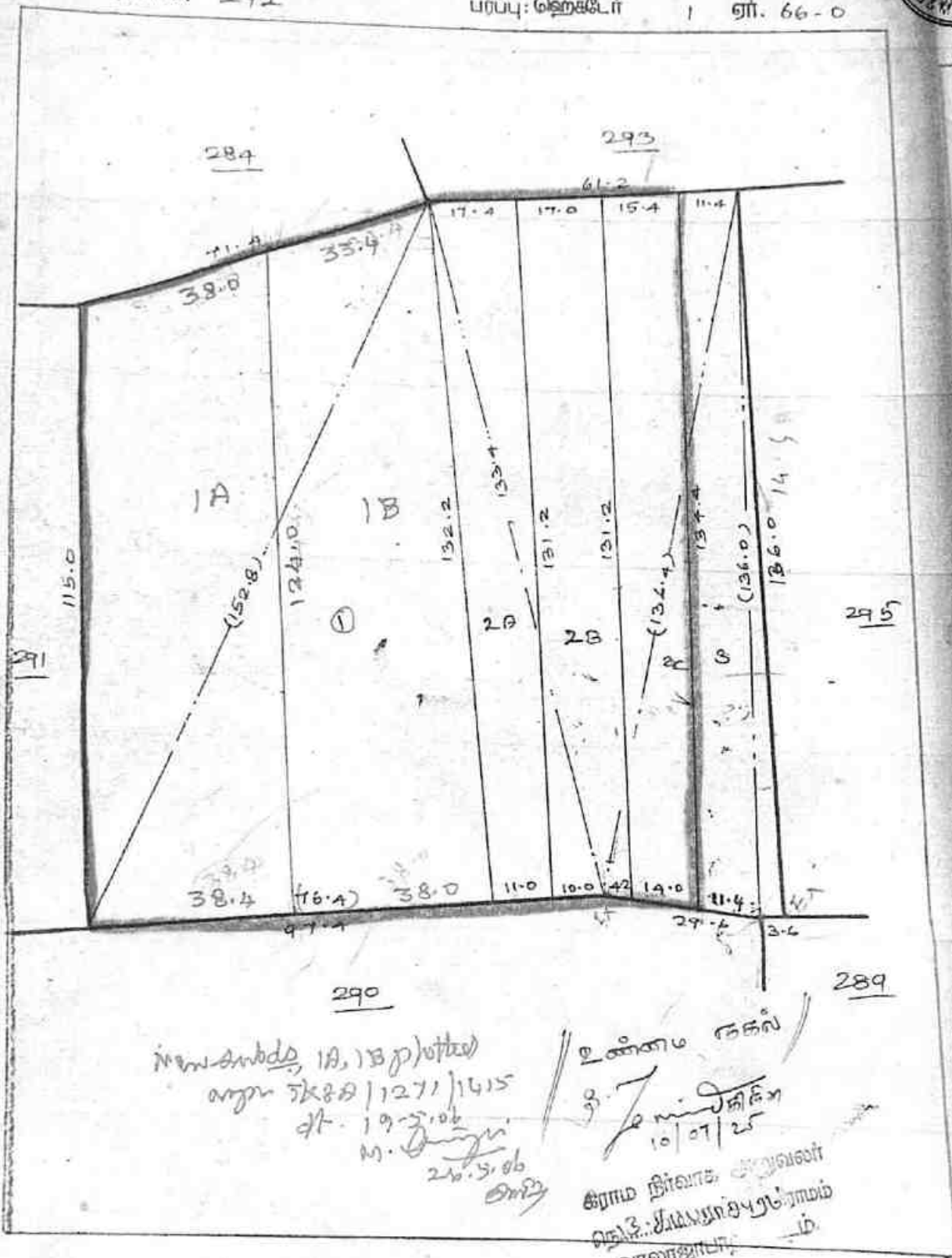
Survey and Settlement Department, Government of Tamil Nadu

240 fv.1



வடமே. கி.கி.மீ. 292
புலனெண். 292

மேயர். கம்மாரசுயம்
பரப்பு: சென்டீர் 1 ஏர். 66-0



new subds, 1A, 1B plotted
area 5k 88 / 1271 / 1415
dt. 19-5-06
M. S. S. S. S.
20.5.06

உண்கை நகல்
சு. சி. சி. சி. சி.
10/07/25
கோம நிர்வாக, காவலர்
கதி: காவலர் காவலர்
காவலர் காவலர்

அளவு. 1:10000. 25

LEASE APPLIED AREA

23.4.87



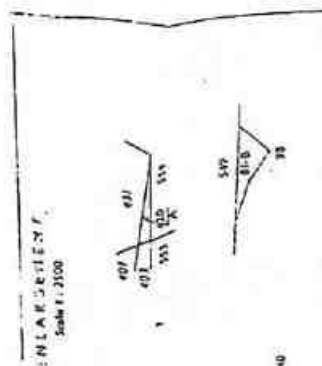
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No. 185
ELAYANARVELUR

No. 182
KILPUTHUR

No. 178
MELPUTHUR

LEASE APPLIED AREA



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/28/25, 3:12 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்களை பார்வை

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண்	290	9. மண் வயனமும் ரகமும்	5 - 2
2. உட்பிரிவு எண்	1A	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	290-1A	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 39.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.20
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1468
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.அசோக்குமார்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/290/1A/50309 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண்	290	9. மண் வயனமும் ரகமும்	5 - 2
2. உட்பிரிவு எண்	281	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	290-28	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 30.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.00
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1468
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.அசோக்குமார்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/290/281/50309 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண் 291

2. உட்பிரிவு எண் 1A

3. பழைய புல உட்பிரிவு எண் -1A

4. பகுதி -

5. அரசு / ரயத்துவாரி ரயத்துவாரி

6. நிலத்தின் வகை புஞ்சை

7. பாசன ஆதாரம் -

8. இரு போகமா -

9. மண் வயனமும் ரகமும் 5 - 2

10. மண் தரம் 5

11. தீர்வை (ரூ - ஹெ) 3.09

12. பரப்பு (ஹெக்டேர் - ஏர்) 0 - 14.00

13. மொத்த தீர்வை (ரூ - பை) 0.44

14. பட்டா எண் 1292

15. குறிப்பு இறவை வஜா தள்ளுபடி 0.24

16. பெயர் 1.கே.வினாயகம்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/291/1A/50344 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண்	291	9. மண் வயனமும் ரகமும்	5 - 2
2. உட்பிரிவு எண்	1B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-1B	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 13.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.41
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1292
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.கே.வினாயகம்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/291/1B/50344 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண்	291	9. மண் வயனமும் ரகமும்	5 - 2
2. உட்பிரிவு எண்	1C1	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	291-1C	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 21.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.80
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1292
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.கே.வினாயகம்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/291/1C1/50344 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண்	291	9. மண் வயனமும் ரகமும்	5 - 2
2. உட்பிரிவு எண்	1C2	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	291-1C	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 6.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.20
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1294
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.திருமலை

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/291/1C2/50366 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

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வட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்களை பதிவேட்டில்

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண்	291	9. மண் வயனமும் ரகமும்	5 - 2
2. உட்பிரிவு எண்	1D1	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	291-1D	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 16.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.70
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1292
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.கே.வினாயகம்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/291/1D1/50344 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

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வட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்களை பார்வை

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண்	291	9. மண் வயனமும் ரகமும்	5 - 2
2. உட்பிரிவு எண்	1D2	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	291-1D	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 6.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.30
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1294
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.திருமலை

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/291/1D2/50366 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

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வட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்களை பார்வை

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண்	291	9. மண் வயனமும் ரகமும்	5 - 2
2. உட்பிரிவு எண்	2A	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-2A	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 17.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.53
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1294
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.திருமலை

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/291/2A/50366 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண்	291	9. மண் வயனமும் ரகமும்	5 - 2
2. உட்பிரிவு எண்	2B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-2B	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 19.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.58
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1294
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.திருமலை

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/291/2B/50366 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

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வட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்களை பார்வை

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண்	291	9. மண் வயனமும் ரகமும்	5 - 2
2. உட்பிரிவு எண்	2D	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-2D	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 16.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.51
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1294
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.திருமலை

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/291/2D/50366 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

/28/25, 3:25 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்களை பார்வை

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண் 292

2. உட்பிரிவு எண் 1A

3. பழைய புல உட்பிரிவு எண் 291-1

4. பகுதி P

5. அரசு / ரயத்துவாரி ரயத்துவாரி

6. நிலத்தின் வகை புஞ்சை

7. பாசன ஆதாரம் -

8. இரு போகமா -

9. மண் வயனமும் ரகமும் 5 - 2

10. மண் தரம் 5

11. தீர்வை (ரூ - ஹெ) 3.09

12. பரப்பு (ஹெக்டேர் - ஏர்) 0 - 44.50

13. மொத்த தீர்வை (ரூ - பை) 1.37

14. பட்டா எண் 1468

15. குறிப்பு -

16. பெயர் 1.அசோக்குமார்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
 1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
 03/12/183/292/1A/50309 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
 செய்துகொள்ளவும்.

1/28/25, 3:26 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்கள் புரவையிட

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண் 292

2. உட்பிரிவு எண் 1B

3. பழைய புல உட்பிரிவு எண் 291-1

4. பகுதி P

5. அரசு / ரயத்துவாரி ரயத்துவாரி

6. நிலத்தின் வகை புஞ்சை

7. பாசன ஆதாரம் -

8. இரு போகமா -

9. மண் வயனமும் ரகமும் 5 - 2

10. மண் தரம் 5

11. தீர்வை (ரூ - ஹெ) 3.09

12. பரப்பு (ஹெக்டேர் - ஏர்) 0 - 44.50

13. மொத்த தீர்வை (ரூ - பை) 1.37

14. பட்டா எண் 1468

15. குறிப்பு -

16. பெயர் 1.அசோக்குமார்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
 1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
 03/12/183/292/1B/50309 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
 செய்துகொள்ளவும்.

1/28/25, 3:27 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்களை பார்வையிடுவது

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண்	292	9. மண் வயனமும் ரகமும்	5 - 2
2. உட்பிரிவு எண்	2A	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-2A	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 19.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.68
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1468
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.அசோக்குமார்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/292/2A/50309 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

1/28/25, 3:28 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்களை பதிவு செய்தல்

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண் 292

2. உட்பிரிவு எண் 2B

3. பழைய புல உட்பிரிவு எண் -2B

4. பகுதி -

5. அரசு / ரயத்துவாரி ரயத்துவாரி

6. நிலத்தின் வகை புஞ்சை

7. பாசன ஆதாரம் -

8. இரு போகமா -

9. மண் வயனமும் ரகமும்

5 - 2

10. மண் தரம்

5

11. தீர்வை (ரூ - ஹெ)

3.09

12. பரப்பு (ஹெக்டேர் - ஏர்)

0 - 20.00

13. மொத்த தீர்வை (ரூ - பை)

0.63

14. பட்டா எண்

1468

15. குறிப்பு -

16. பெயர்

1.அசோக்குமார்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.

1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 03/12/183/292/2B/50309 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

/28/25, 3:30 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்களைப் பதிவேடு

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

கிராமம் : கம்பராசபுரம்

1. புல எண் 292

2. உட்பிரிவு எண் 2C

3. பழைய புல உட்பிரிவு எண் -2C

4. பகுதி -

5. அரசு / ரயத்துவாரி ரயத்துவாரி

6. நிலத்தின் வகை புஞ்சை

7. பாசன ஆதாரம் -

8. இரு போகமா -

9. மண் வயனமும் ரகமும்

5 - 2

10. மண் தரம்

5

11. தீர்வை (ரூ - ஹெ)

3.09

12. பரப்பு (ஹெக்டேர் - ஏர்)

0 - 19.50

13. மொத்த தீர்வை (ரூ - பை)

0.60

14. பட்டா எண்

1468

15. குறிப்பு -

16. பெயர் 1.அசோக்குமார்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
1. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில்
03/12/183/292/2C/50309 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி
செய்துகொள்ளவும்.

7/10/25, 12:39 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை விபரங்கள்



தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

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

மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

வருவாய் கிராமம் : கம்பராசபுரம்

பட்டா எண் : 1468

உரிமையாளர்கள் பெயர்

1.

சேகர்

மகன்

அசோக்குமார்



7/10/25, 12:39 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை விவரங்கள்



புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புக்கள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
290	1A	0 - 39.00	0.20	--	--	--	--	2025/0103/03/386022- ----- Digitally signed: approved through AutoMutation - 07/07/2025 05:58:23:PM
290	2B1	0 - 30.50	1.00	--	--	--	--	2025/0103/03/386022- -738/1419 ----- Digitally signed: approved through AutoMutation - 07/07/2025 05:58:23:PM
292	1A	0 - 44.50	1.37	--	--	--	--	2025/0103/03/386022- -1271/1415 ----- Digitally signed: approved through AutoMutation - 07/07/2025 05:58:23:PM
292	1B	0 - 44.50	1.37	--	--	--	--	2025/0103/03/386022- -1271/1415 ----- Digitally signed: approved through AutoMutation - 07/07/2025 05:58:23:PM
292	2A	0 - 19.50	0.68	--	--	--	--	2025/0103/03/386022- ----- Digitally signed: approved through AutoMutation - 07/07/2025 05:58:23:PM
292	2B	0 - 20.00	0.63	--	--	--	--	2025/0103/03/386022- ----- Digitally signed: approved through AutoMutation - 07/07/2025 05:58:23:PM
292	2C	0 - 19.50	0.60	--	--	--	--	2025/0103/03/386022- ----- Digitally signed: approved through AutoMutation - 07/07/2025 05:58:23:PM
		2 - 17.50	5.85					

7/10/25, 12:39 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை இப்பரங்கள்



குறிப்பு :

	1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் https://eservices.tn.gov.in என்ற இணைய தளத்தில் P/03/12/183/01468/40369 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
	2. இத் தகவல்கள் 10-07-2025 அன்று 12:38:57 PM நேரத்தில் அச்சடிக்கப்பட்டது.
	3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

 3/3



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தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

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

மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

வருவாய் கிராமம் : கம்பராசபுரம்

பட்டா எண் : 1292

உரிமையாளர்கள் பெயர்

1. கிருஷ்ண நாயக்கர்

மகன்

கே.வினாயகம்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	
291	1A	0 - 14.00	0.44	--	--	--	--	2024/0103/03/315774- -- --இறவை வஜா தள்ளுபடி 0.24--- Digitally signed:JAYASRI C Zonal Deputy Tahsildar 11/03/2024 06:11:53:PM
291	1B	0 - 13.50	0.41	--	--	--	--	2024/0103/03/315774- -- ----- Digitally signed:JAYASRI C Zonal Deputy Tahsildar 11/03/2024 06:11:53:PM
291	1C1	0 - 21.50	0.80	--	--	--	--	2024/0103/03/324276- -2024/03/12/000150SD ----- Digitally signed:DEVIKALA T Zonal Deputy Tahsildar 24/04/2024 03:52:55:PM
291	1D1	0 - 16.50	0.70	--	--	--	--	2024/0103/03/324276- -2024/03/12/000150SD ----- Digitally signed:DEVIKALA T Zonal Deputy Tahsildar 24/04/2024 03:52:55:PM
		0 - 65.50	2.35					



குறிப்பு :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் **P/03/12/183/01292/40344** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 10-07-2025 அன்று 04:25:20 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

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

மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

வருவாய் கிராமம் : கம்பராசபுரம்

பட்டா எண் : 1294

உரிமையாளர்கள் பெயர்

1. கிருஷ்ண நாயக்கர்

மகன்

திருமலை



புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	
291	1C2	0 - 6.00	0.20	--	--	--	--	2024/0105/03/444823- -2024/03/12/000150SD ----- Digitally signed:Satheesh S Tahsildar 14/03/2024 11:31:33:AM
291	1D2	0 - 6.00	0.30	--	--	--	--	2024/0103/03/323071- -2024/03/12/000150SD ----- Digitally signed:DEVIKALA T Zonal Deputy Tahsildar 24/04/2024 03:55:43:PM
291	2A	0 - 17.50	0.53	--	--	--	--	2024/0103/03/323071- ----- Digitally signed:DEVIKALA T Zonal Deputy Tahsildar 24/04/2024 03:55:43:PM
291	2B	0 - 19.00	0.58	--	--	--	--	2024/0103/03/323071- ----- Digitally signed:DEVIKALA T Zonal Deputy Tahsildar 24/04/2024 03:55:43:PM
291	2D	0 - 16.50	0.51	--	--	--	--	2024/0103/03/323071- ----- Digitally signed:DEVIKALA T Zonal Deputy Tahsildar 24/04/2024 03:55:43:PM
		0 - 65.00	2.12					

(Handwritten signature)



குறிப்பு :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் **P/03/12/183/01294/40366** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 10-07-2025 அன்று 04:27:12 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

5151/2025

TP/22587450725



தமிழ்நாடு தமிழ்நாடு TAMILNADU

S. Ashok Kumar

BK 952590

K. MOHAN
Stamp Vendor

L.No.: 776-21/D1/2021

Walaabad-831605, Kanchipuram Dist.

Date: 08 JUL 2025

குத்தகை ஒப்பந்த ஆவணம்

2025 இரண்டாமிரத்து இருபத்தைந்தாம் வருடம், ஜூலை மாதம், 8-ஆம் தேதி, காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், பழைய எண்.183, புதிய எண்.13 கம்பராஜபுரம் கிராமம், மேட்டுத்தெரு, கதவு எண்.218 இல்லத்தில் வசிக்கும், காலஞ்சென்ற கிருஷ்ணன் அவர்களின் குமாரர், 55 வயதுள்ள, திரு.K.திருமலை (Aadhar No.7008 6432 5827), அவர்கள் 1வது பார்ட்டியாகவும்:-

காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், வாலாஜாபாத் நகரம், வலம்புரி விநாயகர் கோயில் தெரு, கதவு எண்.83 இல்லத்தில் வசிக்கும், திரு.P.சேகர் அவர்களின் குமாரர், 29 வயதுள்ள, திரு.S.அசோக்குமார் (Aadhar No.7508 0066 0424) அவர்கள் 2வது பார்ட்டியாகவும் ஆகிய நாம் இருபார்ட்டிகளும் சேர்ந்து முழுமன சம்மதத்துடன் எழுதிக்கொடுத்த குத்தகை ஆவணம் என்னவென்றால்:-

2வது பார்ட்டி

புத்தகம் 20... ஆண்டின் ஆவணம் எண்...
தாக்கனைக்கொண்டது... வது தள்ளி

பதிவு செய்யப்பட்டது

1வது பார்ட்டி

K.திருமலை





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தமிழ்நாடு தமிழ்நாடு TAMILNADU

S. Ashok Kumar

BK 952591

K. MOHAN

Stamp Vendor

L.No.: 776-21/D1/2021

Walaabad-631605, Kanchipuram Dist.

Date: 08 JUL 2025

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காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், பழைய எண்.183, புதிய எண்.13 கம்பராஜபுரம் கிராமத்தில் புஞ்சை சர்வே எண்.291/1C, பூரா விஸ்தீரணம் ஏக்கர் 0.67 செண்டில் கிழக்கு பக்கம் உள்ள ஏக்கர் 0.15 செண்ட், புஞ்சை சர்வே எண்.291/1D, பூரா விஸ்தீரணம் ஏக்கர் 0.56 செண்டில் கிழக்கு பக்கம் உள்ள ஏக்கர் 0.15 செண்ட், புஞ்சை சர்வே எண்.291/2A, பூரா விஸ்தீரணம் ஏக்கர் 0.43 செண்ட், புஞ்சை சர்வே எண்.291/2B, பூரா விஸ்தீரணம் ஏக்கர் 0.47 செண்ட், புஞ்சை சர்வே எண்.291/2D, பூரா விஸ்தீரணம் ஏக்கர் 0.51 செண்ட் ஆக மொத்தம் ஏக்கர் 1.61 செண்ட் நிலங்களும், வேறு இதர சொத்துக்களும் சேர்த்து 1வது பார்ட்டிக்கும், அவருடைய தமையனார் வினாயகம் அவர்களுக்கும் கடந்த 24.01.2024 தேதியில் ஒரு குடும்ப பாகப்பிரிவினை பத்திரம் ஏற்பட்டு, மேற்படி பத்திரம் வாலாஜாபாத் சார்பதிவகத்தில் 1 புத்தகம், 2024-ம் ஆண்டின் 350 பத்திர எண்ணாக பதிவாகி, அதில் 1வது பார்ட்டிக்கு "B" ஷெட்ட்யூல் பாக சொத்தாக கிடைக்கப்பெற்ற புஞ்சை சர்வே எண்.291/1C, பூரா விஸ்தீரணம் ஏக்கர் 0.67 செண்டில் கிழக்கு பக்கம் உள்ள ஏக்கர் 0.15 செண்ட் நிலமானது தற்போது புலப்பிரிவு செய்யப்பட்டு புஞ்சை புதிய சர்வே எண்.291/1C2, பூரா விஸ்தீரணம் ஏக்கர் 0.15 செண்ட் என்று உள்ள நிலமும், புஞ்சை சர்வே எண்.291/1D, பூரா விஸ்தீரணம் ஏக்கர் 0.56 செண்டில் கிழக்கு பக்கம் உள்ள ஏக்கர் 0.15 செண்ட் நிலமானது தற்போது புலப்பிரிவு செய்யப்பட்டு புஞ்சை புதிய சர்வே எண்.291/1D2, பூரா விஸ்தீரணம் ஏக்கர் 0.15 செண்ட் என்று உள்ள நிலமும்,

2வது பார்ட்டி

1வது பார்ட்டி

1. புத்தகம் 20...ம் ஆண்டின் 350...வது பத்திரம்

2. நூலகனைக்கொண்டது...2...வது தாள்

பதிவு செய்யப்பட்டது





தமிழ்நாடு தமிழ்நாடு TAMILNADU

8. Ashok Kumar

BK 952592

K. Mohan

K. MOHAN

Stamp Vendor

L.No.: 776-21/D1/2021

Walajabad-631605, Kanchipuram Dist.

Date: 08 JUL 2025

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பஞ்சை சர்வே எண்.291/2A, பூரா விஸ்தீரணம் ஏக்கர் 0.43 செண்ட்நிலமும், பஞ்சை சர்வே எண்.291/2B, பூரா விஸ்தீரணம் ஏக்கர் 0.47 செண்ட் நிலமும், பஞ்சை சர்வே எண்.291/2D, பூரா விஸ்தீரணம் ஏக்கர் 0.51 செண்ட் நிலமும், ஆக மொத்தம் ஏக்கர் 1.61 செண்ட் நிலங்களும் சேர்ந்து 1வது பார்ட்டியின் பெயரில் கம்பராஜபுரம் கிராம பட்டா எண்.1294-ஆக தாக்கலாகி, சகல உரிமைகளுடனும், முழு சுவாதீனத்துடனும் ஆண்டனுபவித்து வருகின்ற ஏக்கர் 1.61 செண்ட் நிலங்களை மட்டும் 2வது பார்ட்டிக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க காஞ்சிபுரம் மாவட்டம், புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குனர் அவர்களால் குத்தகை ஒப்பந்தப் பத்திரம் நிறைவேற்றப்படும் தேதியிலிருந்து 15 ஆண்டு காலத்திற்கு 1வது பார்ட்டியும் 2வது பார்ட்டிக்கு குத்தகைவிட சம்மதித்து அதற்காக முன்பணமாக ரூபாய் : 50,000/- என்றும், 1 வருடத்திற்கு குத்தகை ரூ.75,000/- (எழுத்தால் ரூபாய் எழுபத்தைந்தாயிரம்) வீதம் பெற்றுக்கொள்வதற்கும் 1வது பார்ட்டி குத்தகைக்கு விட சம்மதிக்கிறார்.

இந்தப்படிக்கு நாம் இரு பார்ட்டிகளும் சேர்ந்து முழுமன சம்மதத்துடன் எழுதிக்கொண்ட குத்தகை ஆவணம்.

2வது பார்ட்டி

புத்தகம் 20... 25... 55...
11... தாக்கலாகக்கொண்டது... 2... வது தாள்

1வது பார்ட்டி

சுதிருமலை





தமிழ்நாடு தமிழ்நாடு TAMILNADU

S. Ashok kumar

BK 952593

K. MOHAN

Stamp Vendor

L.No.: 776-21/D1/2021

Walaabed-631605, Kanchipuram Dist.

Date: 08 JUL 2025

-4-

சொத்து விவரம்

காஞ்சிபுரம் மாவட்டம், காஞ்சிபுரம் பதிவு மாவட்டம், வாலாஜாபாத் வட்டம், வாலாஜாபாத் சார்பதிவகம், பழைய எண்.183, புதிய சர்வே எண்.13 கம்பராஜபுரம் கிராமத்திய புஞ்சை சர்வே எண்களும், விஸ்தீரணமும்:-

வரிசை எண்கள்.	சர்வே எண்கள்.	விஸ்தீரணம் (ஏக்கர் -செண்ட்)	விஸ்தீரணம் (ஹெக்டேர்-ஏர்ஸ்)	தீர்வை (ரூ-பை)	பட்டா எண்.
1.	291/2A /	0.43	0.17.5	0.53	1294
2.	291/2B /	0.47	0.19.0	0.58	1294
3.	291/2D /	0.41	0.16.5	0.51	1294
4.	291/1C2 /	0.15	0.06.0	0.20	1294
5.	291/1D2 /	0.15	0.06.0	0.30	1294
ஆக மொத்தம்		1.61	0.65.0	2.12	

2வது பார்ட்டி

S. Ashok kumar

1. புத்தகம் 20...
11-தாள்களைக் கொண்டது



1வது பார்ட்டி

K. Mohan

S. Ashok kumar



தமிழ்நாடு தமில்நாடு TAMILNADU

G. Ashok Kumar

BK 952594
K. MOHAN
Stamp Vendor
L.No.: 776-21/D1/2021
Walajabad-631605, Kanchipuram Dist.
Date: 08 JUL 2025

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(சொத்து விவரம் தொடர்ச்சி)

ஆக மேற்படி ஐந்து சர்வே எண்களுக்கும் கூடிய மொத்த விஸ்தீரணம் ஏக்கர் 1.61 செண்டுக்கு ஹெக்டேர் 0.65.0 ஏர்ஸ், தீர்வை ரூபாய் 2.12 பைசா உள்ள புஞ்சை நிலங்கள் இந்த குத்தகை ஒப்பந்த ஆவணத்திற்கு உட்பட்டவையாகும்.

2வது பார்ட்டி

1வது பார்ட்டி

G. Ashok Kumar

K. Mohan

சாட்சிகள்:-

1. A.வேலு (A.வேலு)
த/பெ.ஆறுமுகம் முதலியார்,
எண்.506, வேளாளர் தெரு,
வெண்குடி கிராமம்-631 605
ஆதார் எண்.9451 3277 8808

2. V.காமாட்சிநாதன் (V.காமாட்சிநாதன்),
த/பெ.வெங்கடகப்பிரமணியம்,
எண்.79, பூர் பாலாஜி நகர்,
வாலாஜாபாத் - 631 605.
ஆதார் எண்.2983 8192 8648

சான்று செய்தவர்:- Drafted by:-



P. Ellappan
P. ELLAPPAN, B.A., B.L.,
Advocate
Enrollment No. 3106/2009,
No.16, Perumal Koil Street,
Nathanallur Village,
Walajabad-631605.

புத்தகம் 20.25
தாக்கவணக்கமொன்று 5 வது தளம்



G. Ashok Kumar



தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

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

மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

வருவாய் கிராமம் : கம்பராசபுரம்

பட்டா எண் : 1294

உரிமையாளர்கள் பெயர்

1. கிருஷ்ண நாயக்கர்

மகன்

திருமலை

புல எண்	உட்பிரிவு	புனசெய்		நுனசெய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
291	1C2	0 - 6.00	0.20	--	--	--	--	2024/0105/03/444823- 2024/03/12/0001505D ----- Digitally signed: Satheesh S Tahsildar 14/03/2024 11:31:33:AM
291	1D2	0 - 6.00	0.30	--	--	--	--	2024/0103/03/323071- 2024/03/12/0001505D ----- Digitally signed: DEVIKALA T Zonal Deputy Tahsildar 24/04/2024 03:55:43:PM
291	2A	0 - 17.50	0.53	--	--	--	--	2024/0103/03/323071- ----- Digitally signed: DEVIKALA T Zonal Deputy Tahsildar 24/04/2024 03:55:43:PM
291	2B	0 - 19.00	0.58	--	--	--	--	2024/0103/03/323071- ----- Digitally signed: DEVIKALA T Zonal Deputy Tahsildar 24/04/2024 03:55:43:PM
291	2D	0 - 16.50	0.51	--	--	--	--	2024/0103/03/323071- ----- Digitally signed: DEVIKALA T Zonal Deputy Tahsildar 24/04/2024 03:55:43:PM
		0 - 65.00	2.12					

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டன. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் P/03/12/183/01294/40566 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 08-07-2025 அன்று 02:05:29 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கோமராவின் 2D barcode மூலம் மறுபதிவு 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



भारत सरकार

GOVERNMENT OF INDIA



அசோக் குமார் சே

Ashok Kumar S

பிறந்த நாள் / DOB : 24/05/1996

ஆண் / MALE

7508 0066 0424

भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

முகவரி:

தந்தை / தாய் பெயர்: செகர்,
83, வி வி கோவில் தெரு,
வாலாஜாபாத், கங்கேபுரம்,
தமிழ் நாடு, 631605

Address:

S/O. Sekar, 83, V V Koll Street,
Walajabad, Kancheepuram,
Tamil Nadu, 6316051947
1800 300 1947

help@uidai.gov.in

www.uidai.gov.in

P.O. Box No. 1947
Bengaluru-560 001

உதவி - சாதாரண மனிதனின் அகிட்டம்

சரிசு செய்யப்பட்டது
Government of India

Issue Date: 18/05/2013

திருமலை கிருஷ்ணன்
Thirumalai Krishnan
பிறந்த நாள்/DOB: 25/05/1969
ஆண் / MALE

7008 6432 5827
VID : 9109 8290 4587 5803

எனது ஆதார். எனது அடையாளம்

சரிசு செய்யப்பட்டது
Unique Identification Authority of India

Issue Date: 18/05/2013

முகவரி:
S/O கிருஷ்ணன், எண் 218, மெட்டு தெரு,
தாமமனூர் அஞ்சல், கம்பராஜபுரம்,
கங்கேபுரம்,
தமிழ்நாடு - 631605

Address:
S/O Krishnan, NO 218, METTU STREET,
THAMMANUR POST, Kambharajapuram,
Kancheepuram,
Tamil Nadu - 631605

7008 6432 5827
VID : 9109 8290 4587 5803

1947 | help@uidai.gov.in | www.uidai.gov.in

K. கிருஷ்ணன்

S. [Signature]

1 புத்தம் 2025 ஆண்டின் சிவனம் எண் 5/51
4 தாள்களைக் கொண்டு 7 வருடம்

பதிவு அலுவலர்



S. [Signature]



भारत सरकार
GOVERNMENT OF INDIA



வேலு அருமுகம்
VELU ARUMUGAM
பிறந்த நாள் / DOB : 18/10/1971
ஆண் / MALE



9451 3277 8808



भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

முகவரி:
S/O அருமுகம், எண் 506,
வல்லாபத் தெரு,
வாலாஜாபாத், வேங்கடூர்.
காஞ்சிபுரம், தமிழ்நாடு.
631605

Address:
S/O Arumugam, NO 506,
VALLALAR STREET,
VALAJABATH, Vengud,
Kancheepuram, Tamil Nadu,
631605



அருமுகம் - வாலாஜாபாத் மனிதனின் அடிகாசம்

1947
1800 208 1347

help@uidai.gov.in

www.uidai.gov.in

P.O. Box No. 1947,
Bangalore-560 001

A. V. S.



भारत सरकार
Government of India



கமுகினாதன் வெங்கடசுப்ரமணியம்
Komuchinathan Venkadasupramaniyam
பிறந்த நாள்/DOB: 04/11/1976
ஆண் / MALE

UIDAI File: 180505913

2983 6192 8643

VID : 9139 9970 5197 8551

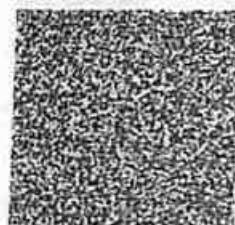
எனது அடிகாசம். எனது அடையாளம்



भारतीय विशिष्ट पहचान प्राधिकरण
Unique Identification Authority of India

முகவரி:
S/O: வெங்கடசுப்ரமணியம், 79, பாலாஜி
நகர், வாலாஜாபாத், காஞ்சிபுரம்,
தமிழ்நாடு - 631605

Address:
S/O: Venkadasupramaniyam, 79, BALAJI
NAGAR, Walajabad, Kancheepuram,
Tamil Nadu - 631605



2983 6192 8643

VID : 9139 9970 5197 8551

1947

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வே. கமுகினாதன்

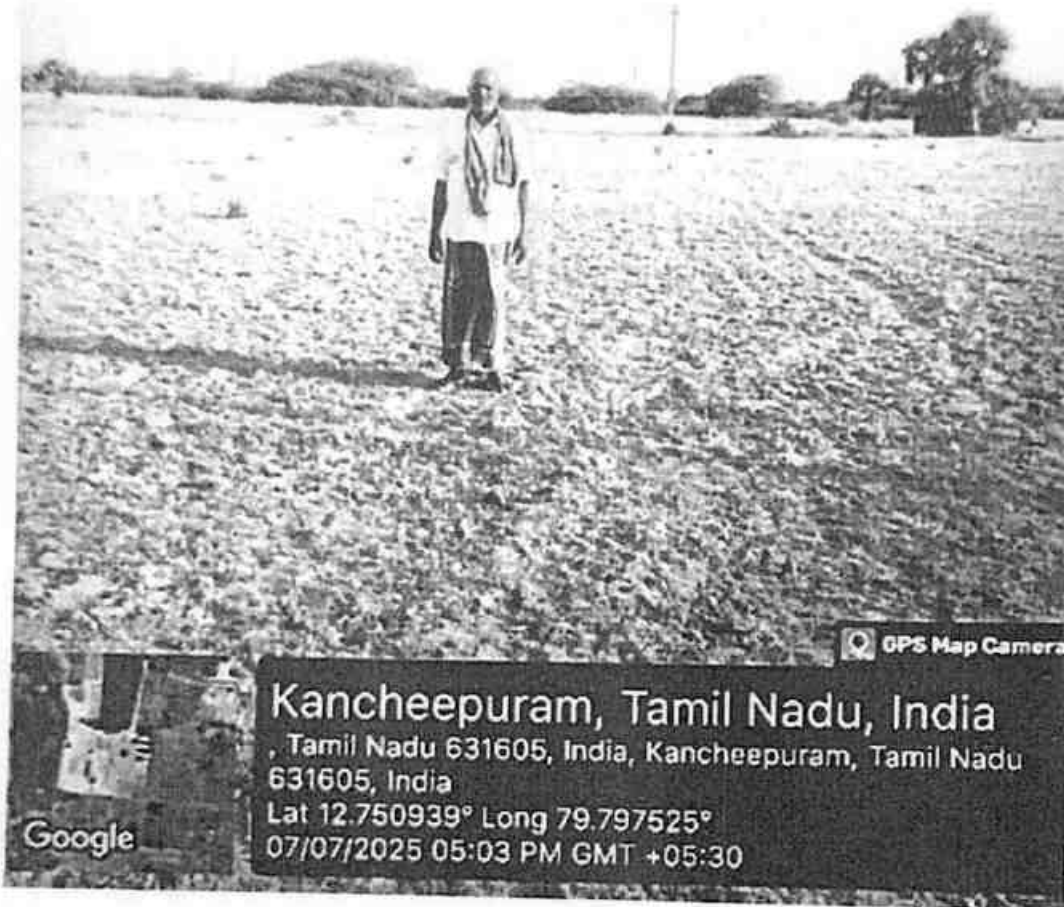
1. பிறந்த 20...85...5151 ஆண்டின் விவரம் என்ன...

11. தாங்களிடமிருமிருந்து...8...வரு தாள்

பிரதி அனுப்பல்



S. A. P.



8.11

கதிருமலை

1. பத்தம் 20... 25... 5/51
 2. தாள்களைக்கொண்டது... 9... வது தாள்

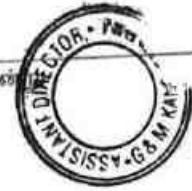
6
 புதிது அலுவலர்



8.11

R/வாலாஜாபாத்/புத்தகம்-1/5151/2025

1899ம் ஆண்டு இந்திய முத்திரைச் சட்டம் 42வது பிரிவின் கீழான சாண்



2025ம் ஆண்டு வரிசை எண் 4377

எண் 83, வலம்புரி விநாயகர் கோவில் தெரு., வாலாஜாபாத், வாலாஜாபாத், காஞ்சிபுரம், தமிழ்நாடு, இந்தியா, 631605-ல் வசிக்கும் திரு அசோக்குமார் என்பவரிடமிருந்து ₹ 6,750/- (ரூபாய் ஆறாயிரத்து எழுநூற்று ஐம்பது மட்டும்) இந்த ஆவணத்திற்காக இந்திய முத்திரைச் சட்டம் 41வது பிரிவின் படி குறைவாயிருந்த முத்திரைக் கட்டணம் வசூலிக்கப்பட்டது என நான் இதன் மூலம் சான்றளிக்கிறேன்.

சார்பதிவாளர் : வாலாஜாபாத்
நாள்: 08/07/2025

சார்பதிவாளர் மற்றும் இந்திய முத்திரைச் சட்டம் பிரிவு
41ன் படி ஆட்சியர்

சார்பதிவாளர்
வாலாஜாபாத்

2025 ஆம் ஆண்டு ஜூலை மாதம் 08ம் தேதி பி.ப. 04:00 மணியளவில் வாலாஜாபாத் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 12,060/- செலுத்தியவர்.

புத்தகம் 20... 25 ஆண்டின் அவணம் எண்...
தாள்களைக் கொண்டது... 10 வது தாள்

இடது பெருவிரல்



கூடுதல் விவரங்கள் ஆவண வாசகத்தில்
உள்ளபடி

ச.அ.சி
சாண் 384



எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



R.திருமலை

"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:2180634fa9c8f8cb5624b8fb0d42a73d223e023 (Details from UIDAI : Thirumalai Krishnan S/O Krishnan, 26-05-1969, xxxxxxxx5827)



எழுதி வாங்கியதாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:2256905406ed11b21a4467880da588a7a6715e0 (Details from UIDAI : Ashok Kumar S S/O: Sekar, 24-05-2025)



R/வாலாஜாபாத்/புத்தகம்-1/5151/2025

1996, XXXXXXXX0424)



2025 ஆம் ஆண்டு ஜூலை மாதம் 8ம் நாள்

SELVAM R

சார்பதிவாளர்

வாலாஜாபாத்

சார்பதிவாளர்

வாலாஜாபாத்.

R/வாலாஜாபாத்/புத்தகம்-1/5151/2025 எண்ணாகப் பதிவு செய்யப்பட்டது.

நாள்: 08/07/2025

வாலாஜாபாத்



SELVAM R

சார்பதிவாளர்

சார்பதிவாளர்

வாலாஜாபாத்.

புத்தகம் 20...²⁵ ஆண்டின் சிவனம் எண்... 5151
தாள்களைக் கொண்டது... வது தாள்



5193/2025

TP/225731026/2025



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INDIA

தமிழ்நாடு தமிழ்நாடு TAMILNADU

S. Ashok kumar

BK 952609

K. MOHAN

Stamp Vendor

L.No.: 776-21/D1/2021

WalaJabad-631605, Kanchipuram Dist.

Date: 09 JUL 2025

குத்தகை ஒப்பந்த ஆவணம்

2025 இரண்டாயிரத்து இருபத்தைந்தாம் வருடம், ஜூலை மாதம், 9-ஆம் தேதி, காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், பழைய எண்.183, புதிய எண்.13 கம்பராஜபுரம் கிராமம், மேட்டுத்தெரு, கதவு எண்.218 இல்லத்தில் வசிக்கும், காலஞ்சென்ற கிருஷ்ணன் அவர்களின் குமாரர், 57 வயதுள்ள, திரு.K.வினாயகம் (Aadhar No.5615 6655 6207), அவர்கள் 1வது பார்ட்டியாகவும்:-

காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், வாலாஜாபாத் நகரம், வலம்புரி விநாயகர் கோயில் தெரு, கதவு எண்.83 இல்லத்தில் வசிக்கும், திரு.P.சேகர் அவர்களின் குமாரர், 29 வயதுள்ள, திரு.S.அசோக்குமார் (Aadhar No.7508 0066 0424) அவர்கள் 2வது பார்ட்டியாகவும் ஆகிய நாம் இருபார்ட்டிகளும் சேர்ந்து முழுமன சம்மத்துடன் எழுதிக்கொடுத்த குத்தகை ஆவணம் என்னவென்றால்:-

2வது பார்ட்டி

1. பத்தாம் 20...ம் ஆண்டின் ஆவணம் எண்...
 11...தாள்களைக் கொண்டது...வது தாள்

5193 1வது பார்ட்டி

K. Ashok Kumar

பதிவு ஆவணம்





தமிழ்நாடு தமிழ்நாடு TAMILNADU

S. Ashok Kumar

BK 952610

K. MOHAN
Stamp Vendor

L.No.: 776-21/D/1/2021
Walajabad-631605, Kanchipuram Dist
Date: 09 JUL 2025

-2-

காஞ்சிபுரம் மாவட்டம், வாலாஜாபாத் வட்டம், பழைய எண்.183, புதிய எண்.13 கம்பராஜபுரம் கிராமத்தில் புஞ்சை சர்வே எண்.291/1C, பூரா விஸ்தீரணம் ஏக்கர் 0.67 செண்டில் மேற்கு பக்கம் உள்ள ஏக்கர் 0.52 செண்ட், புஞ்சை சர்வே எண்.291/1D, பூரா விஸ்தீரணம் ஏக்கர் 0.56 செண்டில் மேற்கு பக்கம் உள்ள ஏக்கர் 0.41 செண்ட், புஞ்சை சர்வே எண்.291/1A, பூரா விஸ்தீரணம் ஏக்கர் 0.35 செண்ட், புஞ்சை சர்வே எண்.291/1B, பூரா விஸ்தீரணம் ஏக்கர் 0.33 செண்ட், ஆக மொத்தம் ஏக்கர் 1.61 செண்ட் நிலங்களும், மேற்படி சர்வே எண்.291/1C-ல் உள்ள கிணறு, 3 எச்.பி மின் மோட்டார் பம்பு செட், மின் இணைப்பு எண்.08-636-012-249, அதன் டெபாசித் தொகை உள்பட சொத்துக்களும், வேறு இதர சொத்துக்களும் சேர்த்து 1வது பார்ட்டிக்கும், அவருடைய சகோதரர் திருமலை அவர்களுக்கும் கடந்த 24.01.2024 தேதியில் ஒரு குடும்ப பாகப்பிரிவினை பத்திரம் ஏற்பட்டு, மேற்படி பத்திரம் வாலாஜாபாத் சார்பதிவகத்தில் 1 புத்தகம், 2024-ம் ஆண்டின் 350 பத்திர எண்ணாக பதிவாகி, அதில் 1வது பார்ட்டிக்கு "A" ஷெட்யூல் பாக சொத்தாக கிடைக்கப்பெற்ற புஞ்சை சர்வே எண்.291/1C, பூரா விஸ்தீரணம் ஏக்கர் 0.67 செண்டில் மேற்கு பக்கம் உள்ள ஏக்கர் 0.52 செண்ட் நிலமானது தற்போது புலப்பிரிவு செய்யப்பட்டு புஞ்சை புதிய சர்வே எண்.291/1C1, பூரா விஸ்தீரணம் ஏக்கர் 0.52 செண்ட் என்று உள்ள நிலமும், புஞ்சை சர்வே எண்.291/1D, பூரா விஸ்தீரணம் ஏக்கர் 0.56 செண்டில் மேற்கு பக்கம் உள்ள ஏக்கர் 0.41 செண்ட் நிலமானது தற்போது புலப்பிரிவு செய்யப்பட்டு புஞ்சை புதிய சர்வே எண்.291/1D1, பூரா விஸ்தீரணம் ஏக்கர் 0.41 செண்ட் என்று உள்ள நிலமும்,

2வது பார்ட்டி

1 புத்தகம் 20 ஆண்டின் அலணம் எண். 593
11 தள்ளுகளைக் கொண்டது 2 வது ரூப

1வது பார்ட்டி

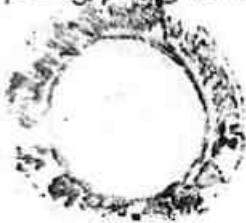
17. விவரம்

புதிது அலணம்





தமிழ்நாடு தமிழ்நாடு TAMILNADU



S. Ashok kumar

BK 952611
K. MOHAN
Stamp Vendor
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Date: 09 JUL 2025

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பஞ்சை சர்வே எண்.291/1A, பூரா விஸ்தீரணம் ஏக்கர் 0.35 செண்ட் நிலமும், பஞ்சை சர்வே எண்.291/1B, பூரா விஸ்தீரணம் ஏக்கர் 0.33 செண்ட் நிலமும், ஆக மொத்தம் ஏக்கர் 1.61 செண்ட் நிலங்களும் சேர்ந்து 1வது பார்ட்டியின் பெயரில் கம்பராஜபுரம் கிராம பட்டா எண்.1292-ஆக தாக்கலாகி, சகல உரிமைகளுடனும், முழு கவாதினத்துடனும் ஆண்டனுபவித்து வருகின்ற ஏக்கர் 1.61 செண்ட் நிலங்கள் உள்பட 2வது பார்ட்டிக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க காஞ்சிபுரம் மாவட்டம், புனியியல் மற்றும் சுரங்கத்துறை துணை இயக்குனர் அவர்களால் குத்தகை ஒப்பந்தப் பத்திரம் நிறைவேற்றப்படும் தேதியிலிருந்து 15 ஆண்டு காலத்திற்கு 1வது பார்ட்டியும் 2வது பார்ட்டிக்கு குத்தகைவிட சம்மதித்து அதற்காக முன்பணமாக ரூபாய் : 50,000/- என்றும், 1 வருடத்திற்கு குத்தகை ரூ.75,000/- (எழுத்தால் ரூபாய் எழுபத்தைந்தாயிரம்) வீதம் பெற்றுக்கொள்வதற்கும் 1வது பார்ட்டி குத்தகைக்கு விட சம்மதிக்கிறார்.

இந்தப்படிக்கு நாம் இரு பார்ட்டிகளும் சேர்ந்து முழுமன சம்மதத்துடன் எழுதிக்கொண்ட குத்தகை ஆவணம்.

2வது பார்ட்டி

1வது பார்ட்டி
புத்தகம் 20... 85 993
11...தாள்களைக்கொண்டது... 3...வது தாள்

1வது பார்ட்டி

13.07.2025

S. Ashok kumar

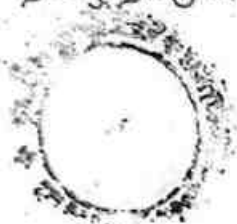
புதுவு கிருமணி



S. Ashok kumar



தமிழ்நாடு தமிழ்நாடு TAMILNADU



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Date: 09 JUL 2025

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சொத்து விவரம்

காஞ்சிபுரம் மாவட்டம், காஞ்சிபுரம் பதிவு மாவட்டம், வாலாஜாபாத் வட்டம், வாலாஜாபாத் சார்பதிவகம், பழைய எண்.183, புதிய எண்.13 கம்பராஜபுரம் கிராமத்திய புஞ்சை சர்வே எண்களும், விஸ்தீரணமும்:-

வரிசை எண்கள்.	சர்வே எண்கள்.	விஸ்தீரணம் (ஏக்கர் -செண்ட்)	விஸ்தீரணம் (ஹெக்டேர்-ஏர்ஸ்)	தீர்வை (ரூ-பை)	பட்டா எண்.
1.	291/1A	0.35	0.14.0	0.44	1292
2.	291/1B	0.33	0.13.5	0.41	1292
3.	291/1C1	0.52	0.21.5	0.80	1292
4.	291/1D1	0.41	0.16.5	0.70	1292
ஆக மொத்தம்		1.61	0.65.5	2.35	

2வது பார்ட்டி

1 புத்தகம் 20... 5193
11... தாள்களைக் கொண்டது... வறு தாள்

1வது பார்ட்டி

15-06-2025

(Handwritten signature)



(Handwritten signature)



தமிழ்நாடு தமிழ்நாடு TAMILNADU

S. Ashok kumar

BK 952613

R. MOHAN
Stamp Vendor

L.No.: 776-21/D1/2021
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Date: 09 JUL 2025

-5-

(சொத்து விவரம் தொடர்ச்சி)

ஆக மேற்படி நான்கு சர்வே எண்களுக்கும் கூடிய மொத்த விஸ்தீரணம் ஏக்கர் 1.61 செண்டுக்கு ஹெக்டேர் 0.65.5 ஏர்ஸ், தீர்வை ரூபாய் 2.35 பைசா உள்ள புஞ்சை நிலங்களும், மேற்படி சர்வே எண்.291/1C1-ல் உள்ள கிணறு, 3 எச்.பி மின் மோட்டார் பம்பு செட், மின் இணைப்பு எண்.08-636-012-249, அதன் டெபாசித் தொகை உள்பட இந்த குத்தகை ஒப்பந்த ஆவணத்திற்கு உட்பட்டவையாகும். (மேற்படி கிணற்றில் நீரின்றி தற்போது கலனாகி பயன்பாட்டில் இல்லை. மேற்படி நிலத்தில் உள்ள மின் இணைப்பு தமிழ்நாடு மின்சார வாரியத்திற்கு திரும்ப ஒப்படைக்கப்படுகிறது)

2வது பார்ட்டி

புத்தம் 20.11.20 ஆண்டில் அலுவல் எண். 5793 வது பார்ட்டி

11 தாள்களைக் கொண்டது. 5 வது தாள் 14.08.2025

சாட்சிகள்:-

1. A. V. V. (A.வேலு)

த/பெ.ஆறுமுகம் முதலியார்,
எண்.506, வேளாளர் தெரு,
வெண்குடி கிராமம்-631 605
ஆதார் எண்.9451 3277 8808

2. V. K. M. S. (V.காமாட்சிநாதன்),

த/பெ.வெங்கடசுப்பிரமணியம்,
எண்.79, புதி பாலாஜி நகர்,
வாலாஜாபாத் - 631 605.
ஆதார் எண்.2983 6192 8643

புத்தம் 20.11.20



சான்று செய்தவர்:- Drafted by:-

P. Ellappan



P. ELLAPPAN, B.A., B.L,
Advocate
Enrollment No. 3106/2009,
No.16, Perumal Koil Street,
Nathanallur Village,
Walejabad-631605.

25, 3:12 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை விபரங்கள்



தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

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

மாவட்டம் : காஞ்சிபுரம்

வட்டம் : வாலாஜாபாத்

வருவாய் கிராமம் : கம்பராசபுரம்

பட்டா எண் : 1292

உரிமையாளர்கள் பெயர்

1. கிருஷ்ண நாயக்கர்

மகன்

கே.வினாயகம்

புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	
291	1A	0 - 14.00	0.44	--	--	--	--	2024/0103/03/315774- -- இறவை வஜா தள்ளுபடி 0.24--- Digitally signed: JAYASRI C Zonal Deputy Tahsildar 11/03/2024 06:11:53:PM
291	1B	0 - 13.50	0.41	--	--	--	--	2024/0103/03/315774- -- Digitally signed: JAYASRI C Zonal Deputy Tahsildar 11/03/2024 06:11:53:PM
291	1C1	0 - 21.50	0.80	--	--	--	--	2024/0103/03/324276- -2024/03/12/000150SD Digitally signed: DEVIKALA T Zonal Deputy Tahsildar 24/04/2024 03:52:55:PM
291	1D1	0 - 16.50	0.70	--	--	--	--	2024/0103/03/324276- -2024/03/12/000150SD Digitally signed: DEVIKALA T Zonal Deputy Tahsildar 24/04/2024 03:52:55:PM
		0 - 65.50	2.35					

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் P/03/12/183/01292/40344 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 09-07-2025 அன்று 03:12:40 PM நேரத்தில் அச்சிடக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

புத்தகம் 2025 ஆண்டின் அடிப்படையில்

தாக்கீதாக்கொண்டது 6...லது தான்



பதிவு அலுவலர்



भारत सरकार

GOVERNMENT OF INDIA



अशोक कुमार से

Ashok Kumar S

பித்த தான் / DOB : 24/05/1996

ஆண் / MALE

7508 0066 0424



भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

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83, வி வி கோவில் தெரு,

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Walajabad, Kancheepuram,

Tamil Nadu, 631605



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ஆதார் - சாதாரண மனிதனின் அதிகாரம்

இந்திய அரசாங்கம்
Government of India

வினாயகம் கிருஷ்ணன்
Vinayagam Krishnan

தந்தை: கிருஷ்ணன்
Father: KRISHNAN

பிறப்பு ஆண்டு: 1996
ஆண் / Male

5615 6655 6207

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

भारतीय विशिष्ट पहचान प्राधिकरण
Unique Identification Authority of India

முதல்: வி. வி. கோவில் தெரு
மே.பி.கே. தெரு, வாலாஜாபாத், கங்கேபுரம்
தந்தை: கிருஷ்ணன்

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218, METTU STREET,
Kambajapuram,
Thammanur, Kancheepuram,
Tamil Nadu, 631605

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1800 300 1947

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1. பத்தம் 20...
2. தாள்களைக் கொண்டது...
3. வது தான்

17-08-2016

புதிர் தாடு



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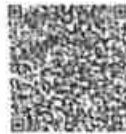


भारत सरकार
GOVERNMENT OF INDIA



வேலு அரமுகம்
VELU ARUMUGAM
பிறந்த நாள் / DOB : 18/10/1971
ஆண் / MALE

9451 3277 8803



भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

ஒகவளி:
S/O அரமுகம், எண் 506,
வல்லாபத் தெரு,
காஞ்சேபுரம், தமிழ்நாடு.
631605

Address:
S/O Arumugam, NO 506,
VALLALAR STREET,
VALAJABATH, Vengudi,
Kancheepuram, Tamil Nadu,
631605



1947
1800 308 1947

help@uidai.gov.in

www.uidai.gov.in

P.O. Box No.1947,
Bengaluru-560 001

ஆதாரம் - சாதாரண மனிதனின் அதிகாரம்

A. 1009



भारत सरकार
Government of India



காமட்சிநாதன் வெங்கடசுப்ரமணியம்
Kamatchinathan Venkadasupramaniyam
பிறந்த நாள்/DOB: 04/11/1976
ஆண் / MALE

2983 6192 8643

VID : 9139 9970 5197 8551

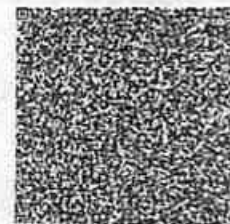
எனது ஆதாரம். எனது அடையாளம்



भारतीय विशिष्ट पहचान प्राधिकरण
Unique Identification Authority of India

ஒகவளி:
S/O: வெங்கடசுப்ரமணியம், 79, பாலாஜி
நகர், வாலாஜாபாத், காஞ்சேபுரம்,
தமிழ் நாடு - 631605

Address:
S/O: Venkadasupramaniyam, 79, BALAJI
NAGAR, Walajabad, Kancheepuram,
Tamil Nadu - 631605



2983 6192 8643

VID : 9139 9970 5197 8551

1947

help@uidai.gov.in

www.uidai.gov.in

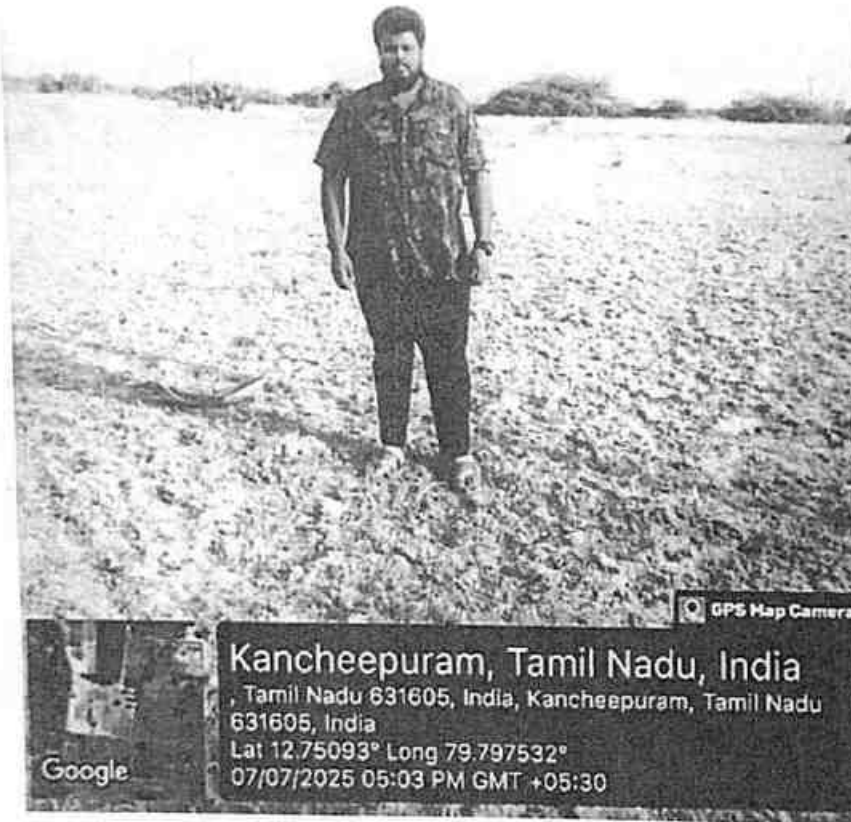
0001. காமட்சிநாதன்

புத்தகம் 20.....05.....5793
11.....தாவதுகளைக் கொண்டு.....8.....வது தாள்

பதிவு அலுவலர்



S. A. P.



Handwritten signature/initials.

K. மெய்யன்

1. பத்திரம் 20. 05. 5192
11. துறைமுகம்/பெரிய... 9... வரு. தன்

புதிதாக...



Handwritten signature/initials.

R/வாலாஜாபாத்/புத்தகம்-1/5193/2025



1899ம் ஆண்டு இந்திய முத்திரைச் சட்டம் 42வது பிரிவின் கீழான சான்று

2025ம் ஆண்டு வரிசை எண் 4414

எண்.83, வலம்புரி விநாயகர் கோவில் தெரு., வாலாஜாபாத், வாலாஜாபாத், காஞ்சிபுரம், தமிழ்நாடு, இந்தியா, 631605-ல் வசிக்கும் திரு அசோக்குமார் என்பவரிடமிருந்து ₹ 6,750/- (ரூபாய் ஆறாயிரத்து எழுநூற்று ஐம்பது மட்டும்) இந்த ஆவணத்திற்காக இந்திய முத்திரைச் சட்டம் 41வது பிரிவின் படி குறைவாயிருந்த முத்திரைக் கட்டணம் வசூலிக்கப்பட்டது என நான் இதன் மூலம் சான்றளிக்கிறேன்.

சார்பதிவாளர் : வாலாஜாபாத்
நாள்: 09/07/2025

சார்பதிவாளர் மற்றும் இந்திய முத்திரைச் சட்டம் பிரிவு
41ன் படி ஆட்சியர்
வாலாஜாபாத்



2025 ஆம் ஆண்டு ஜூலை மாதம் 09ம் தேதி பி.ப. 05:30 மணியளவில் வாலாஜாபாத் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 12,060/- செலுத்தியவர்.

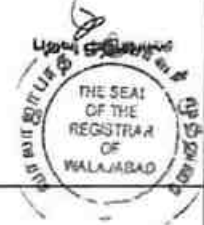
புத்தகம் 2025 ஆண்டின் அவணம் எண் 5193
11 தாள்களைக் கொண்டது 10 வது தாள்

இடது பெருவிரல்



கூடுதல் விவரங்கள் ஆவண வாசகத்தில்
உள்ளபடி.

ச.அ.பு.
#10809384



எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:24211853498b80cda9847b5bbcc4c81251fe52e0 (Details from UIDAI : Vinayagam Krishnan S/O Krishnan, 10-06-1968, xxxxxxxx6207)

K. Ashok Kumar



எழுதி வாங்கியதாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்



"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:9251895ad3248624da1472ba3099116cdc310e (Details from UIDAI : Ashok Kumar S S/O: Sekar, 24-05-)

ச.அ.பு.



R/வாலாஜாபாத்/புத்தகம்-1/5193/2025



1998, xxxxxxxx0424)

2025 ஆம் ஆண்டு ஜூலை மாதம் 9ம் நாள்

SELVAM R

சார்பதிவாளர்
வாலாஜாபாத்
சார்பதிவாளர்
வாலாஜாபாத்

R/வாலாஜாபாத்/புத்தகம்-1/5193/2025 எண்ணாகப் பதிவு செய்யப்பட்டது

நாள் 09/07/2025

வாலாஜாபாத்



SELVAM R

சார்பதிவாளர்
சார்பதிவாளர்
வாலாஜாபாத்

புத்தகம் 20... 85... ஆண்டின் சுவணம் எண்... 5193
...11-தாள்களைக் கொண்டது... 11...வது தாள்



भारत सरकार
GOVERNMENT OF INDIA

अशोक कुमार से
Ashok Kumar S
பிறந்த நாள் / DOB : 24/05/1996
ஆண் / MALE

7508 0066 0424

சாதாரண மனிதனின் அதிகாரம்

भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

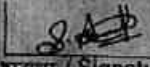
Address:
S/O. Sekar, 83, V V Koil Street,
Walajabad, Kancheepuram,
Tamil Nadu, 631605

1947
1000 300 1947

help@uidai.gov.in www.uidai.gov.in

P.O. Box No. 1947
Bengaluru-560 001

8.4.2

आयकर विभाग INCOME TAX DEPARTMENT		भारत सरकार GOVT. OF INDIA
	स्थायी लेखा संख्या कार्ड Permanent Account Number Card CDDPA7037H	
नाम / Name S ASHOK KUMAR	पिता का नाम / Father's Name SEKAR	
जन्म की तारीख / Date of Birth 24/05/1996	हस्ताक्षर / Signature 	





Reg. No M16GEO104
College Code : 514

No. 2017/43495



பெரியார் பல்கலைக்கழகம்
PERIYAR UNIVERSITY

அறிவியல் புலம்
FACULTY OF SCIENCE



பெரியார் பல்கலைக்கழகம் ஜூலை 2017

ஆம் ஆண்டு நடத்திய

பயன்பாட்டுப்புவியமைப்பியல்

தேர்வில்

P வெள்ளையன்

முதல் வகுப்பில் உயர் தகமையுடன் O தரத்தில்

தேர்ச்சி பெற்றுத் தகுதியடைந்திருப்பதாக

உரிய தேர்வாளர்கள் சான்றுத்தலை ஒற்று

ஆய்வியல் நிறைஞர்

என்னும்

மாடத்தினை அவருக்குப் பல்கலைக்கழக இலாசீனையுடன்
அழைக்கின்றது.

பெரியார் பல்கலைக்கழக ஆட்சிக்குழு

The Syndicate of the PERIYAR UNIVERSITY

hereby makes known that

VELLAIYAN P

has been

admitted to the Degree of

MASTER OF PHILOSOPHY

having been certified by duly appointed Examiners to be qualified to receive the same in

APPLIED GEOLOGY

and was placed in

FIRST CLASS EXEMPLARY WITH O GRADE

at the Examination held in

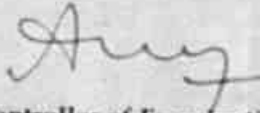
JULY 2017

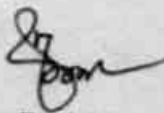
by Periyar University.



Given under the Seal of the University

Dated : 20-03-2018
Salem - 636011,
Tamil Nadu, India.


Controller of Examinations &c


Registrar


Vice-Chancellor



Cell: 9885799345
E-mail -ellammangranites@gmail.com

M/s ELLAMMAN GRANITES

PLOT NO 1, ROOM NO 10, BANKERS COLONY, SRIKAKULAM ANDHRA PRADESH-532001

Ref. No.- EG/EC/2022/02

Date - 02.11.2022

EXPERIENCE CERTIFICATE

This is to certify that Mr.P.Vellaiyan Geologist worked in M/s Ellamman Granites as Mines Manager in Sy.No.71, Mukhalingapuram Village, Tekkali Mandal, Srikakulam District, Andhra Pradesh State from 20.07.2017 to 31.10.2022. During his working period he carried out Boundary demarcation survey using DGPS, Reserve Estimation, direct and co-ordinate the production activities, Ensure Mine Safety and Surface plan prepared. We found him a sincere, honest, hardworking, dedicated employee with a professional attitude and very good job knowledge. He is amiable in nature and character is well.

We wish him every success in life.

For ELLAMMAN GRANITES

R. Polu Bai

Proprietor

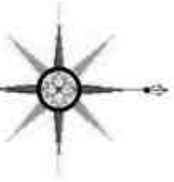
(Signature with date and official Seal)

[Handwritten Signature]

(Signature of Employee)

[Handwritten Signature]

PLATE NO-I



APPLICANT:

Mr.S.ASHOK KUMAR,
S/o.SEKAR,
No.83, V.V KOIL STREET,
WALAJABAD, KANCHEEPURAM,
TAMIL NADU - 631 605.

LEASE APPLIED AREA:

S.F.No : (290-1A, 2B1),
(291-1A, 1B, 1C1, 1C2, 1D1, 1D2, 2A, 2B, 2D),
(292-1A, 1B, 2A, 2B & 2C),
EXTENT : 3.48.0Hect,
VILLAGE : KAMMARAJAPURAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

INDEX



MINE LEASE AREA

APPROACH ROAD

VILLAGE ROAD

NH -132B ROAD

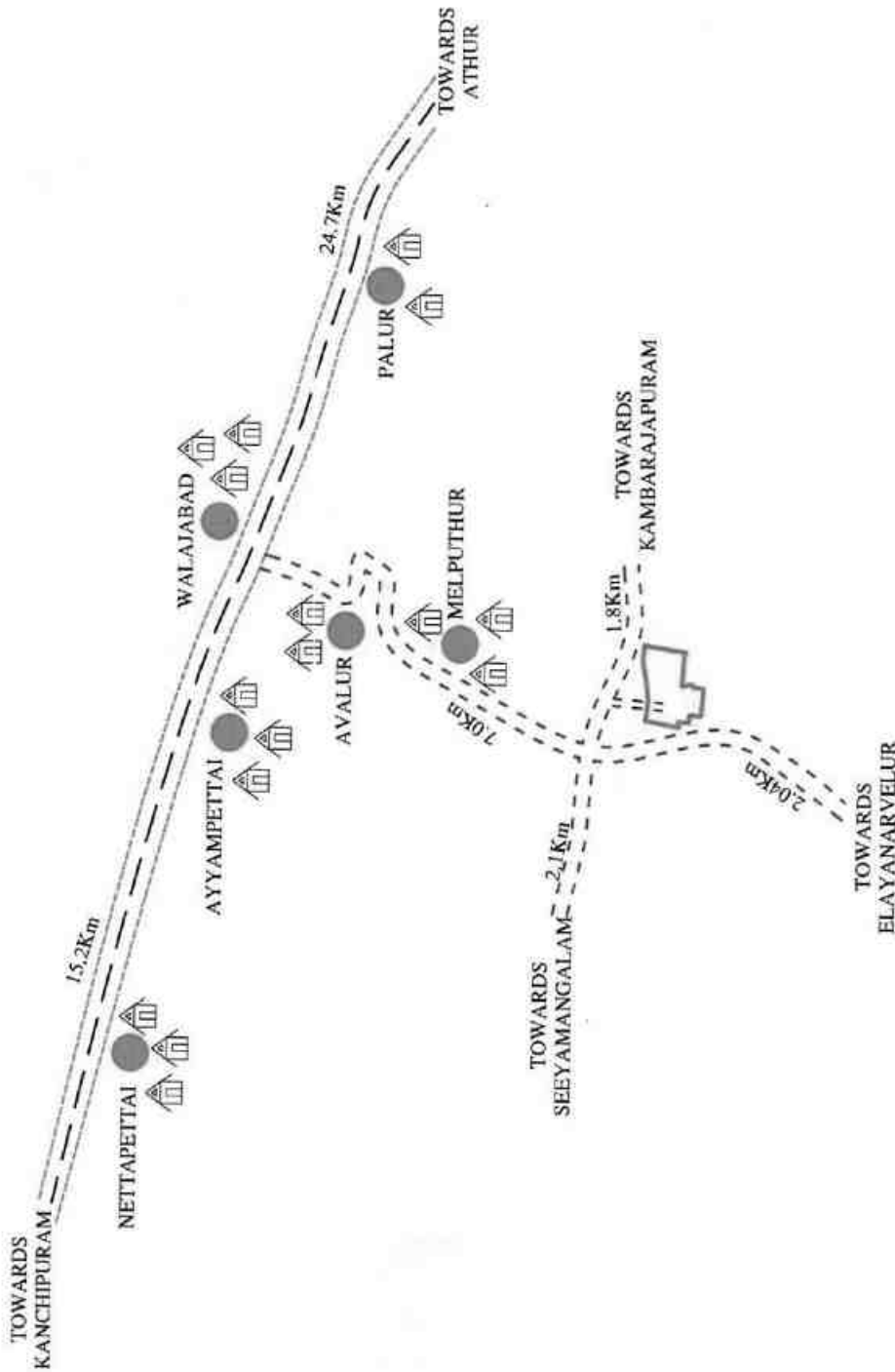
KEY MAP

Not to Scale

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

P. Vellaiyan
P.VELLAIYAN, M.Sc., M.Phil.,
QUALIFIED PERSON



12°45'5.56"N

79°47'48.19"E

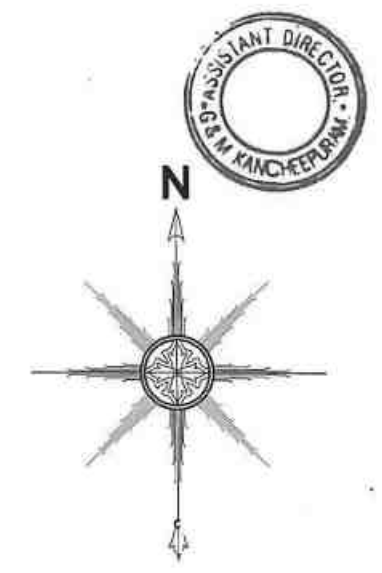


PLATE NO-IA

APPLICANT:
Mr.S.ASHOK KUMAR,
S/o.SEKAR,
No.83, V.V KOIL STREET,
WALAJABAD, KANCHEEPURAM,
TAMIL NADU - 631 605.

LEASE APPLIED AREA:
S.F.No : (290-1A, 2B1),
(291-1A, 1B, 1C1, 1C2, 1D1, 1D2, 2A, 2B, 2D),
(292-1A, 1B, 2A, 2B & 2C),
EXTENT : 3.48.0Hect,
VILLAGE : KAMMARAJAPURAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

INDEX

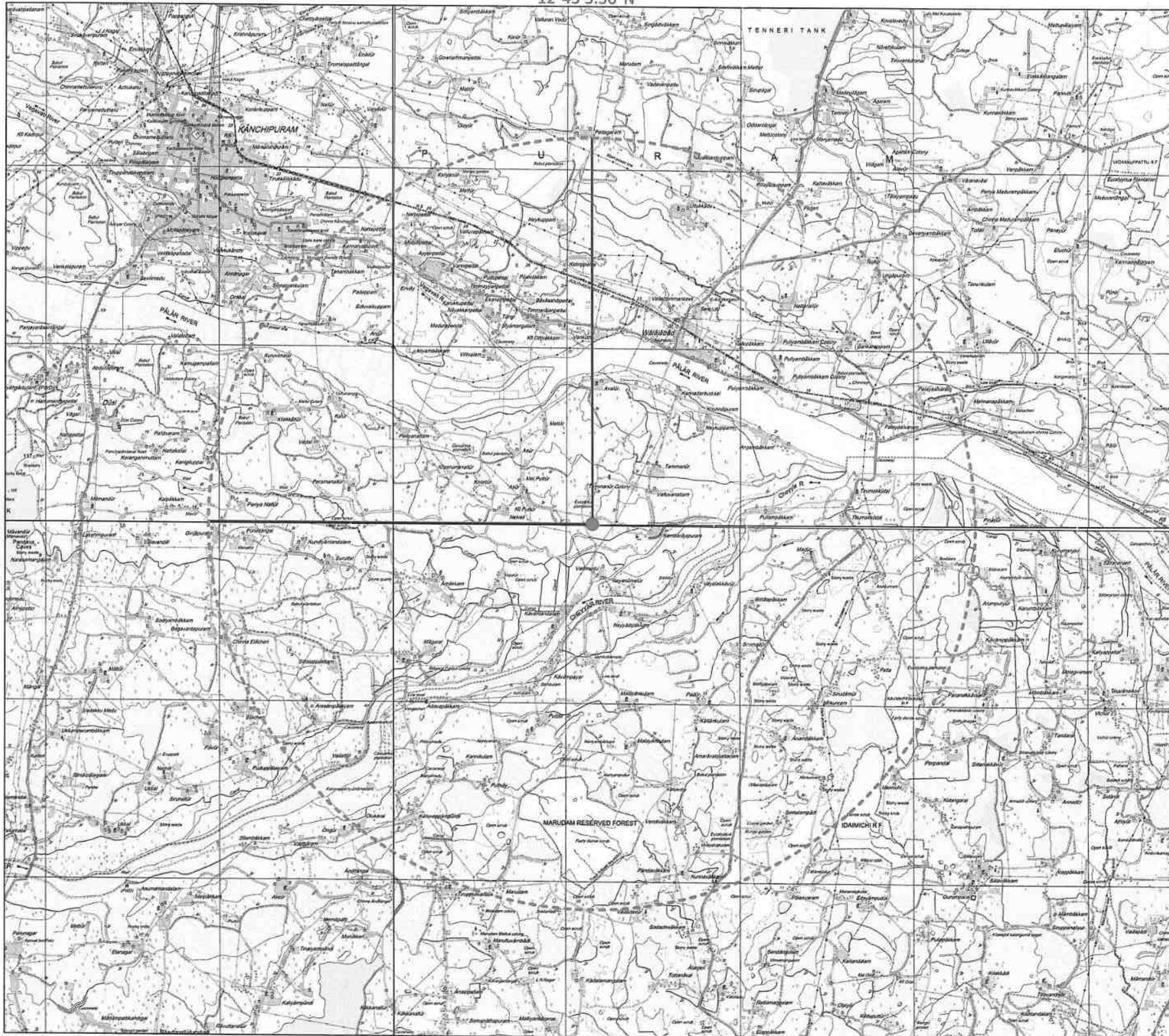
MINE LEASE AREA: ●
TOPO SHEET NO : 57-P/13 & 57-P/14
LATITUDE : 12°44'59.17"N to 12°45'5.56"N
LONGITUDE: 79°47'48.19"E to 79°47'56.83"N

LOCATION PLAN
NOT TO SCALE

Prepared By:
I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

P.VELLAIYAN, M.Sc., M.Phil.,
QUALIFIED PERSON

12°45'5.56"N



79°47'48.19"E

PLATE NO-IB

APPLICANT:

Mr.S.ASHOK KUMAR,
S/o.SEKAR,
No.83, V.V KOIL STREET,
WALAJABAD, KANCHEEPURAM,
TAMIL NADU - 631 605.



LEASE APPLIED AREA:

S.F.No : (290-1A, 2B1),
(291-1A, 1B, 1C1, 1C2, 1D1, 1D2, 2A, 2B, 2D),
(292-1A, 1B, 2A, 2B & 2C),
EXTENT : 3.48.0Hect,
VILLAGE : KAMMARAJAPURAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

TOPO SHEET NO : 57-P/13 & 57-P/14

LATITUDE : 12°44'59.17"N to 12°45'5.56"N

LONGITUDE: 79°47'48.19"E to 79°47'56.83"N

MINE LEASE AREA

10KM RADIUS

CONVENTIONAL SYMBOLS

Express highway, with toll, with bridge, with distance stone	---
Roads, metalled, according to importance	---
Roads, double carriageway, according to importance	---
Unmetalled road, Carriageway, Pack-track with pass, Foot-path	---
Streams, with track in bed, underlined, Canal	---
Dams, masonry or rock-filled, earthwork, Weir	---
River, dry with water channel, with island & rocks, Tidal river	---
Submerged rocks, Shoal, Swamp, Reeds	---
Wells, lined, unlined, Tube-well, Spring, Tanks, perennial, dry	---
Embankments, road or rail, tank, Broken ground	---
Railways, broad gauge, double, single with station, under constr	---
Railways, other gauges: double, single with distance stone, do	---
Mineral line or tramway, Min. Cutting with tunnel	---
Contours with sub-features, Rocky slopes, Cliffs	---
Sand features (flat, (2) sand ridge(permanent), (3) sand (shifting)	---
Towns or Villages, inhabited, deserted, Fort	---
Huts: permanent, temporary, Tower, Ambulances	---
Temple, Chhatra, Church, Mosque, Idgh, Tomb, Graves	---
Lighthouse, Lightship, Buoys, lighted, unlighted, Anchorages	---
Mine, Vine on trails, Grass, Scrub	---
Palms, palms, other, Plantain, Conifer, Bamboo, Other trees	---
Areas: cultivated, wooded, Surveyed tree	---
Boundary, international	---
state, demarcated, undemarcated	---
district, subdivision, taluk or MAU, forest	---
Boundary pillars: surveyed, unlocated	---
Height, triangulated, station, point, approximate	Δ200 .200 .200
Bench-mark: geodetic, tertiary, canal	BM 63-3 BM 63-2
Post office, Telegraph office, Overhead tank	---
Hut house or inspection bungalow, Circuit house, Police station	---
Camping ground, Forest, reserved, protected	---
Spaced names: administrative, locality or tribal	KIKRI NAGA
Hospital, Dispensary, Veterinary, Hospital / Dispensary	---
Aerodrome, Helipad, Tourist site	---
Power line, with pylons surveyed, with poles unsurveyed	---

TOPOSHEET MAP

SCALE - 1:1,00,000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

P. VELLAIYAN, M.Sc., M.Phil.,
QUALIFIED PERSON

TOWARDS
AVALUR 12°45'5.56"NTOWARDS
AASOOR

79°47'48.19"E

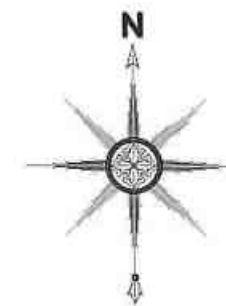
TOWARDS
ELAYANARVELUR

PLATE NO-IC

APPLICANT:

Mr.S.ASHOK KUMAR,
S/o.SEKAR,
No.83, V.V KOIL STREET,
WALAJABAD, KANCHEEPURAM,
TAMIL NADU - 631 605.

LEASE APPLIED AREA:

S.F.No : (290-1A, 2B1),
(291-1A, 1B, 1C1, 1C2, 1D1, 1D2, 2A, 2B, 2D),
(292-1A, 1B, 2A, 2B & 2C),
EXTENT : 3.48.00 Hect,
VILLAGE : KAMMARAJAPURAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

INDEX

MINE LEASE AREA

APPROACH ROAD

CART ROAD

VILLAGE ROAD

100m RADIUS

200m RADIUS

300m RADIUS

400m RADIUS

500m RADIUS

ODAI

ERI

TOPO SHEET NO : 57-P/13 & 57-P/14

LATITUDE : 12°44'59.17"N to 12°45'5.56"N

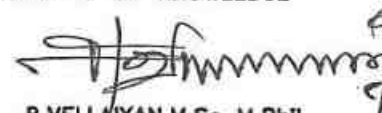
LONGITUDE: 79°47'48.19"E to 79°47'56.83"N

SATELLITE IMAGERY MAP

SCALE- 1:5000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLAT
HAS BEEN CHECKED BY ME AND IS CORRE
TO THE BEST OF MY KNOWLEDGE


P.VELLAIYAN, M.Sc., M.Phil.,
QUALIFIED PERSON

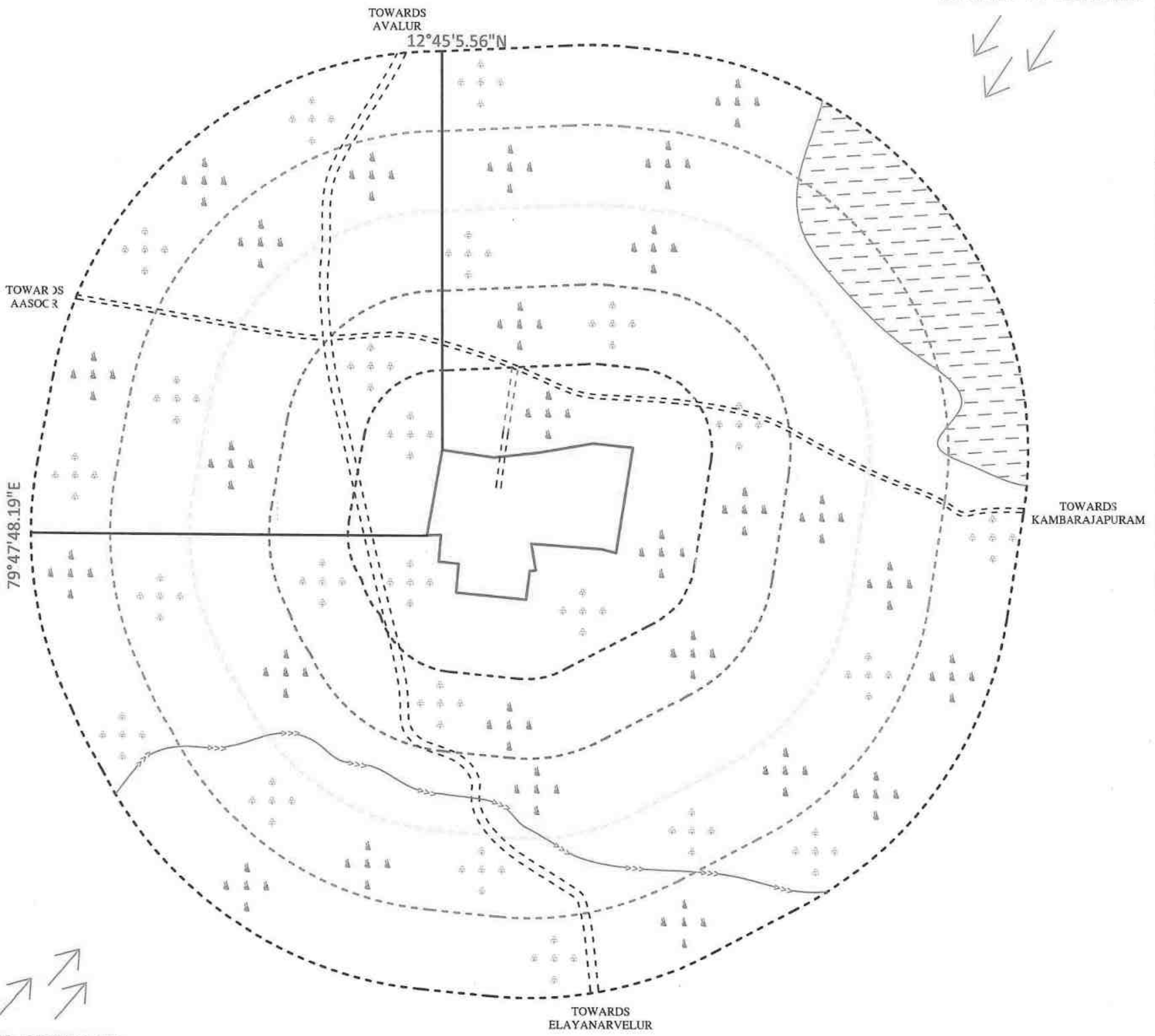


PLATE NO-ID

APPLICANT:
Mr.S.ASHOK KUMAR,
S/o.SEKAR,
No.83, V.V KOIL STREET,
WALAJABAD, KANCHEEPURAM,
TAMIL NADU - 631 605.

LEASE APPLIED AREA:
S.F.No : (290-1A, 2B1),
(291-1A, 1B, 1C1, 1C2, 1D1, 1D2, 2A, 2B, 2D),
(292-1A, 1B, 2A, 2B & 2C),
EXTENT : 3.48.0Hect,
VILLAGE : KAMMARAJAPURAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

INDEX

MINE LEASE AREA	
APPROACH ROAD	
CART ROAD	
VILLAGE ROAD	
100m RADIUS	
200m RADIUS	
300m RADIUS	
400m RADIUS	
500m RADIUS	
SHRUBS & TREES	
ODAI	
ERI	
WIND DIRECT	
SHRUBS & TRESS	

TOPO SHEET NO : 57-P/13 & 57-P/14
LATITUDE : 12°44'59.17"N to 12°45'5.56"N
LONGITUDE: 79°47'48.19"E to 79°47'56.83"N

ENVIRONMENTAL PLAN

SCALE- 1:5000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

P.VELLAIYAN, M.Sc., M.Phil.,
QUALIFIED PERSON

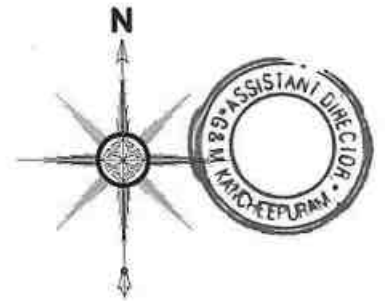


PLATE No- II

APPLICANT:

Mr.S.ASHOK KUMAR,
S/o.SEKAR,
No.83, V.V KOVIL STREET,
WALAJABAD TALUK,
KANCHEEPURAM DISTRICT - 631605.

LEASE APPLIED AREA:

S.F.No : (290-1A, 2B1),
(291-1A, 1B, 1C1, 1C2, 1D1, 1D2, 2A, 2B, 2D),
(292-1A, 1B, 2A, 2B & 2C),
EXTENT : 3.48.0Hect,
VILLAGE : KAMMARAJAPULAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

PILLAR ID	LATITUDE	LONGITUDE
1	12°45'5.39"N	79°47'56.83"E
2	12°45'1.09"N	79°47'56.04"E
3	12°45'1.25"N	79°47'55.46"E
4	12°45'1.45"N	79°47'52.55"E
5	12°45'0.36"N	79°47'52.73"E
6	12°45'0.34"N	79°47'52.48"E
7	12°44'59.17"N	79°47'52.32"E
8	12°44'59.44"N	79°47'49.39"E
9	12°45'0.62"N	79°47'49.49"E
10	12°45'0.70"N	79°47'48.68"E
11	12°45'1.80"N	79°47'48.77"E
12	12°45'1.78"N	79°47'48.19"E
13	12°45'5.28"N	79°47'48.84"E
14	12°45'4.98"N	79°47'51.00"E
15	12°45'5.18"N	79°47'52.85"E
16	12°45'5.56"N	79°47'55.18"E

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MINE LEASE BOUNDARY	
SAFETY DISTANCE	
APPROACH ROAD	
BOUNDARY PILLAR STONES	

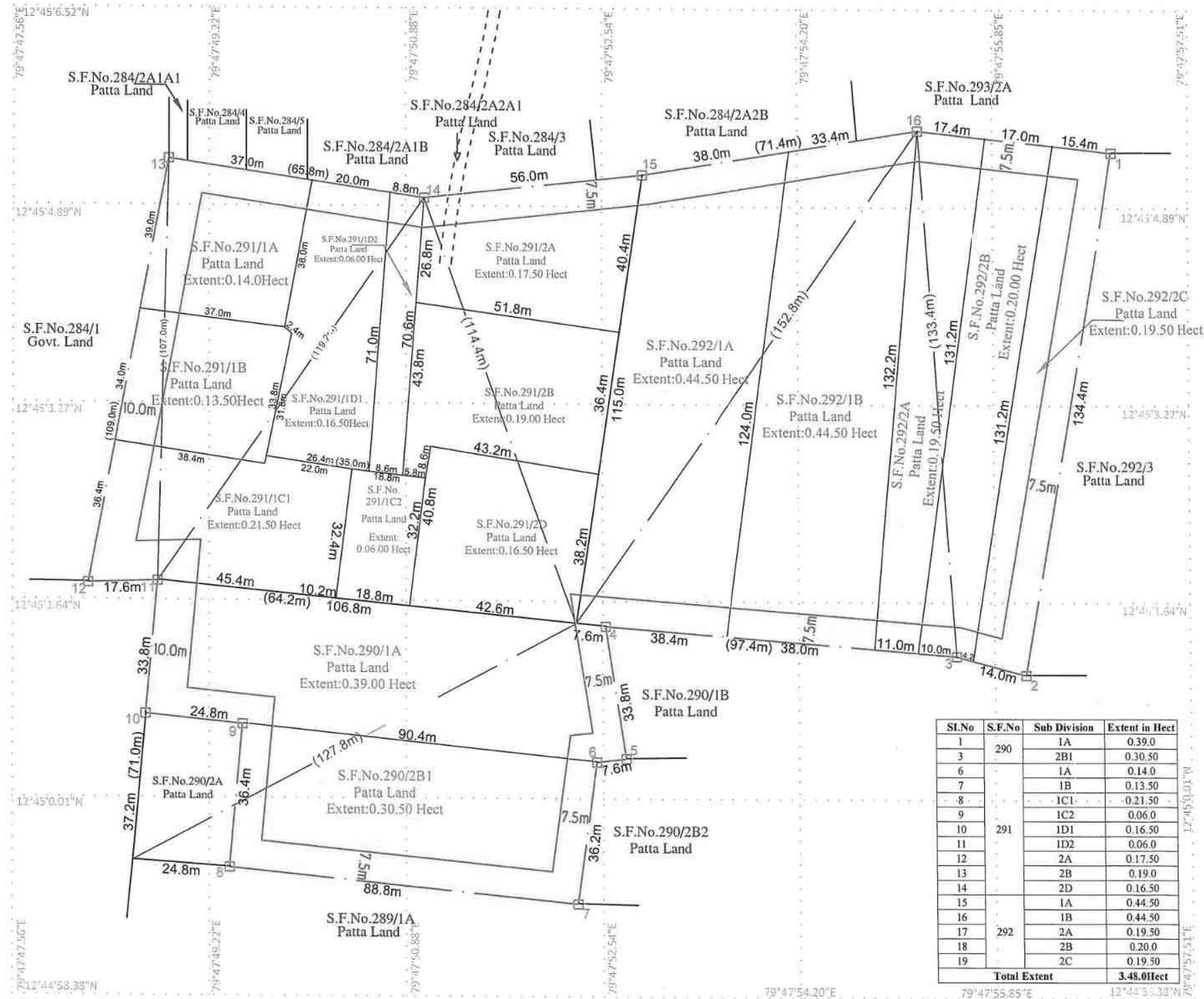
MINE LEASE PLAN

SCALE 1 : 1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

P.VELLAIYAN, M.Sc., M.Phil.,
QUALIFIED PERSON



Sl.No	S.F.No	Sub Division	Extent in Hect
1	290	1A	0.39.0
3		2B1	0.30.50
6		1A	0.14.0
7		1B	0.13.50
8		1C1	0.21.50
9		1C2	0.06.0
10	291	1D1	0.16.50
11		1D2	0.06.0
12		2A	0.17.50
13		2B	0.19.0
14		2D	0.16.50
15		1A	0.44.50
16		1B	0.44.50
17	292	2A	0.19.50
18		2B	0.20.0
19		2C	0.19.50
Total Extent			3.48.0Hect

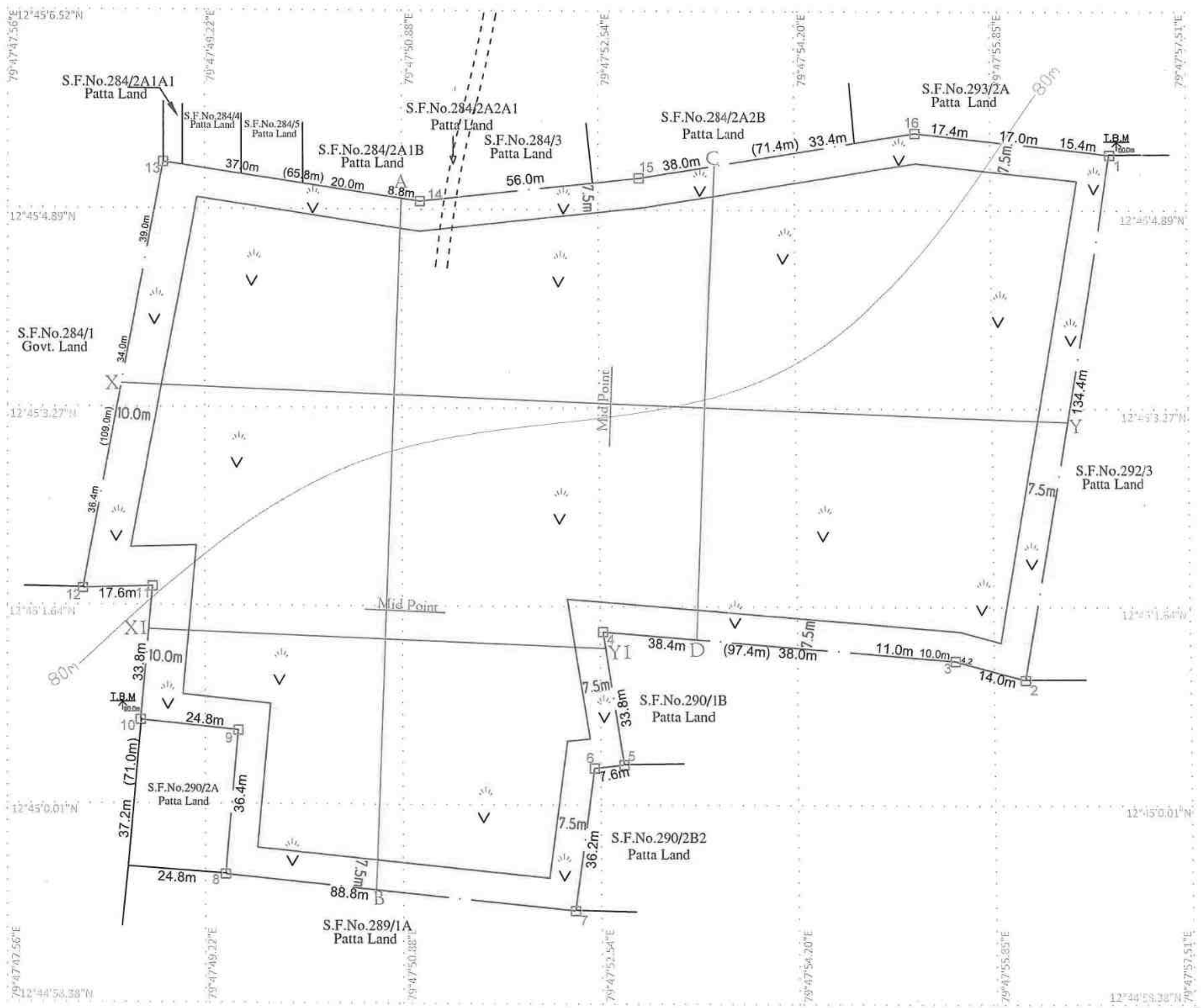


PLATE No-III

APPLICANT:
Mr.S.ASHOK KUMAR,
S/o.SEKAR,
No.83, V.V KOVIL STREET,
WALAJABAD TALUK,
KANCHEEPURAM DISTRICT - 631605.

LEASE APPLIED AREA:
S.F.No : (290-1A, 2B1),
(291-1A, 1B, 1C1, 1C2, 1D1, 1D2, 2A, 2B, 2D),
(292-1A, 1B, 2A, 2B & 2C),
EXTENT : 3.48.0Hect,
VILLAGE : KAMMARAJAPURAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

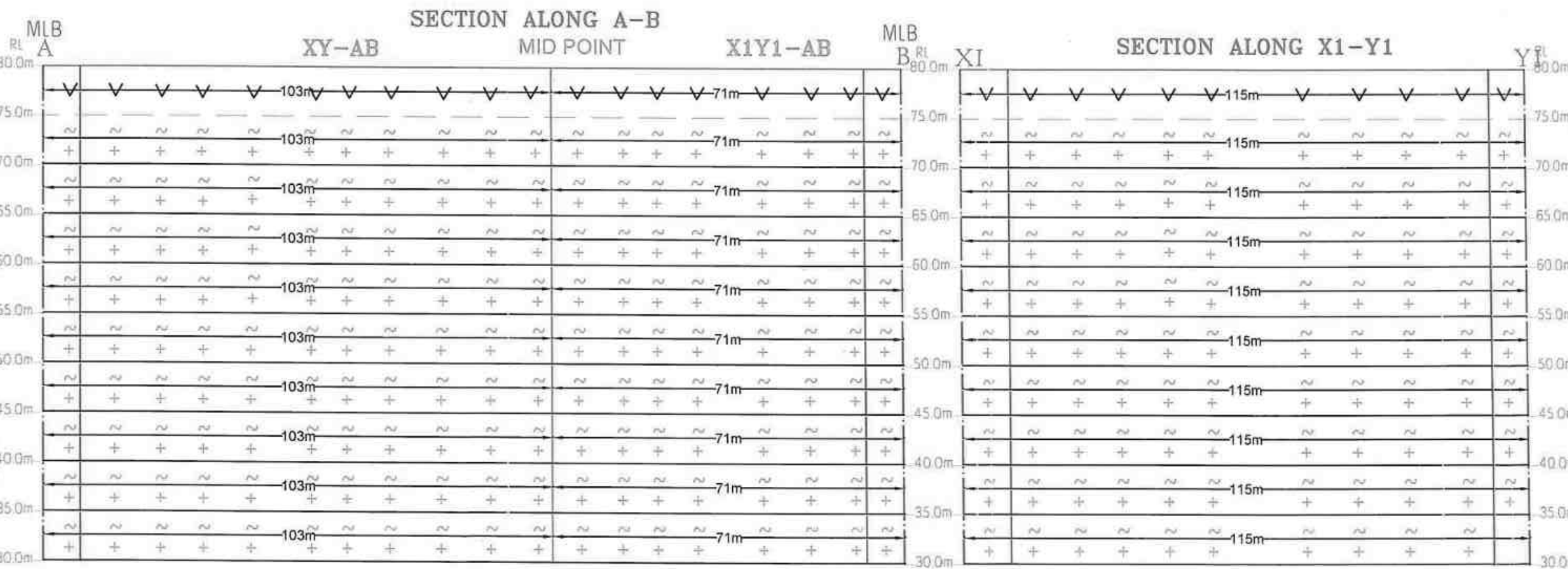
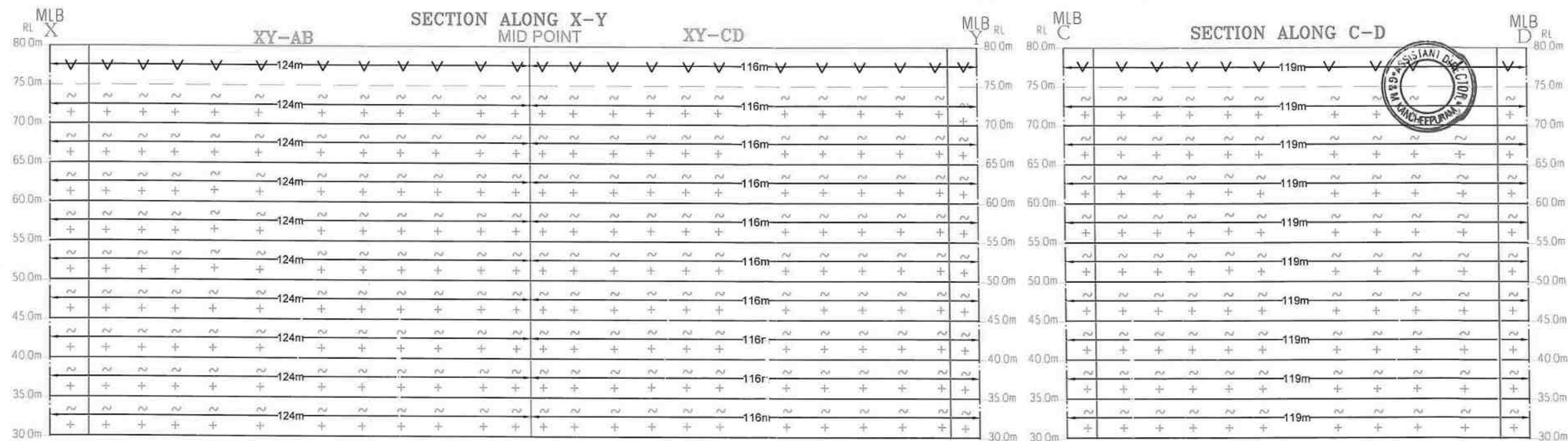
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APPROACH ROAD	
BOUNDARY PILLAR STONES	
CONTOUR LINES	
TEMPORARY BENCH MARK	
GRAVEL & SHRUBS	

SURFACE & GEOLOGICAL PLAN
SCALE 1 : 1000

Prepared By:
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HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

P.VELLAIYAN, M.Sc., M.Phil.,
QUALIFIED PERSON



GEOLOGICAL RESOURCES										
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in M ³	Rough Stone in M ³	Gravel in M ³	Bulk Density	Rough Stone in (MT)	Gravel in (MT)
XY-AB	I	124	103	5	63860	63860	63860	2.75	175615	127720
	II	124	103	5	63860	63860	63860	2.75	175615	127720
	III	124	103	5	63860	63860	63860	2.75	175615	127720
	IV	124	103	5	63860	63860	63860	2.75	175615	127720
	V	124	103	5	63860	63860	63860	2.75	175615	127720
	VI	124	103	5	63860	63860	63860	2.75	175615	127720
	VII	124	103	5	63860	63860	63860	2.75	175615	127720
	VIII	124	103	5	63860	63860	63860	2.75	175615	127720
	IX	124	103	5	63860	63860	63860	2.75	175615	127720
	X	124	103	5	63860	63860	63860	2.75	175615	127720
TOTAL					638600	638600	638600		1580535	127720
XY-CD	I	115	119	5	69020	69020	69020	2.75	189805	138040
	II	115	119	5	69020	69020	69020	2.75	189805	138040
	III	115	119	5	69020	69020	69020	2.75	189805	138040
	IV	115	119	5	69020	69020	69020	2.75	189805	138040
	V	115	119	5	69020	69020	69020	2.75	189805	138040
	VI	115	119	5	69020	69020	69020	2.75	189805	138040
	VII	115	119	5	69020	69020	69020	2.75	189805	138040
	VIII	115	119	5	69020	69020	69020	2.75	189805	138040
	IX	115	119	5	69020	69020	69020	2.75	189805	138040
	X	115	119	5	69020	69020	69020	2.75	189805	138040
TOTAL					690200	690200	690200		1708245	138040
X1Y1-AB	I	115	71	5	40825	40825	40825	2.75	112268.75	81650
	II	115	71	5	40825	40825	40825	2.75	112268.75	81650
	III	115	71	5	40825	40825	40825	2.75	112268.75	81650
	IV	115	71	5	40825	40825	40825	2.75	112268.75	81650
	V	115	71	5	40825	40825	40825	2.75	112268.75	81650
	VI	115	71	5	40825	40825	40825	2.75	112268.75	81650
	VII	115	71	5	40825	40825	40825	2.75	112268.75	81650
	VIII	115	71	5	40825	40825	40825	2.75	112268.75	81650
	IX	115	71	5	40825	40825	40825	2.75	112268.75	81650
	X	115	71	5	40825	40825	40825	2.75	112268.75	81650
TOTAL					408250	408250	408250		1010418.75	81650
GRAND TOTAL					1737050	1737050	1737050		4299198.75	347410

APPLICANT:
Mr.S.ASHOK KUMAR,
S/o.SEKAR,
No.83, V.V KOVIL STREET,
WALAJABAD TALUK,
KANCHEEPURAM DISTRICT - 631605.

LEASE APPLIED LEASE AREA:
S.F.No : (290-1A, 2B1),
(291-1A, 1B, 1C1, 1C2, 1D1, 1D2, 2A, 2B, 2D),
(292-1A, 1B, 2A, 2B & 2C),
EXTENT : 3.48.0Hect,
VILLAGE : KAMMARAJAPURAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

PLATE No- IIIA

GEOLOGICAL SECTIONS
SCALE - HOR 1 : 1000 & VER 1: 500

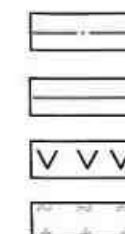
INDEX

MINE LEASE BOUNDARY

SAFETY DISTANCE

GRAVEL

ROUGH STONE



Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

P.VELLAIYAN, M.Sc., M.Phil.,
QUALIFIED PERSON

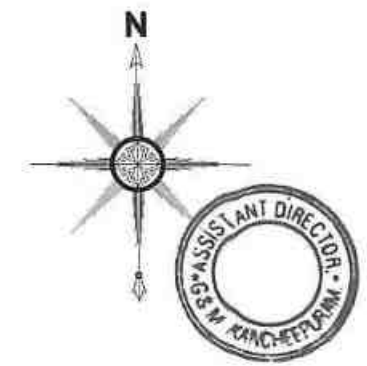
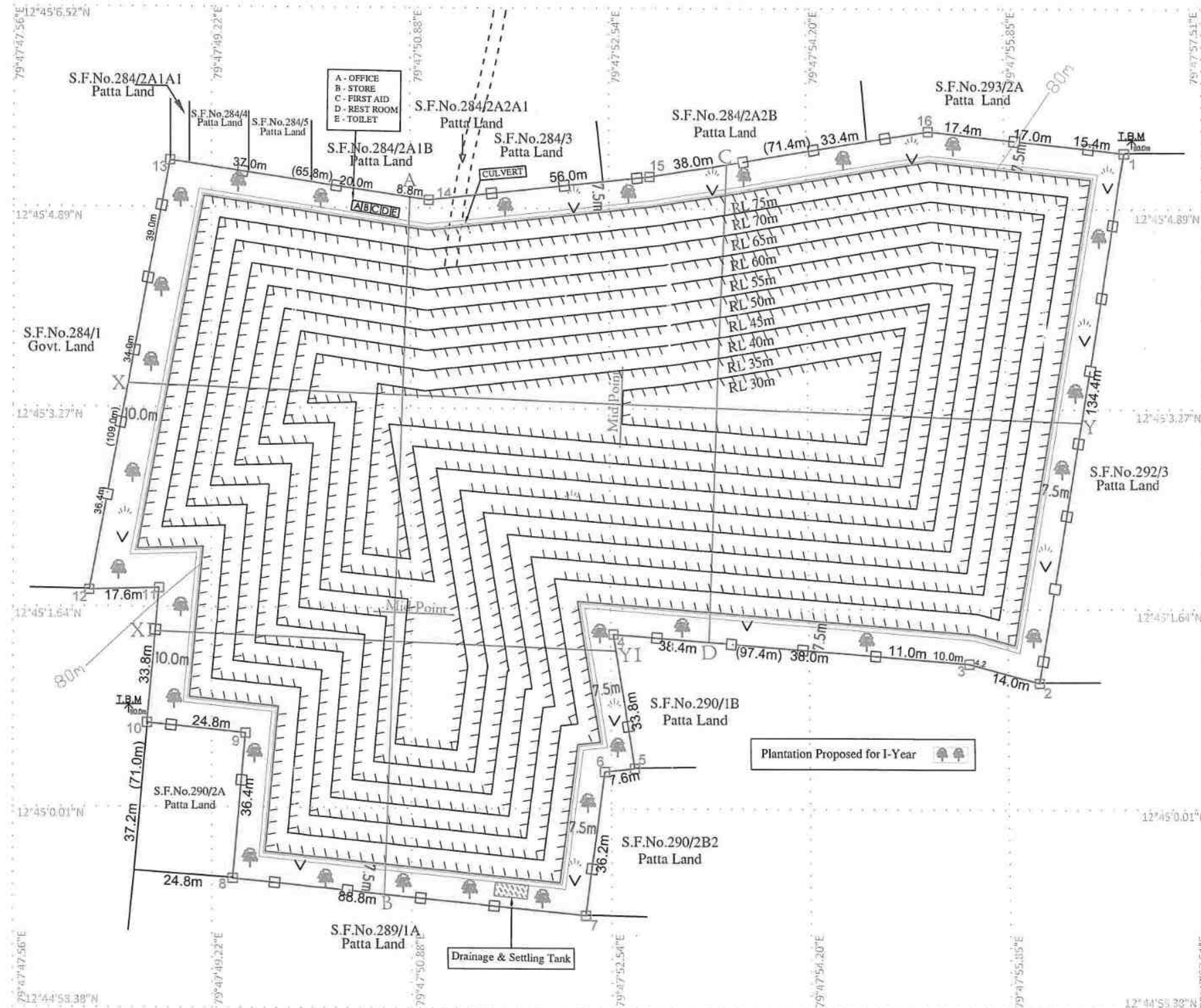


PLATE No-IV

APPLICANT:

Mr.S.ASHOK KUMAR,
S/o.SEKAR,
No.83, V.V KOVIL STREET,
WALAJABAD TALUK,
KANCHEEPURAM DISTRICT - 631605.

LEASE APPLIED AREA:

S.F.No : (290-1A, 2B1),
(291-1A, 1B, 1C1, 1C2, 1D1, 1D2, 2A, 2B, 2D),
(292-1A, 1B, 2A, 2B & 2C),
EXTENT : 3.48.0Hect,
VILLAGE : KAMMARAJAPURAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

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GRAVEL & SHRUBS	
FENCING	
DRAINAGE & SETTLING TANK	
ULTIMATE BENCH	

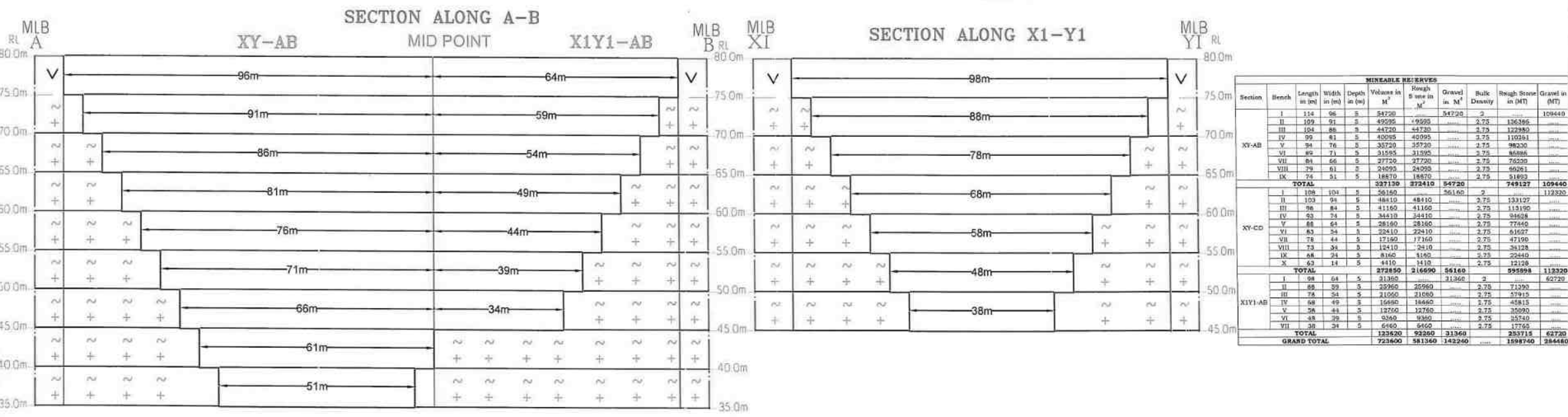
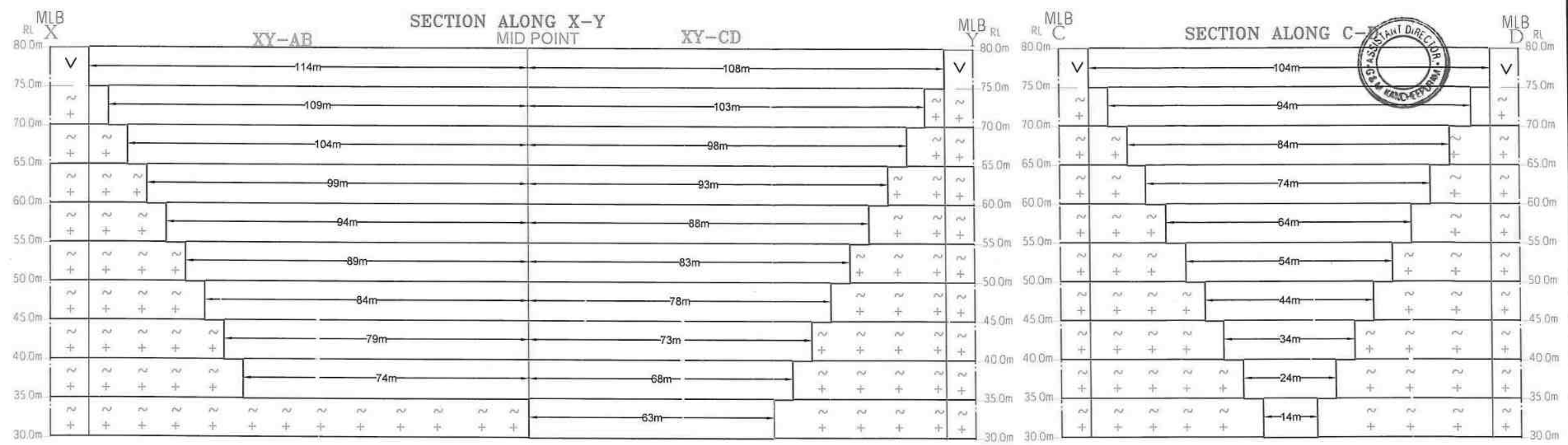
CONCEPTUAL PLAN

SCALE 1 : 1000

Prepared By:

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P.VELLAIYAN, M.Sc., M.Phil.,
QUALIFIED PERSON



MINEABLE RESERVES									
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in M ³	Rough Stone in M ³	Gravel in M ³	Bulk Density	Gravel in (MT)
XY-AB	I	114	96	5	54720	54720	54720	2.75	150480
	II	109	91	5	49595	49595	49595	2.75	136386
	III	104	86	5	44720	44720	44720	2.75	122950
	IV	99	81	5	40095	40095	40095	2.75	110361
	V	94	76	5	35720	35720	35720	2.75	98230
	VI	89	71	5	31595	31595	31595	2.75	86886
	VII	84	66	5	27720	27720	27720	2.75	76230
	VIII	79	61	5	24095	24095	24095	2.75	66261
	IX	74	56	5	20720	20720	20720	2.75	56986
	TOTAL				327130	327130	327130		894440
XY-CD	I	108	104	5	56160	56160	56160	2.75	154920
	II	103	99	5	51360	51360	51360	2.75	141195
	III	98	94	5	46560	46560	46560	2.75	128790
	IV	93	89	5	41760	41760	41760	2.75	116835
	V	88	84	5	36960	36960	36960	2.75	102990
	VI	83	79	5	32160	32160	32160	2.75	91035
	VII	78	74	5	27360	27360	27360	2.75	79180
	VIII	73	69	5	22560	22560	22560	2.75	65225
	IX	68	64	5	17760	17760	17760	2.75	53270
	TOTAL				273600	273600	273600		744480
X1Y1-AB	I	96	64	5	31360	31360	31360	2.75	86240
	II	91	59	5	26560	26560	26560	2.75	73785
	III	86	54	5	21760	21760	21760	2.75	60330
	IV	81	49	5	16960	16960	16960	2.75	46875
	V	76	44	5	12160	12160	12160	2.75	33920
	VI	71	39	5	6960	6960	6960	2.75	19065
	VII	66	34	5	2160	2160	2160	2.75	5940
	VIII	61	29	5	880	880	880	2.75	2420
	TOTAL				123600	123600	123600		339480
GRAND TOTAL					727390	727390	727390		1978800

APPLICANT:
Mr.S.ASHOK KUMAR,
S/o.SEKAR,
No.83, V.V KOVIL STREET,
WALAJABAD TALUK,
KANCHEEPURAM DISTRICT - 631605.

LEASE APPLIED AREA:
S.F.No : (290-1A, 2B1),
(291-1A, 1B, 1C1, 1C2, 1D1, 1D2, 2A, 2B, 2D),
(292-1A, 1B, 2A, 2B & 2C),
EXTENT : 3.48.0Hect,
VILLAGE : KAMMARAJAPURAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

PLATE No- IVA

CONCEPTUAL SECTIONS
SCALE - HOR 1 : 1000 & VER 1 : 500

INDEX

- MINE LEASE BOUNDARY
- SAFETY DISTANCE
- GRAVEL
- ROUGH STONE
- ULTIMATE BENCH

Prepared By:

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P.VELLAIYAN, M.Sc., M.Phil.,
QUALIFIED PERSON

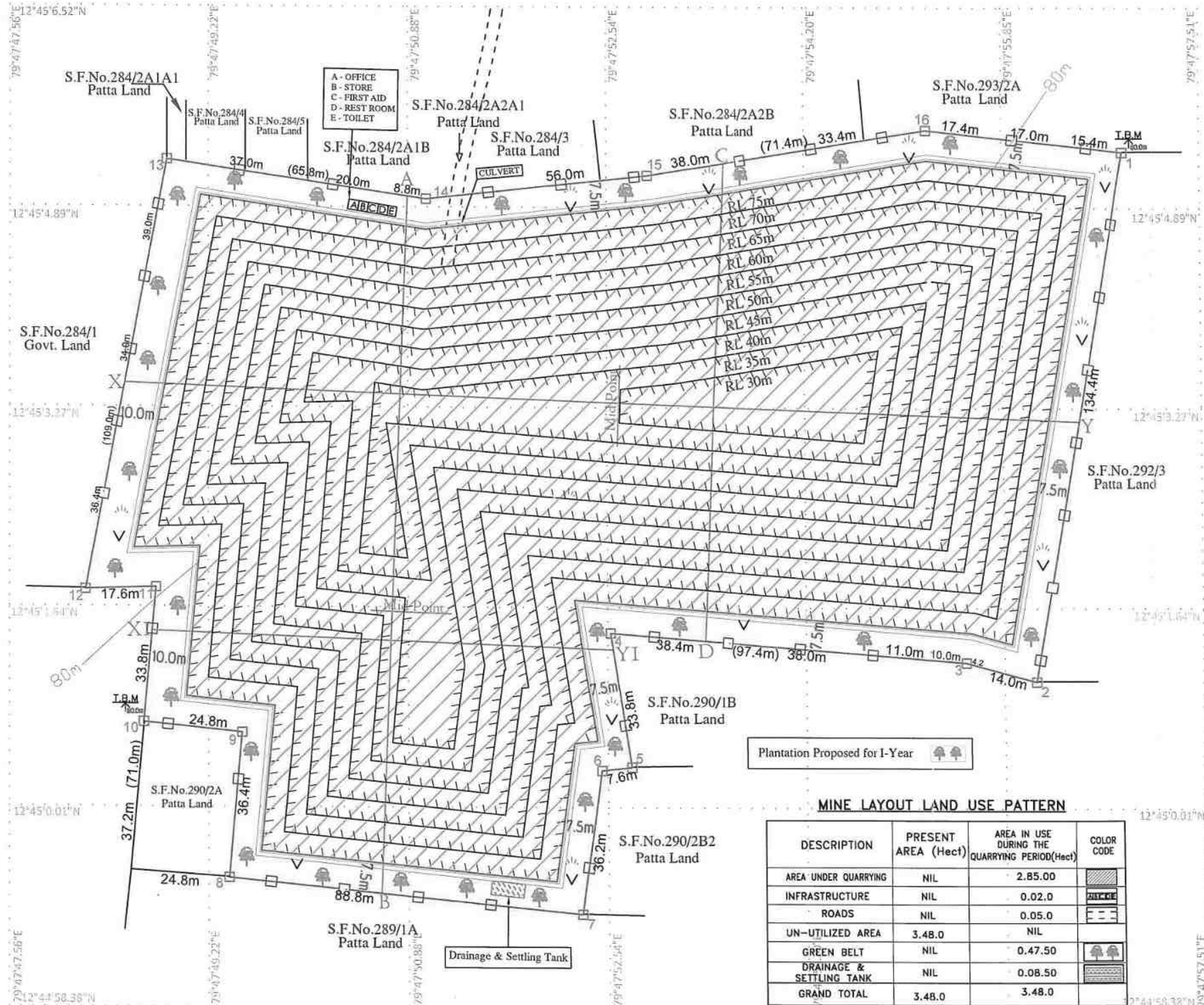


PLATE No-V

APPLICANT:

Mr.S.ASHOK KUMAR,
S/o.SEKAR,
No.83, V V KOVIL STREET,
WALAJABAD TALUK,
KANCHEEPURAM DISTRICT - 631605.

LEASE APPLIED AREA:

S.F.No : (290-1A, 2B1),
(291-1A, 1B, 1C1, 1C2, 1D1, 1D2, 2A, 2B, 2D),
(292-1A, 1B, 2A, 2B & 2C),
EXTENT : 3.48.0Hect,
VILLAGE : KAMMARAJAPURAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

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FENCING	
DRAINAGE & SETTLING TANK	
PROPOSED BENCH	

MINE LAYOUT PLAN & LAND USE PATTERN SCALE 1:1000

Prepared By:

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HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

P.VELLAIYAN,M.Sc.,M.Phil.,
QUALIFIED PERSON

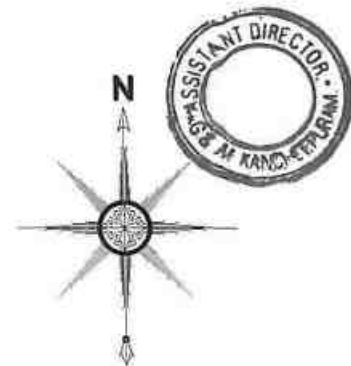
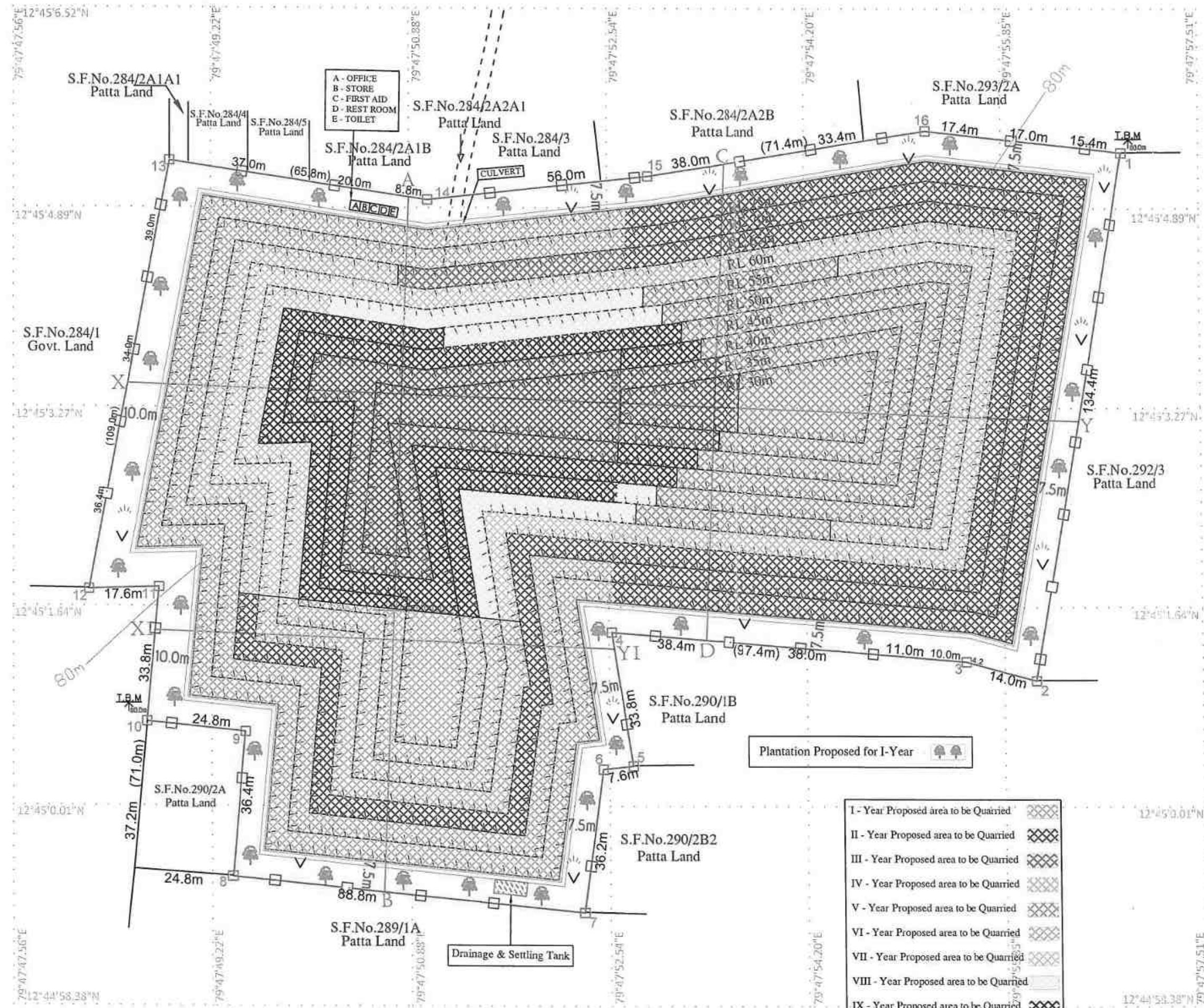


PLATE No-VI

APPLICANT:

Mr.S.ASHOK KUMAR,
S/o.SEKAR,
No.83, V.V KOVIL STREET,
WALAJABAD TALUK,
KANCHEEPURAM DISTRICT - 63160.

LEASE APPLIED AREA:

S.F.No : (290-1A, 2B1),
(291-1A, 1B, 1C1, 1C2, 1D1, 1D2, 2A, 2B, 2D),
(292-1A, 1B, 2A, 2B & 2C),
EXTENT : 3.48.0Hect,
VILLAGE : KAMMARAJAPURAM,
TALUK : WALAJABAD,
DISTRICT : KANCHEEPURAM.

INDEX

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GRAVEL & SHRUBS	
FENCING	
DRAINAGE & SETTLING TANK	
PROPOSED BENCH	

YEARWISE DEVELOPMENT & PRODUCTION PLAN

SCALE 1: 1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

P.VELAIYAN, M.Sc., M.Phil.,
QUALIFIED PERSON

திரு. பி. சண்முகம்
தொழில்நுட்ப அமைச்சர்
ஒடு. 13-யின் தரவுகள் மூலம்
வாஸ்தவத்தினை உறுதிப்படுத்தும்
காக்டிரைட் மாபடி.



National Accreditation Board for Education and Training

Certificate of Accreditation

Geo Technical Mining Solutions, Dharmapuri

5/1485-3, Salem Main Road, Elakkiyampatty, Dharmapuri, Tamil Nadu

*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 - including opencast and underground mining	1	1 (a) (i)	A

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated January 24, 2024, 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/24/3142 dated Feb 19, 2024. The accreditation needs to be renewed before the expiry date by Geo Technical Mining Solutions, Dharmapuri following due process of assessment.

Issue Date
Feb 19, 2024

Valid up to
Dec 31, 2026




Mr. Ajay Kumar Jha
Sr. Director, NABET

Certificate No.
NABET/EIA/23-26/RA 0319


Prof (Dr) Varinder S Kanwar
(CEO NABET)

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