

**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 = 8.53.10hectares

Rough Stone and Gravel Quarry

At

**Pannapalli Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State
TOR File No. 13114 and ToR Identification No. TO25B0108TN5134283N, Dated: 13.02.2026**

NAME AND ADDRESS OF THE PROPOSED PROJECT PROPONENT

Name and address	Extent & S.F.No.	Production in m³ & Tons
M/s. RAMANA STONE CRUSHER, No.113/22, Rajiv Gandhi Nagar, Bagalur Village and Post, Hosur Taluk, Alasanatham, Krishnagiri District – 635 103.	8.53.10ha & S.F.No's. 243/2, 243/4, 244/2, 244/4B (Part), 244/5(Part), 244/6, 246/5 & 261/1B	Rough stone- 23,70,358 & 65,18,484MT Gravel- 65114 & 1,30,228MT Depth- 75m (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

GREEN LINK ANALYTICAL & RESERCH LAB

NABL Accredited and MoEF notified Laboratory

S.F. No,414/1, Tex Park Road, Opp. Good Luck,

Syndicate, Civil Aerodrome Post,

Coimbatore, Tamil Nadu- 641014,

NABL Certificate Number: TC- 15901,

Valid till: 18.05.2029

Baseline Study Period – December- 2025 to February- 2026

MARCH-2026

TERMS OF REFERENCE (ToR) COMPLIANCE

ToR File No.13114

ToR Identification No. TO25B0108TN5134283N, dated. 13/02/2026

M/s. Ramana Stone Crusher, Rough Stone and Grval 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 Project Proponent shall ensure that the Mining Plan submitted along with the EIA is clear, legible, and readable in all respects.	The Mining Plan submitted along with the EIA report is clear, legible, and readable in all respects.
	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:	
	(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 ensure the installation of CCTV at the proposed quarry site and ensure its inclusion during the EIA presentation.	The Photocopy of CCTV installation will be submitted final EIA report.

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	The VAO certificate is attached as Annexure IV.

		habitations within 300m radius from the periphery of the site.	
	3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc	The details of structures within the radius of 500m will be submitted in final EIA report.
	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 47-56.
	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 from the reputed institution will be submitted in the final EIA report.
	6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc, up to a radius of 25 km from the proposed site.	The DFO letter will be submitted in the final EIA report.

	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; slope stability report will be submitted once the working depth reaches 30m BGL.
	9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961	The affidavit for blasting will be submitted in final EIA report.

		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 17-19.
	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	The Resources and Reserves of Rough Stone were calculated based

		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.	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 24.
	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	The hydrogeological study is discussed in the Section 3.4.4 under Chapter III in the EIA report page 47-56.

		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 28-96.
	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 132-135.
	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, human settlements and other ecological	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human

		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.	settlements and other ecological features has been discussed in Section 3.10 under Chapter III in the EIA report page 97. 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 20.
	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 70-84.
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-120-121. The budget details for the progressive mine closure plan are shown in Table 2.10 under Chapter X in the EIA report page 20.
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 116.
	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 no134-135.
	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 130-132.
	35	A Risk Assessment and management Plan shall be prepared and included in the	A risk assessment plan for the project has been provided in Section 7.2

		EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	under Chapter VII in the EIA report page 128-130.
	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 118-119.
	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 35 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 this terms of reference besides attracting penal provisions in the Environment (Protection) Act, 1986.

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 23,70,358 m ³ of rough stone and the 65,114 m ³ of Gravel up to the depth of 75m BGL 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 & normal conditions & SEIAA Specific & Standard conditions.	After the detailed discussions of SEAC, as per the ToR conditions the quantity of production has not exceed.

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 17-23.
	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.	It will be informed to the committee.
	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	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 implementing the

		implementing the environmental policy devised shall be given in detail.	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 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 under Chapter IV in the EIA report page 115-117.
	10	Impact on soil flora & vegetation around the project site.	The details on flora have been provided in Section 3.7 under Chapter III in the EIA report page 70-84. 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 under Chapter III in the EIA report page 70-84. Details about transplantation of plants have been provided in Section 4.6 under Chapter IV in the EIA report page 115-117.
	12	The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horti cultural 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 3.7 under Chapter III in the EIA report page 62-82 and measures have been provided in Section 4.6 under Chapter IV in the EIA report page 115-117.
	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 99-121.
	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 4.1 under Chapter IV in the EIA report page 100-101.
	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 115-117.
	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 115-117.
	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 provided, covering the entire mine lease period.	The detailed hydro-geology study is discussed in section 3.4.4 under chapter III in the EIA report page 47-56.
	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.	The matter has been discussed under Chapter IV in the EIA report page 99-121.
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 70-84.
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 99-121.
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 4.6 under Chapter IV in the EIA report page 115-117.
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 101-102.
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 75m BGL, the temperature will increase by 1.875 ⁰ C at the 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. The details of sediment geochemistry are discussed in the Table 3.6 under Chapter III in the EIA report page 38.
	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 97-121.
	Climate Change		
	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	The carbon emission to mitigate carbon emission have been discussed in Section 4.6 under Chapter IV in the EIA report page 115-117.

		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.	The matter has been discussed in Chapter IV in the EIA report page 99-121.
	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 2.10 under Chapter II in the EIA report page 20.
	EMP		
	33	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	A detailed Environment Management plan has been given under Chapter X in the EIA report page 141-149.
	34	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and	A detailed Environment Management plan has been given in Tables 10.1 & 10.2 under Chapter X in the EIA report page 143-148.

	mine closure plan including disaster management plan.	
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 128-130.
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 130-132.
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	The concerns raised during the public consultation will be submitted in the final EIA report.

		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.	The plastic waste management has been given in Section 7.5 under Chapter VII in the EIA report page 135-136.

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 not a violation category project. This proposal falls under B1 category.
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.
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,	All the documents are in the name of the lessee.

	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).	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 28-96.
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.	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.
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	The Environmental Policy is discussed in the Section 10.1 under Chapter X in the EIA report page 141-142.

	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	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 900 bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
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 has been discussed in Section 3.2 under Chapter III in the EIA report page 28-36. 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 20.
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 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,	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.

	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.	
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	There is no any wildlife/protected area within 10 km radius from the periphery of the project area. Information regarding the same

	the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	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 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	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 70-84.

	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. (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.
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	Not Applicable. There are no approved habitations of SCs/STs and other weaker sections in the lease area. Therefore, R&R Plan /

	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	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 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-	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 3.2-3.9 under Chapter III in the EIA report page 28-96.

	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 22.
1.25	Necessary clearance from the competent Authority for drawl of requisite quantity	Not Applicable. Water for dust suppression, greenbelt development and domestic use will be

	of water for the project should be provided.	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 draught season.
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 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	The ground water table is found at the depth of 80m below ground level. The ultimate depth of quarry is 75m BGL. Therefore, the mining activity will not intersect the ground water table. Data regarding the occurrence of groundwater table have been provided in table 3.9 under Chapter III in the EIA report page 43.

	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	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 853m AMSL. Ultimate depth of the mine is 75m BGL. Depth to the water level in the area is 80m 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 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	Greenbelt development plan has been given in Section 4.6 under Chapter IV in the EIA report page 115-117.

	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 22.
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 4.10 under chapter IV in the EIA report page 120-121.
1.35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out	Occupational health impacts of the project and preventive measures detail have been

	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.	explained in Section 4.8 under Chapter IV in the EIA report page 118-119.
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 35 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 143-148.
1.39	Public Hearing points raised and commitment of the Project Proponent on	The outcome of public hearing will be submitted during the final EIA report.

	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	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.2,00,52,800 /- CER Cost is Rs. 5,00,000/- In order to implement the environmental protection measures, an amount of Rs. 50.83lakhs as capital cost and recurring cost as Rs. 936.93 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. 987.76 Lakhs as shown in Tables 10.1 & 10.2 under Chapter X, pp.143-148.
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 130-132.
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 under Chapter VIII in the EIA report page 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 report 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 earlier by the Ministry shall also be filled and submitted.	The questionnaire will be submitted in final EIA report.
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 the 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	No changes are made in the basic scope and the project parameters.

	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.	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 Annexure III.

STANDARD TERMS OF REFERENCE

1.	Year-wise production details since 1994 should be given, clearly stating the	Not applicable. This is not a violation category project. This proposal falls under B1 category.

	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.	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 the lessee.
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.
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	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 28-96.

	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.	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 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

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 90° 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, 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 has been discussed in Section 3.2 under Chapter III in the EIA report page 28-36. 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 20.
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 Department to assist the Expert Appraisal Committees.	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.
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 is 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	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.

	areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	
18.	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	A detailed 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 70-84.
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	Not Applicable. Project area / Study area is not declared. in 'Critically Polluted' Area and does not come under 'Aravalli Range.

	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 w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable The project doesn't attract the C.R.Z. Notification, 2018.
21.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their 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	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.

	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 within 500 m of the mine lease in the predominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	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 3.2-3.9 under Chapter III in the EIA report page 28-96.
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	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.

	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	
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 22.
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 draught season.

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 80m below ground level. The ultimate depth of quarry is 75m BGL. Therefore, the mining activity will not intersect the ground water table. Data regarding the occurrence of groundwater table have been provided in Section 3.4.2 under Chapter III in the EIA report page 42-56.
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 853m AMSL. Ultimate depth of the mine is 75m (BGL). Depth to the water level in the area is 80m 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 115-117.
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)	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.

	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.	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 22.
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 120-121 and budgetary details discussed in table 2.10 in the EIA report page 20.
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 118-119.
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	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.

	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.	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 35 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 143-148.
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.
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	Project Cost is Rs.2,00,52,800/- CER Cost is Rs. 5,00,000/-

	towards implementation of EMP should be clearly spelt out.	In order to implement the environmental protection measures, an amount of Rs. 50.83 Lakhs as capital cost and recurring cost as Rs. 936.93 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. 987.76 Lakhs as shown in Tables 10.1 & 10.2 under Chapter X, pp.143-148.
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 130-132.
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 under 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,	Original Baseline monitoring reports will be submitted in the final EIA report.

	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.	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 the 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 Annexure III.

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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/560896/2025, Dated: 06.12.2025 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.

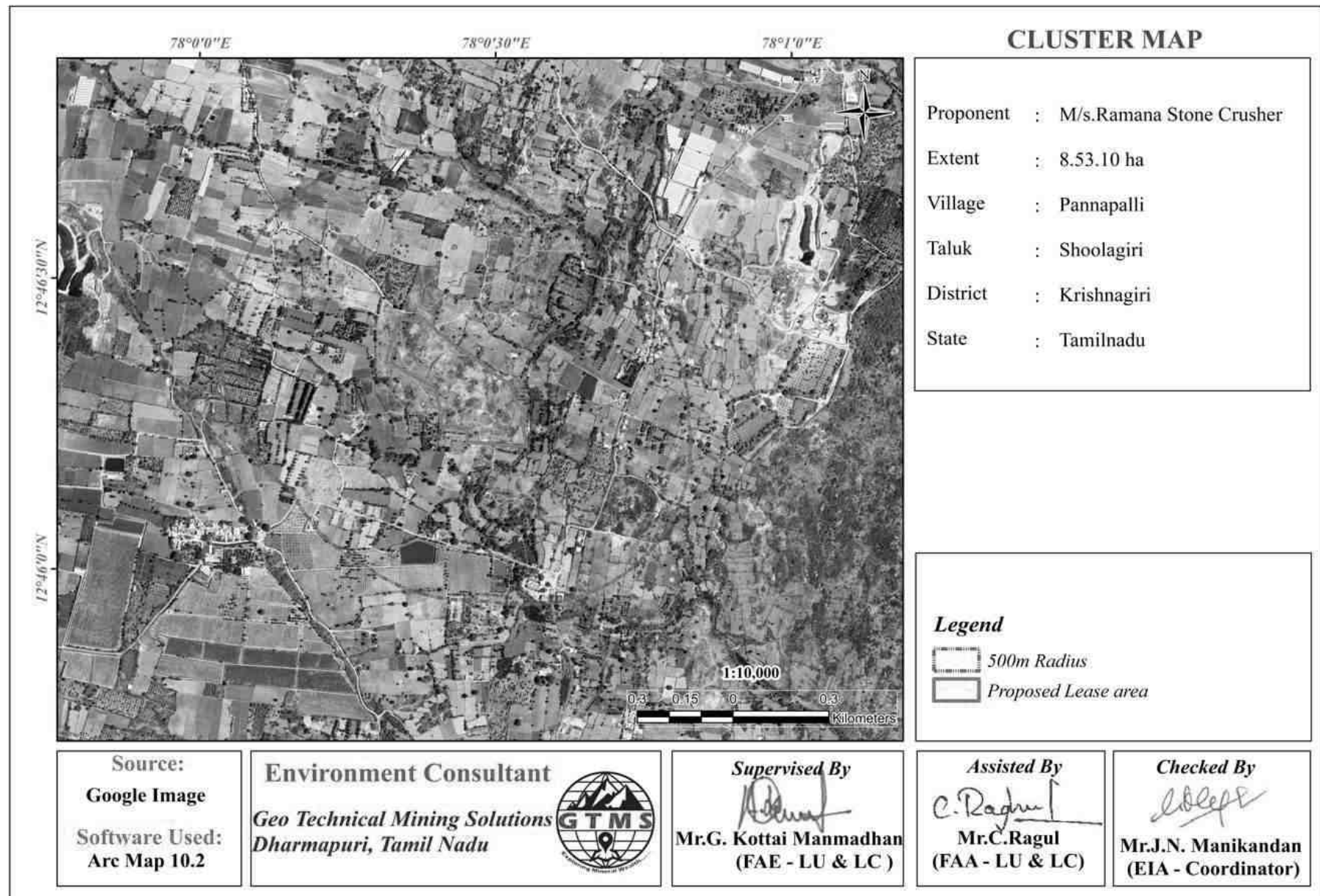


Figure 1.1 Location of the proposed rough stone and gravel quarries in the cluster of 500m radius

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	M/s. Ramana Stone Crusher	243/2, 243/4, 244/2, 244/4B(Part), 244/5(Part), 244/6, 246/5 and 261/1B,	Pannapalli & Shoolagiri	8.53.0ha	Applied
Total Cluster Extent				8.53.0ha	---

Source: DD Letter: Roc.No. 339/2025/Mines, Dated:05.12.2025

The file was appraised in 666nd SEAC meeting on 19.01.2025 and issued terms of reference (ToR) identification no **TO25B0108TN5134283N** on **13.02.2026** 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	M/s. Ramana Stone Crusher
Address	Mr. B. Jayaprakash, Partner No.113/22, Rajiv Gandhi Nagar, Bagalur Village and Post, Hosur Taluk, Krishnagiri District – 635 103.
Status	Partner

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 8.53.10ha and it is located in Pannapalli Village, Shoolagiri Taluk, Krishnagiri 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 **December 2025 to February 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 **M/s. Ramana Stone Crusher** is involved in the mining and its auxiliary activities. The proponent had applied for quarry lease on 31.07.2025 to extract rough stone & gravel. The precise area communication letter was issued by Deputy Director of Geology and Mining, Krishnagiri vide (Roc.No.339/2025/Mines, Dated: 13.09.2025). The mining plan thus prepared was approved by Regional Joint Director/ Deputy Director (FAC) Department of Geology and Mining, Krishnagiri (Roc.No.339/2025/Mines, Dated: 01.12.2025). 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	M/s. Ramana Stone Crusher	
Type of Land	Patta Land	
Extent	8.53.10ha	
S.F. No	243/2, 243/4, 244/2, 244/4B (Part), 244/5 (Part), 244/6, 246/5 and 261/1B	
Toposheet No	57- L/01	
Highest Elevation	853m AMSL	
Latitude	12°46'12.57"N to 12°46'26.21"N	
Longitude	78°0'18.85"E to 78°0'33.17"E	
Proposed depth for five Years	50m BGL	
As per ToR ultimate depth for 20 years	75m BGL	
Geological Resources	Rough stone in m ³ & Tons	Gravel in m ³ & Tons
	62,35,050 & 1,71,46,387.5	90,444 & 1,80,888
Mineable Reserves	23,70,358 & 65,18,484	65,114 & 1,30,228
Proposed production for 5 years	7,24,838 & 19,93,305	65,114 & 1,30,228
Method of Mining	Open cast mechanized mining method	
Topography	Elevated Topography	
Machinery requirements	Jack hammer	2
	Excavator	1
	Compressor	2
	Tipper	6
Proposed Manpower Deployment	35 Nos	
Project Cost	Rs.2,00,52,800/-	
Proposed Water Requirement	4.9 KLD	

2.3 LOCATION AND ACCESSIBILITY

The proposed quarry project is located in Pannapalli Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu as shown in Figure 2.1.

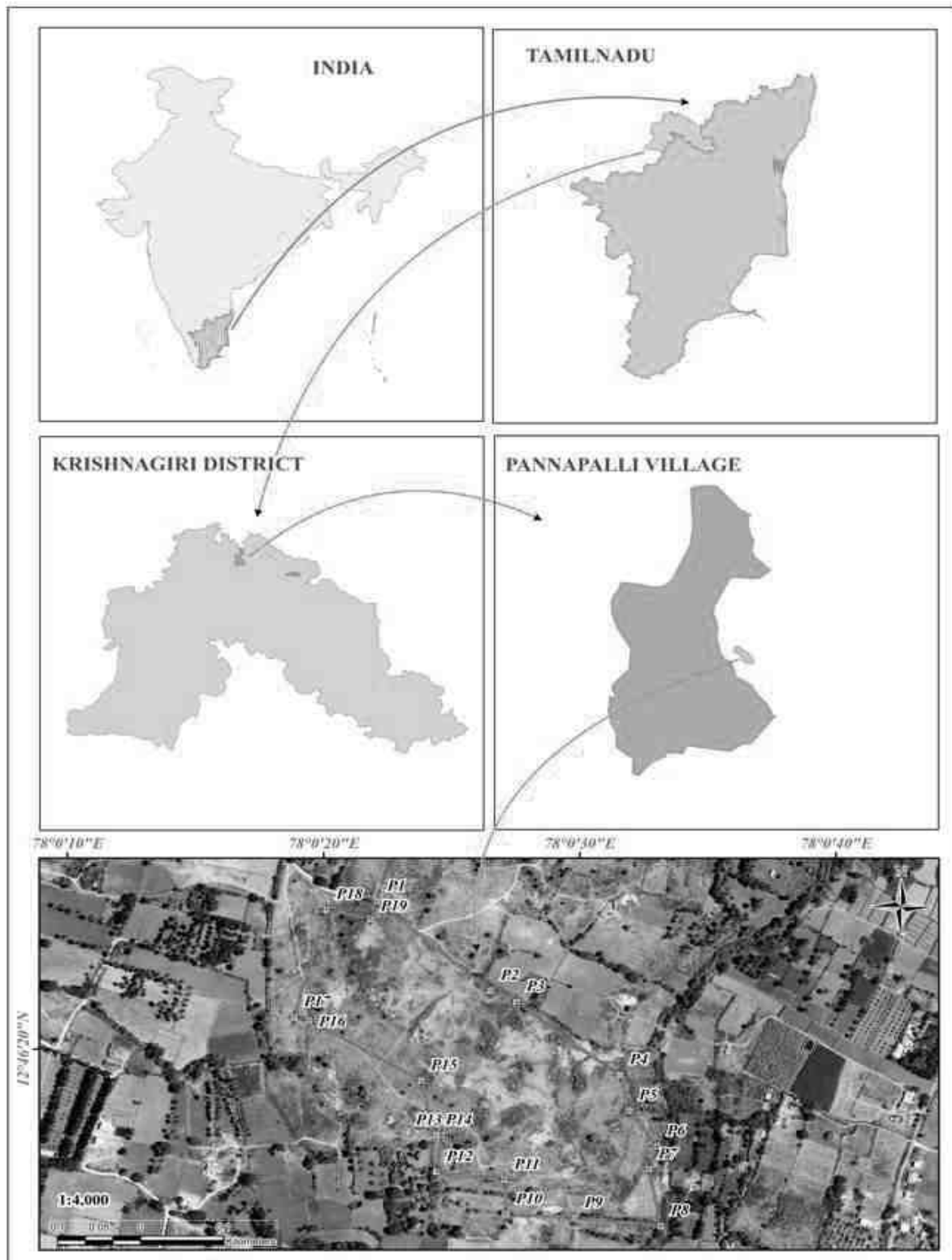


Figure 2.1 Key Map Showing Location of Project Site

The aerial distance between the project site boundary and the Karnataka state boundary is about 3.56km in the North side. To reach the site access the NH 44 Bangalore- Krishnagiri road, Shoologiri bus stand & travel distance is around 16km from Berigai bus stand. Berigai to

KFG road. Pannapalli road bus stop 2.74km- South 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
Natonal Highway	NH-44	11.64	South
Nearest Roadways	MDR- Berigai to KFG road	2.69	North
Nearest Town	Berigai	4.97	NW
Nearest Airport	Bangalore	54.03	NW
Nearest Villages	Pannapalli	1.1km	North
	Meenandoddi	1.4km	East
	Athimugam	2.0Km	South
	Seekkanapalli	1.6km	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

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.
243	2	4.63.00	2554	1.Mr. B. Jayaprakash, 2.Mr. A. Prasad Ravulapalli 3.Mr.R. Muniraj 4.M/s. Ramana Stone Crusher	243/2	4.63.00
243	4	0.99.00	2554		243/4	0.99.00
244	2	1.41.00	2554		244/2	1.41.00
244	4B	0.76.50	2554		244/4B(P)	0.15.00
244	5	0.87.50	2554		244/5(P)	0.40.60
244	6	0.15.50	2554		244/6	0.15.50
246	5	0.13.00	2554		246/5	0.13.00
261	1B	0.66.00	2554		261/1B	0.66.00
Total Extent		9.61.50	Applied lease area extent			8.53.10

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 8.53.10Ha as per the precise area communication letter vide Roc.No.339/2025/Mines, Dated: 13.09.2025 issued by Dept of Geology and Mining, Krishnagiri 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	8.53.10
5	Greenbelt + Earth bund+ Dump	Nil
	Grand Total	8.53.10

2.4.1 Geo Coordinates

The proposed lease area is elevated topography. The maximum elevation (853m) was observed west side of the lease area and minimum elevation (852m) was observed East 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.339/2025/Mines, Dated: 05.12.2025 is enclosed as Annexure II.

Table 2.4 Geographic coordinates of the Project area

PILLAR ID	LATTITUDE	LONGITUDE
1	12°46'26.21"N	78° 0'22.10"E
2	12°46'22.46"N	78° 0'26.53"E
3	12°46'21.99"N	78° 0'27.54"E
4	12°46'18.92"N	78° 0'31.57"E
5	12°46'17.42"N	78° 0'31.93"E
6	12°46'15.92"N	78° 0'33.02"E
7	12°46'14.95"N	78° 0'32.70"E
8	12°46'12.57"N	78° 0'33.17"E
9	12°46'12.90"N	78° 0'29.80"E
10	12°46'13.06"N	78° 0'27.12"E
11	12°46'14.51"N	78° 0'27.06"E
12	12°46'14.85"N	78° 0'24.41"E
13	12°46'16.37"N	78° 0'24.61"E
14	12°46'16.38"N	78° 0'24.38"E
15	12°46'18.68"N	78° 0'23.80"E
16	12°46'21.20"N	78° 0'19.43"E
17	12°46'21.35"N	78° 0'18.85"E
18	12°46'25.87"N	78° 0'20.11"E
19	12°46'25.47"N	78° 0'21.84"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 75m.

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 75m (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 2.3, 2.4, 2.4a, 2.4b.

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)	62,35,050 & 17146387.5	90,444 & 1,80,888
Mineable Reserves in (m ³ & Ts)	23,70,358 & 6,51,884	65,114 & 1,30,228
Proposed production for 5 years (m ³ & Ts)	7,24,838 & 19,93,305	65,114 & 1,30,228

Source: Approved Mining Plan & ToR

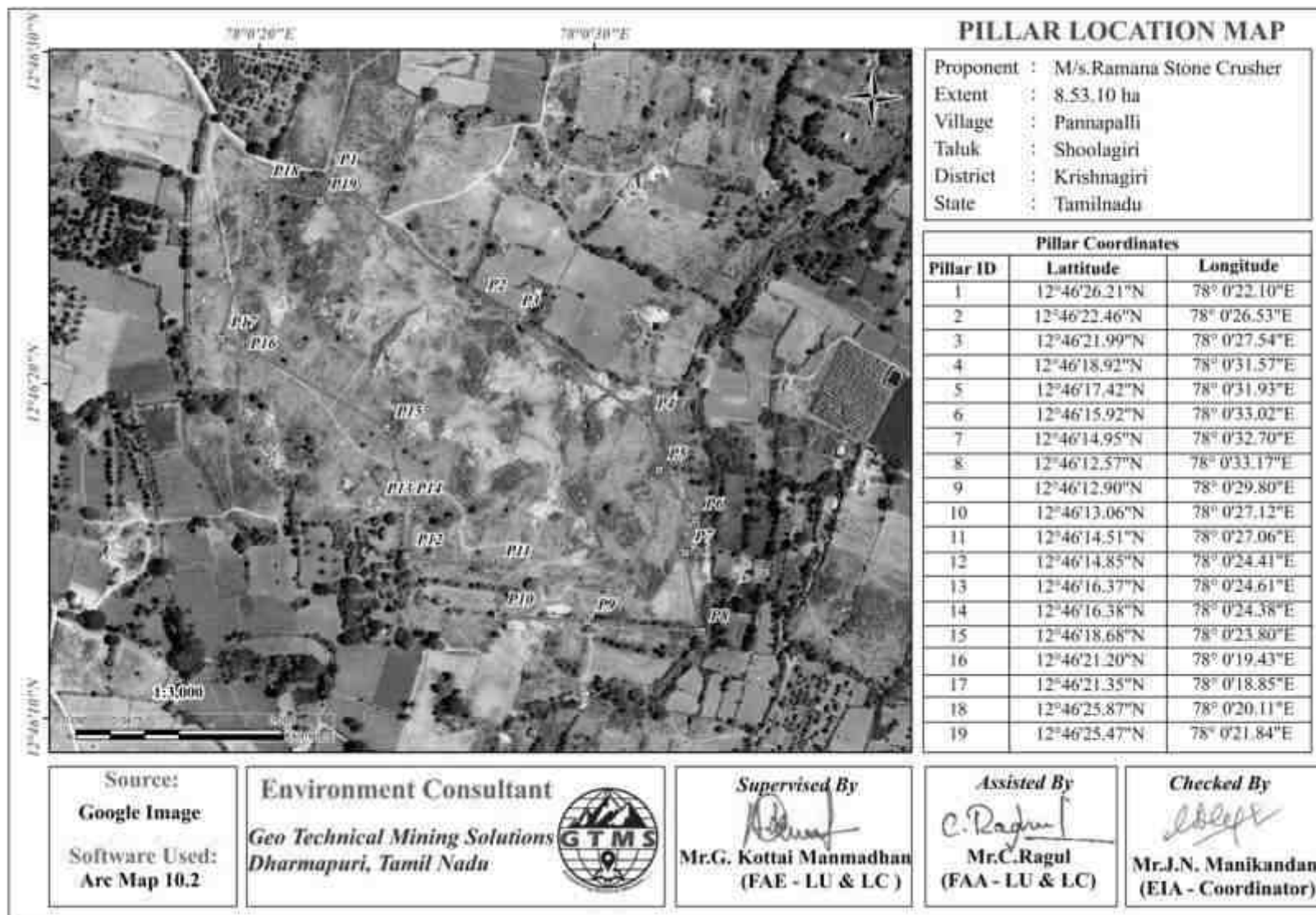


Figure 2.2 Google Earth Image Showing Pillar Coordinates of Lease Area

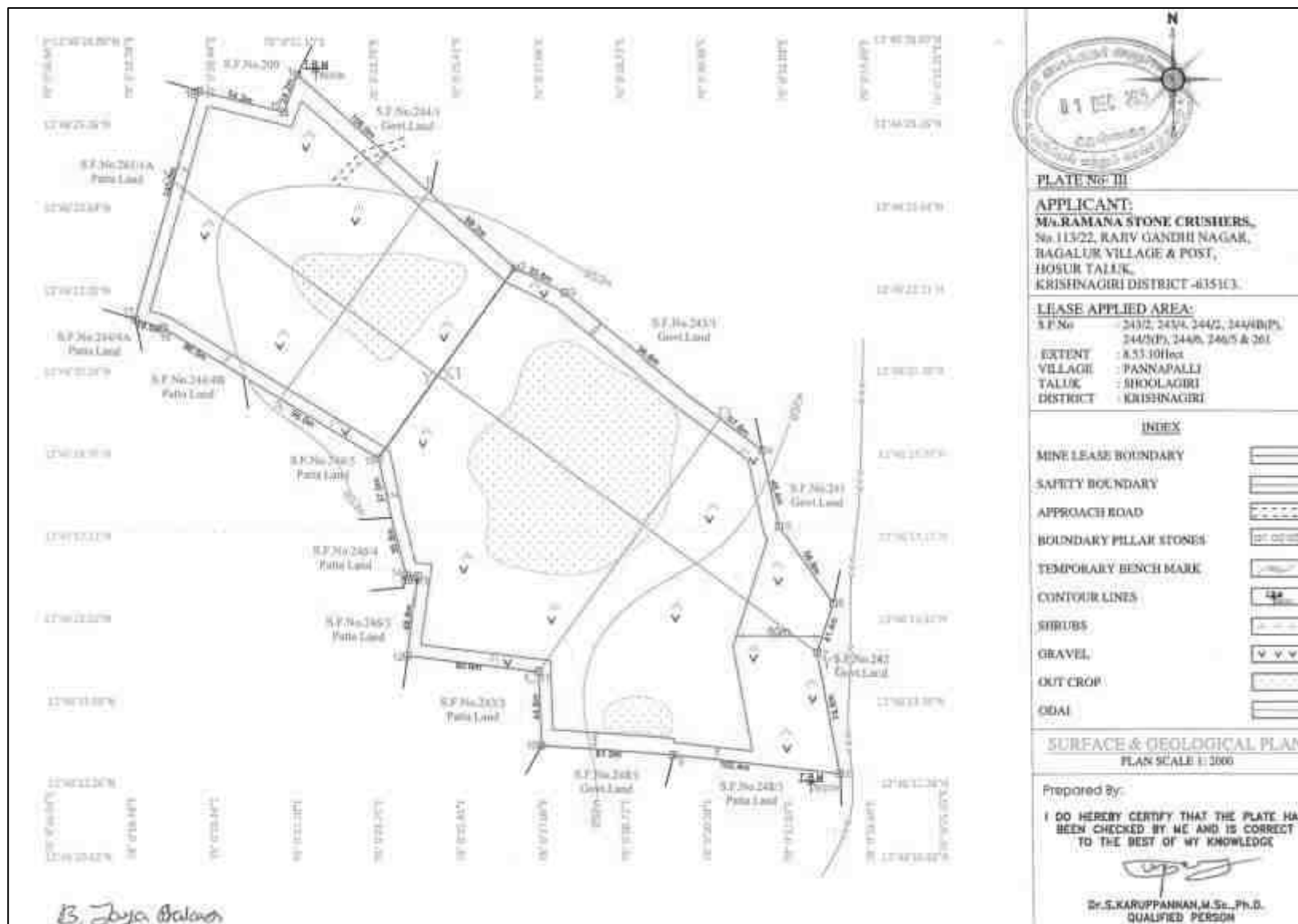


Figure 2.3 Surface & Geological Plan

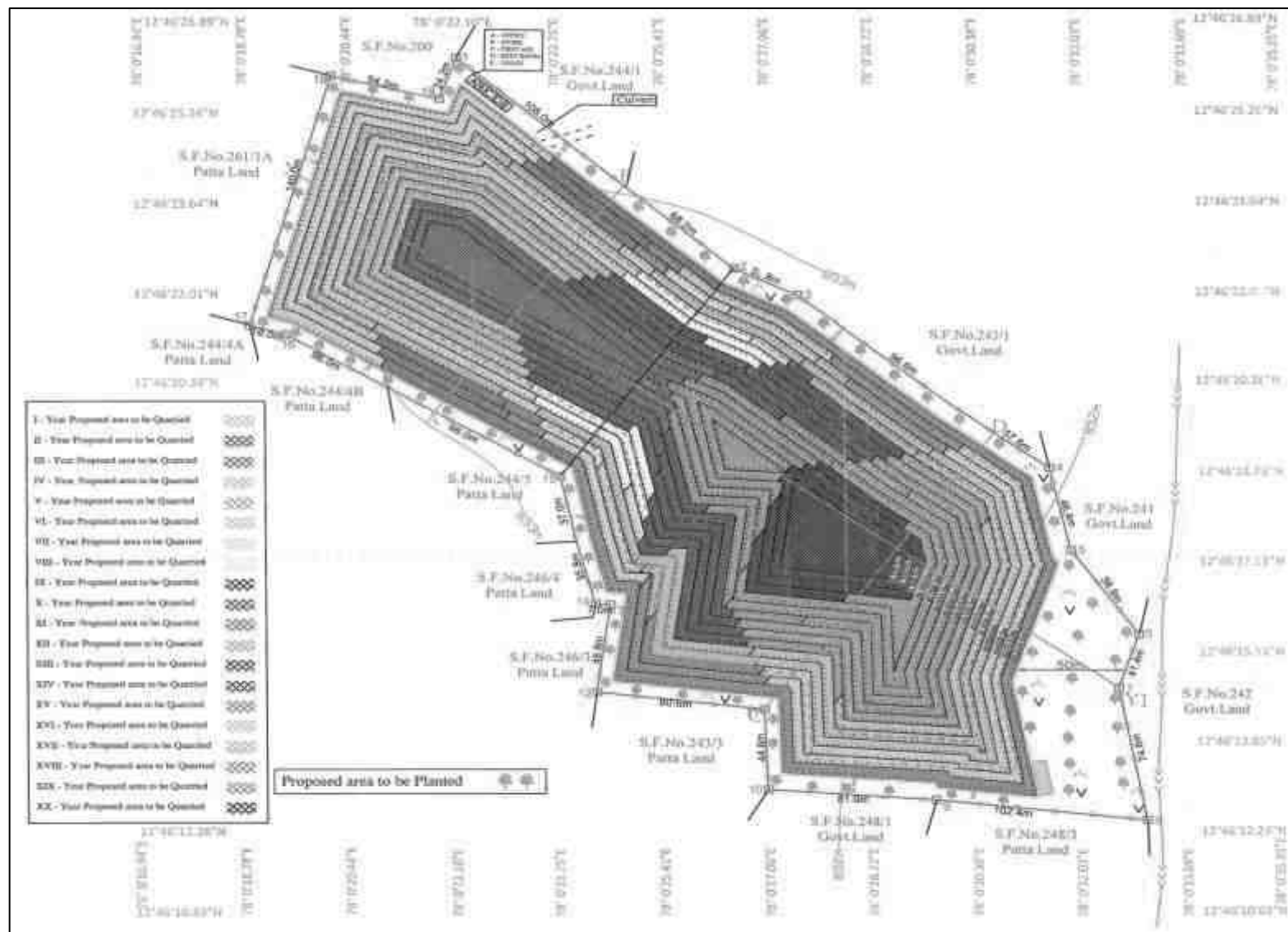


Figure 2.4 Year wise Development & Production Plan

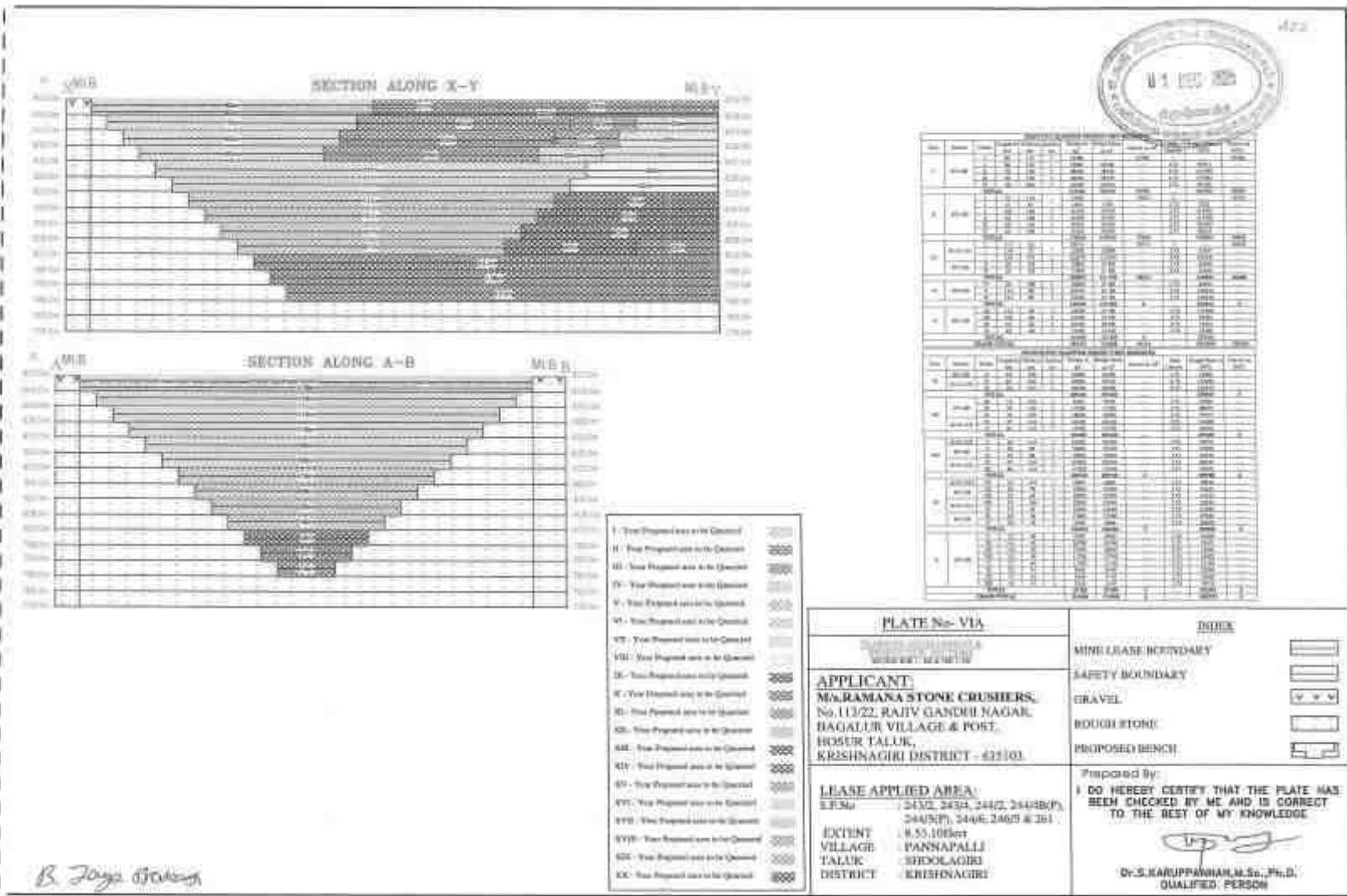


Figure 2.4a Year wise Development & Production Section

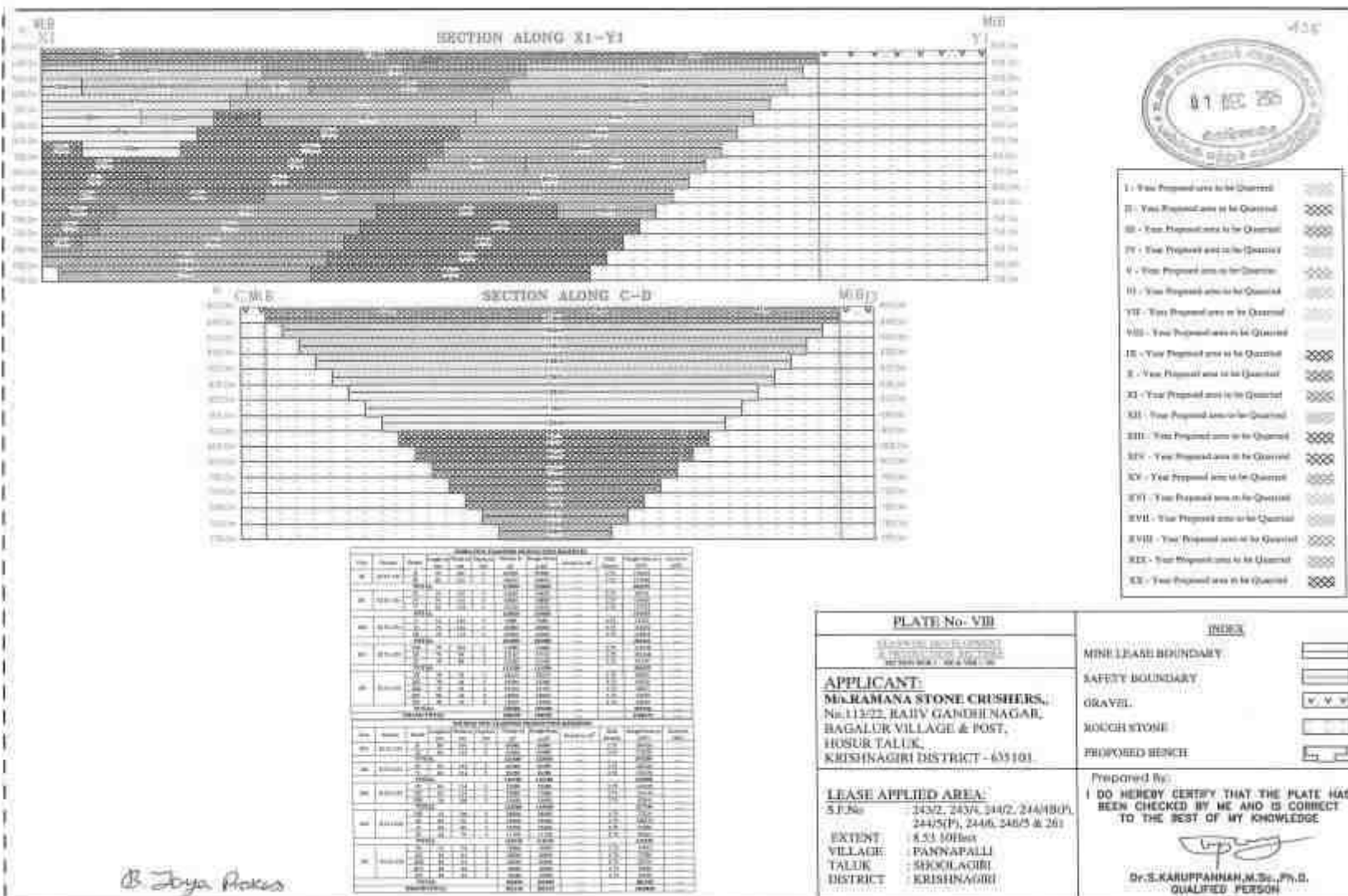


Figure 2.4b Year wise Development & Production Section

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	125
Blast hole pattern	Staggered
Mass of explosive /day in kg	54.71
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 / 20 years
Proposed production	23,70,358 & 65,18,484
Number of Working Days	270
Production /Day (m ³) & Ts	438 & 1207
No. of Lorry Loads	73

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	10	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	6.92.38
Infrastructure	Nil	0.05.00
Roads	Nil	0.05.00
Green Belt + Earth bund + Dump	Nil	1.37.90
Un-Utilized Area	8.53.10	Nil
Drainage & Settling Tank	Nil	0.12.82
Total	8.53.10	8.53.10

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
2000 plants inside the lease area	6,00,000
2265 plants outside the lease area	4,53,000
Wire Fencing	4,00,000
Renovation of Garland Drain	40,000
Total	14,93,000

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	235	174	75

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 4.9 KLD is given in Table 2.12.

Table 2.12 Water Requirement for the Project

Purpose	Quantity	Source
Dust Suppression	2.0 KLD	Existing bore wells nearby the lease area
Green Belt development	1.4 KLD	Existing bore wells nearby the lease area
Drinking & Domestic	1.5 KLD	Existing bore wells and approved water vendors
Total	4.9KLD	

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 **33,44,349litres 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 (724838m³)	Gravel (65114m³)	Total Diesel (litre)
Average Rate of Fuel Consumption (l/hr)	16	10	---
Working Capacity (m ³ /hr)	20	60	---
Time Required (hours)	36,242	1,085	---
Total Diesel Consumption for 5 years (litre)	5,79,870	10,852	5,90,722
Fuel Requirement for Compressor			
Average Rate of Fuel Consumption/hole (litre)	0.4	---	---
Number of Drill holes/day	125	---	---
Total Diesel Consumption for 5 years (litre)	67,500	---	67,500
Fuel Requirement for Tipper			
Average Rate of Fuel Consumption/Trip (litre)	20	20	---
Carrying Capacity in m ³	6	10	---
Number of Trips / days	89	10	---
Number of Trips / 5 years	1,20,806	13,500	---
Total Diesel Consumption for 5 years (litre)	24,16,127	2,70,000	26,86,127
Total Diesel Consumption by Excavator, Compressor and Tipper			33,44,349

2.7.10 Capital Requirement

The project proponent will invest Rs. **2,00,52,800** 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	1,36,65,000
2	Machinery	30,00,000
3	EMP	33,87,800
	Total Project Cost	2,00,52,800

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.

Table 2.15 Employment Potential for the Proposed Project

S. No.	Category	Role	Nos
1	Highly Skilled	Mines Manager	1
		Mine Engineer	1
		Blaster	1
2	Unskilled	Musdoor/ Labours	15
Total			35

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 & gravel quarry to assess the existing environmental scenario in the area by **Green Link Analytical & Research Lab**, which is MoEF recognized and NABL certified lab. For the purpose of EIA studies, Quarry lease area of rough stone and gravel 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 **(December 2025 to February 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 are 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: 243/2, 243/4, 244/2, 244/4B(Part), 244/5(Part), 244/6, 246/5 and 261/1B of Pannapalli Village, Shoolagiri Taluk, Krishnagiri 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	5 (1 core & 4 buffer zone)	IS 9989 As per CPCB Guidelines

		24 hours per location		
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

Study area is mainly composed of Grey Hornblende biotite gneiss and Biotite hornblende genesis as shown in Figure 3.2. Grey hornblende biotite gneiss is a metamorphic rock characterized by its grey colour, prominent foliation and the presence of hornblende and biotite minerals. It's a type of gneiss have a distinct banded or layered appearance due to the alignment of minerals during metamorphism. This foliated metamorphic rock usually forms at

convergent plate boundaries and recrystallizes with immense heat and pressure. It is predominantly composed of

- quartz (13-20%),
- plagioclase (33-39%),
- biotite (20-27%),
- microcline (2- 7%),
- titanite (5-10%),
- hornblende (1-10%) and

as accessories may contain metamorphic clinopyroxene, zircon, apatite and opaque minerals.

Source: Krishnagiri District annual mining report.

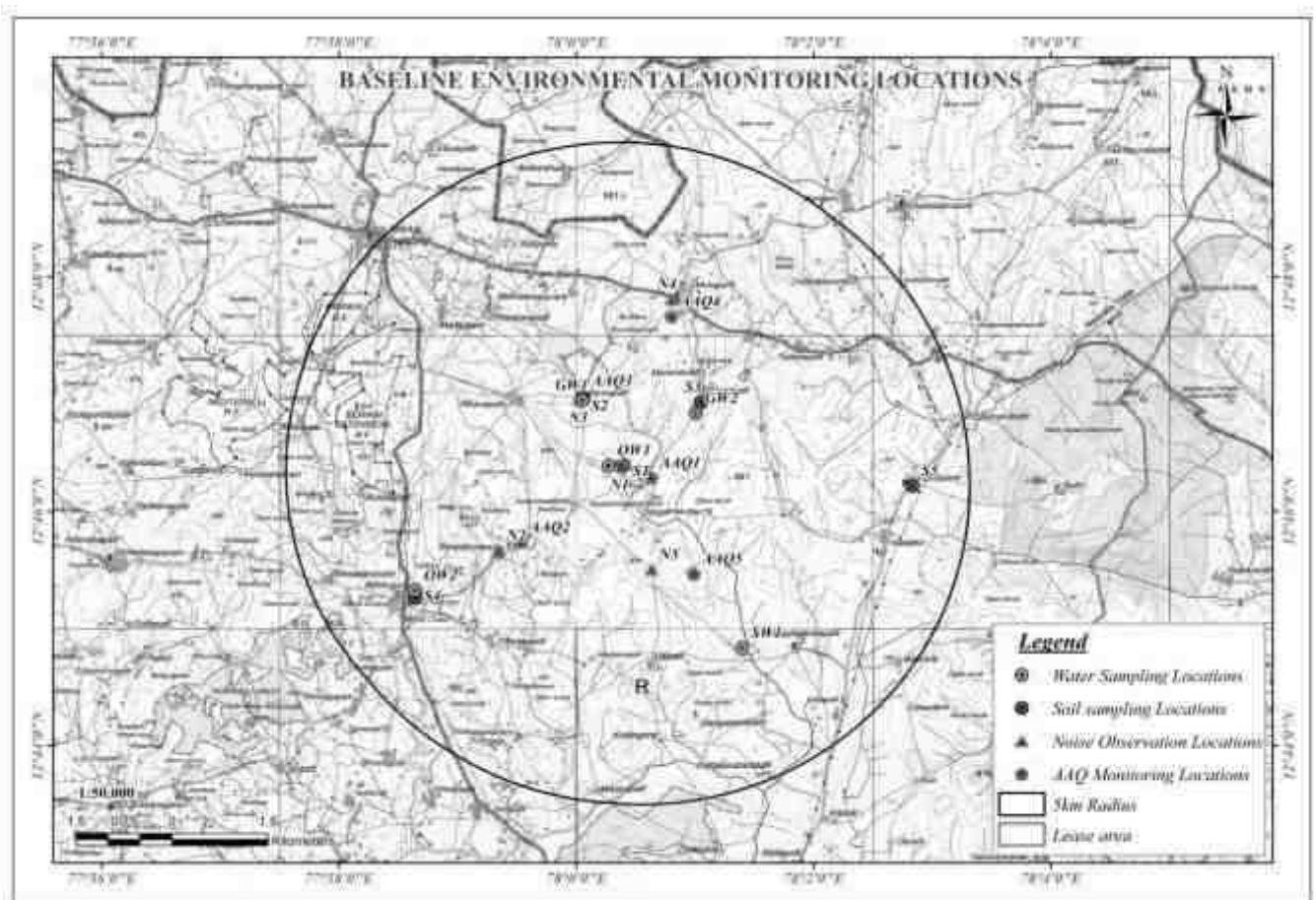


Figure 3.1. Topographical Map of 5km Radius Study Area

3.2.2 Geomorphology:

The project site is a pediment- pediplain complex as shown in Figure 3.3. It is a landscape feature in arid and semi-arid regions formed by the erosional processes of pedimentation and pediplanation. Pediments are gently sloping slightly concave erosional surfaces found at the base of hills or mountains while a pediplain is a much larger broader plain formed by the coalescence of multiple pediments and a pediplain is the end result of the long-term erosion and weathering that creates pediments gradually reducing mountain ranges into a vast flat surface.

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.

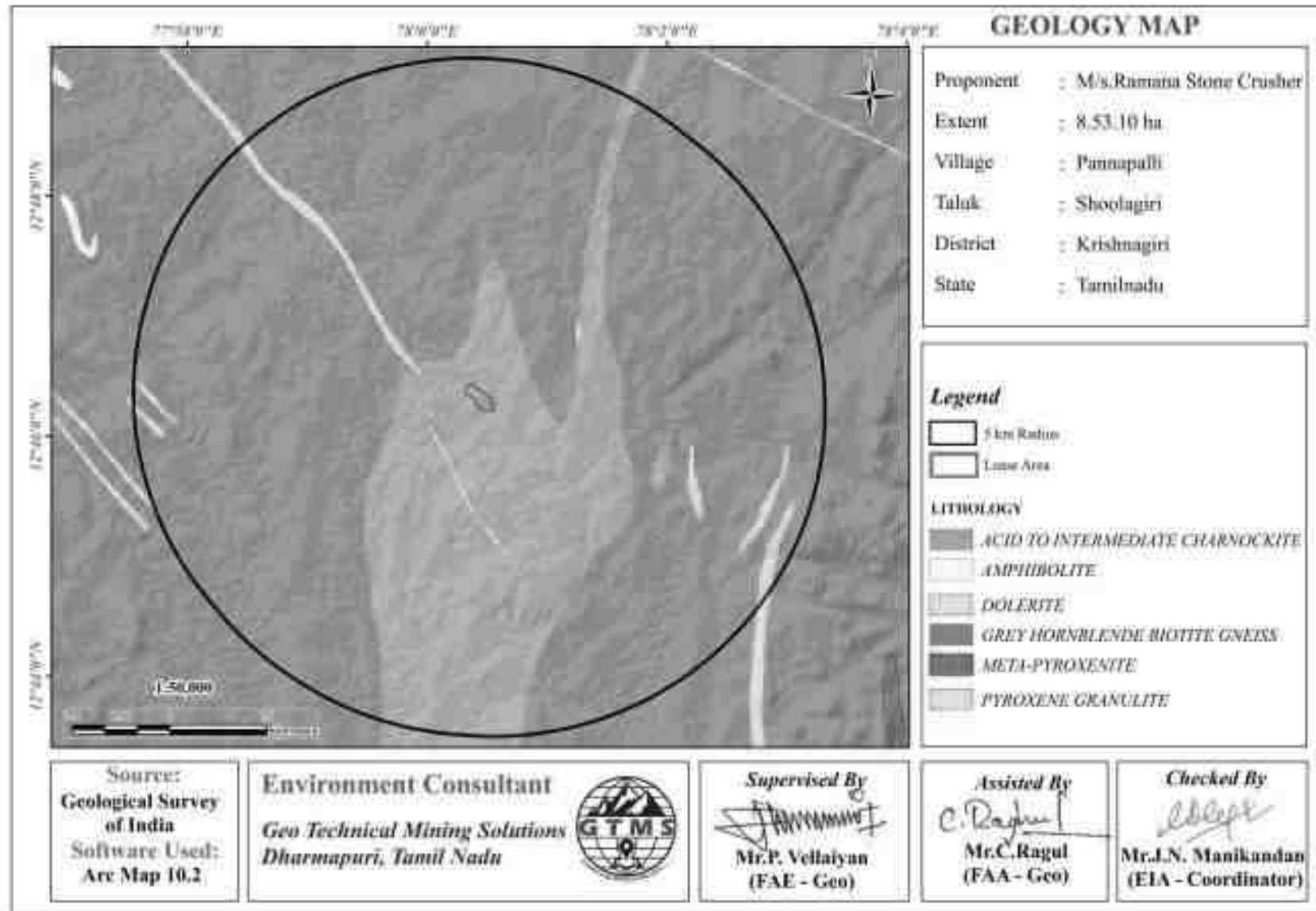


Figure 3.2 Geology Map of 5km Radius from the Proposed Project Site

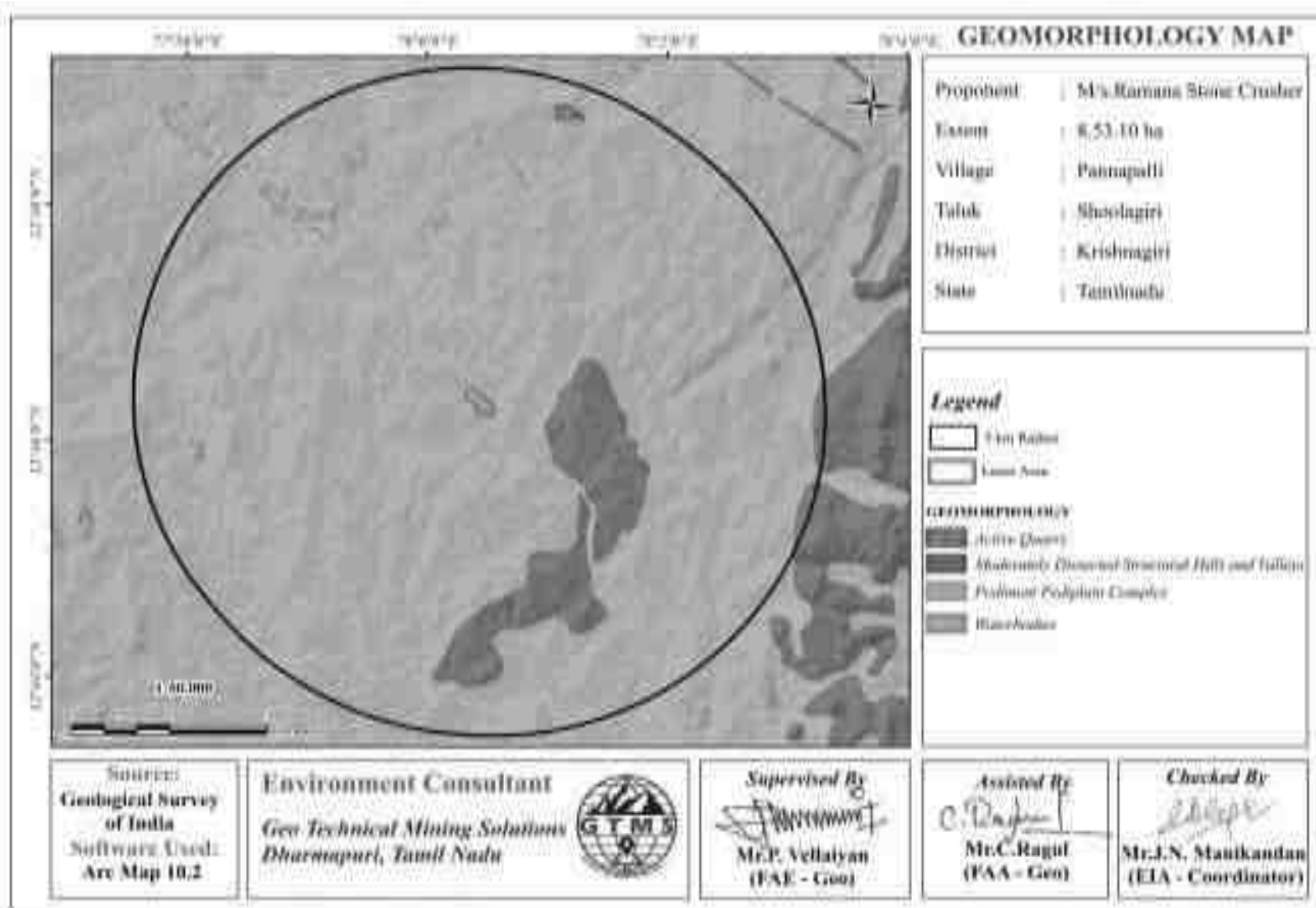


Figure 3.3 Geomorphology Map of 5km Radius from the Proposed Project Site

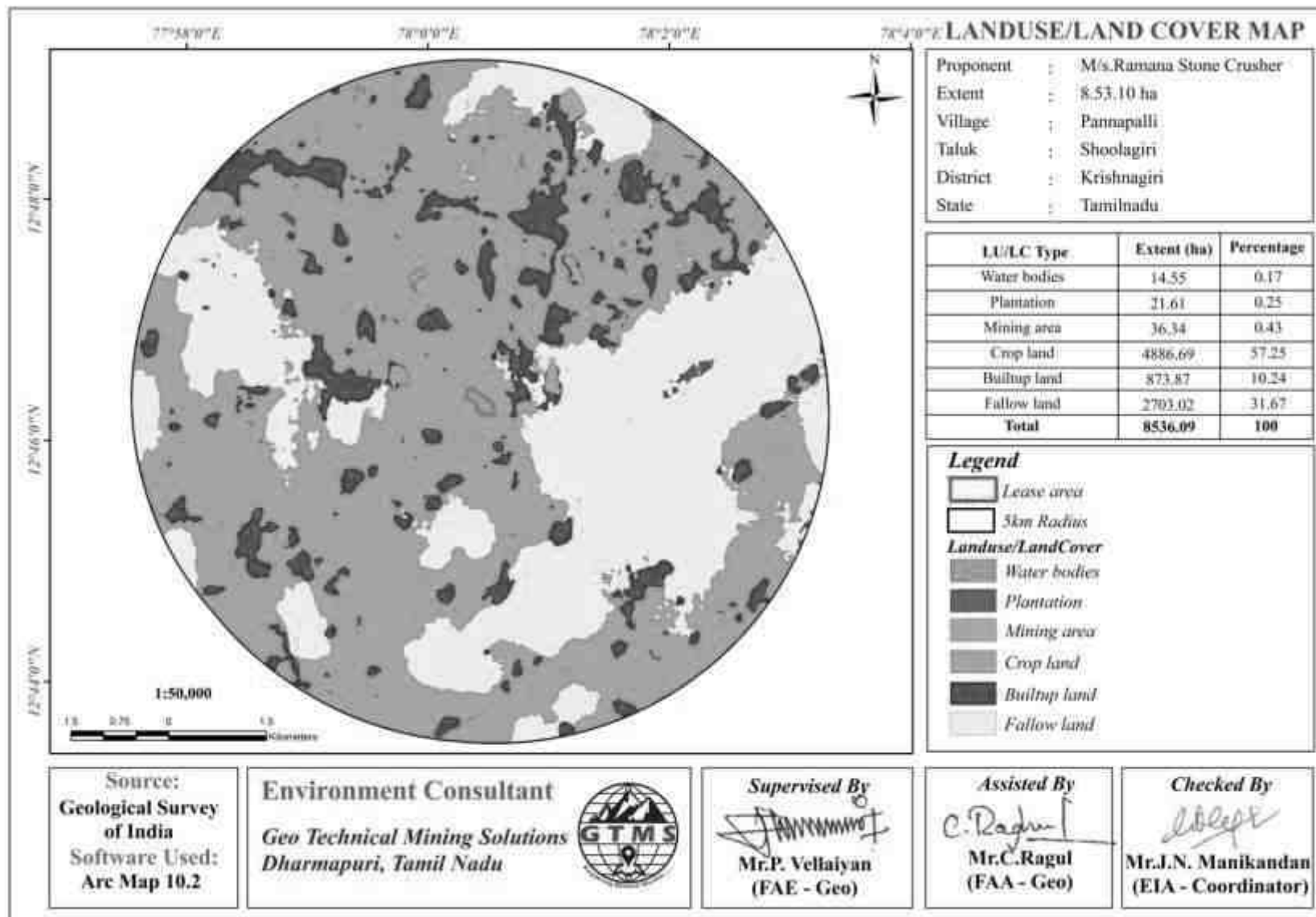


Figure 3.4 LULC Map of 5km Radius from the Proposed Project Site

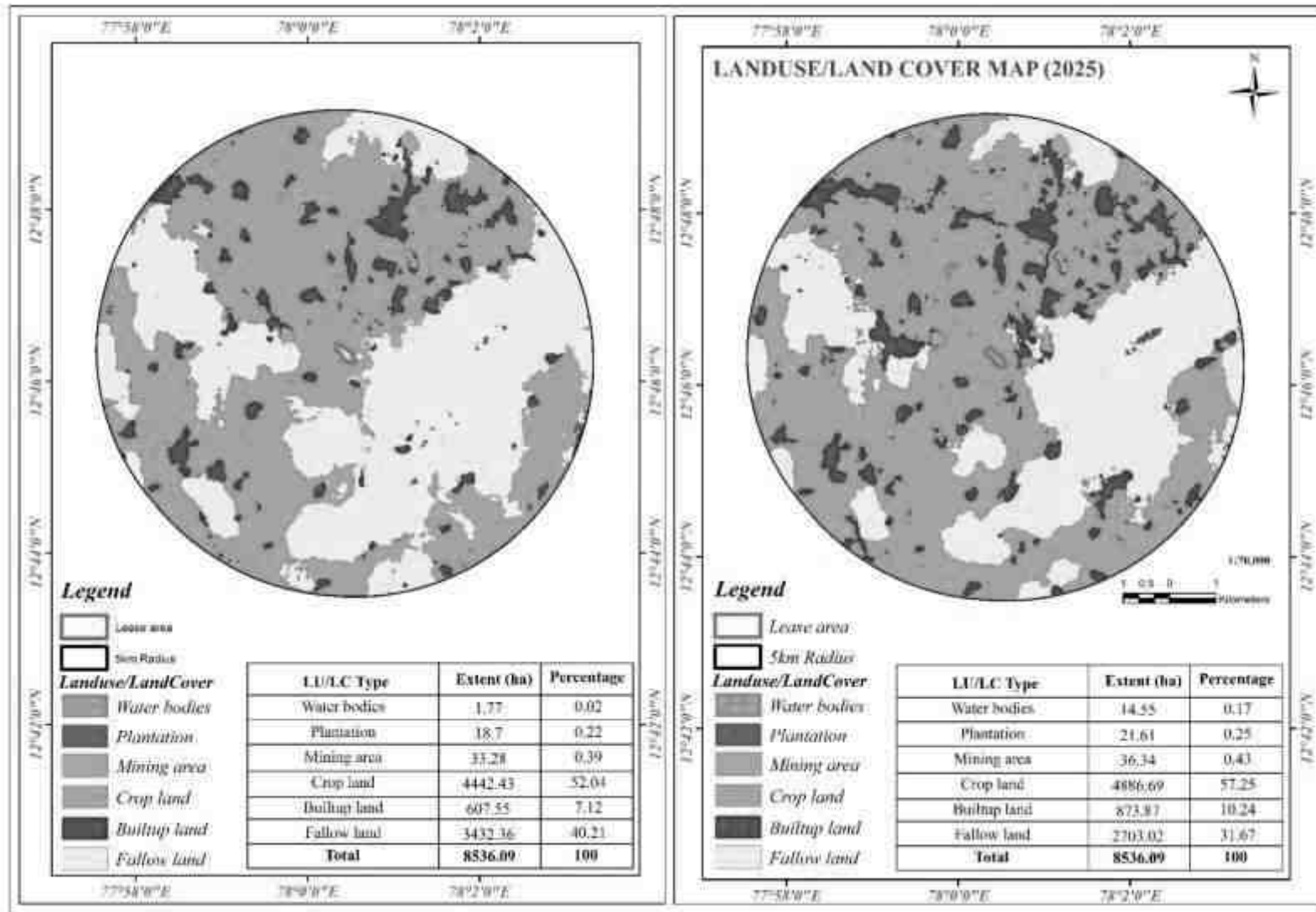


Figure 3.4a LULC Map of 5km Radius from the Proposed Project Site (2020- 2025)

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	Grass lands	1.77	14.55	Negative
2	Plantation	18.7	21.66	27.60
3	Built-up lands	33.28	36.34	10.95
4	Bare ground	4442.43	4886.69	31.72
5	Crop lands	607.55	873.87	10.87
6	Water body	3432.36	2703.02	785
Total		8536.09	8536.09	No Change

Source: Sentinel II Satellite Imagery

3.2.4 Topography

The lease area is characterized by undulating terrain and a one-meter difference in elevation across the site. The maximum elevation is 884m above mean sea level was observed at the centre of the lease area.

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 II as defined by National Centre for Seismology (Official Website of National Centre of Seismology) is shown in Zone II is characterized by low earthquake activity and minimal risk of significant damage. In this region earthquakes typically register as 4.9 or lower on the Richter scale. These are considered low-intensity earthquakes usually causing minor or no damage. Such tremors are often felt by people indoors but rarely cause significant harm A substantial portion of India particularly the peninsular region falls under Zone II.

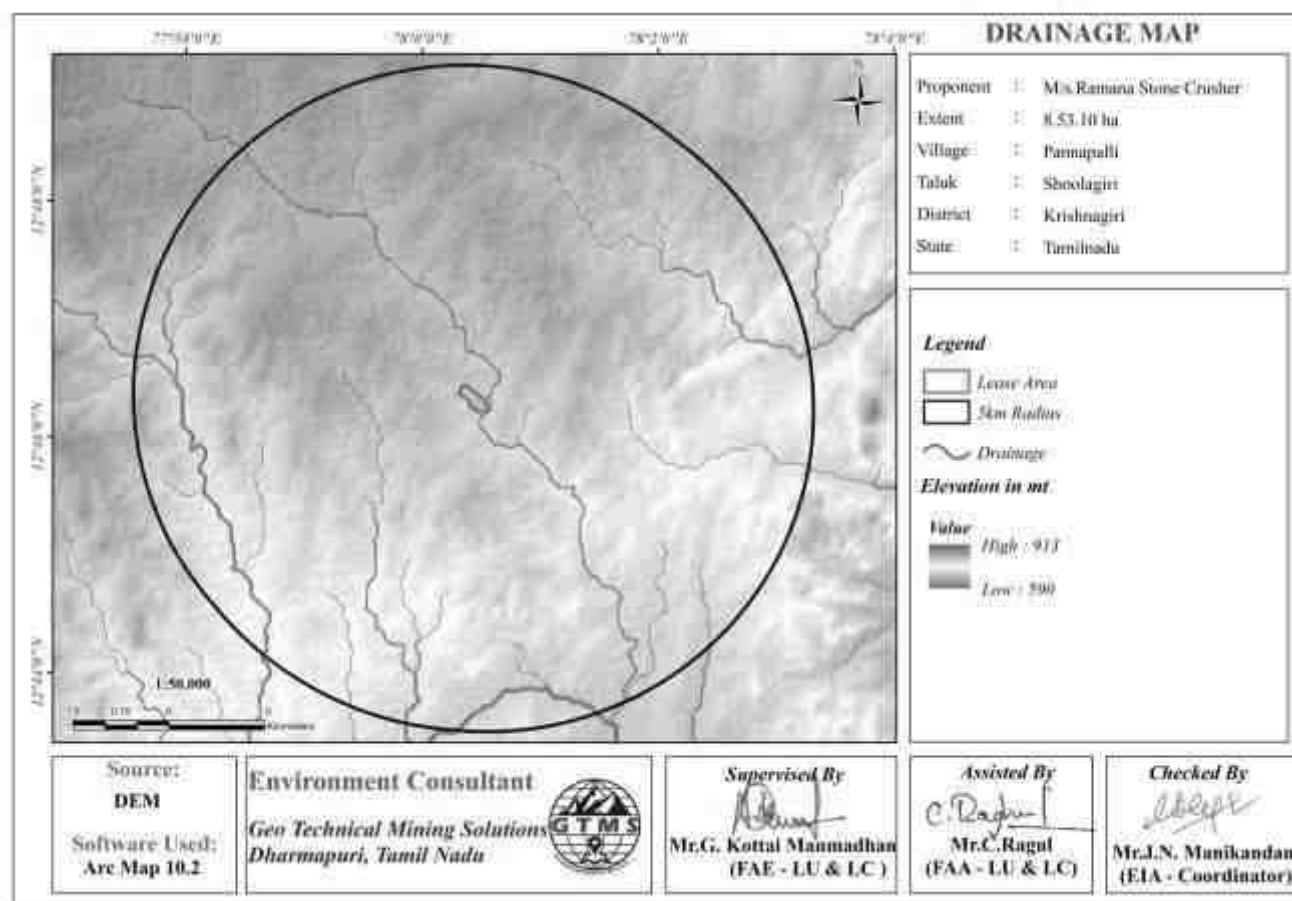


Figure 3.5 Drainage Map of 5Km radius from Proposed Project Site

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°46'23.59"N, 78°0'23.97"E
S02	Pannapalli	1.12	NW	12°46'57.99"N, 78°0'3.01"E
S03	Minnandoddi	1.47	NE	12°46'55.83"N, 78°1'2.91"E
S04	Athimugam	3.68	SW	12°45'15.70"N, 77°58'38.40"E
S05	Kumbalam	4.13	E	12°46'13.05"N, 78° 2'49.97"E

Source: On-site monitoring/sampling Green Link Analytical & Research Lab, in association with GTMS.

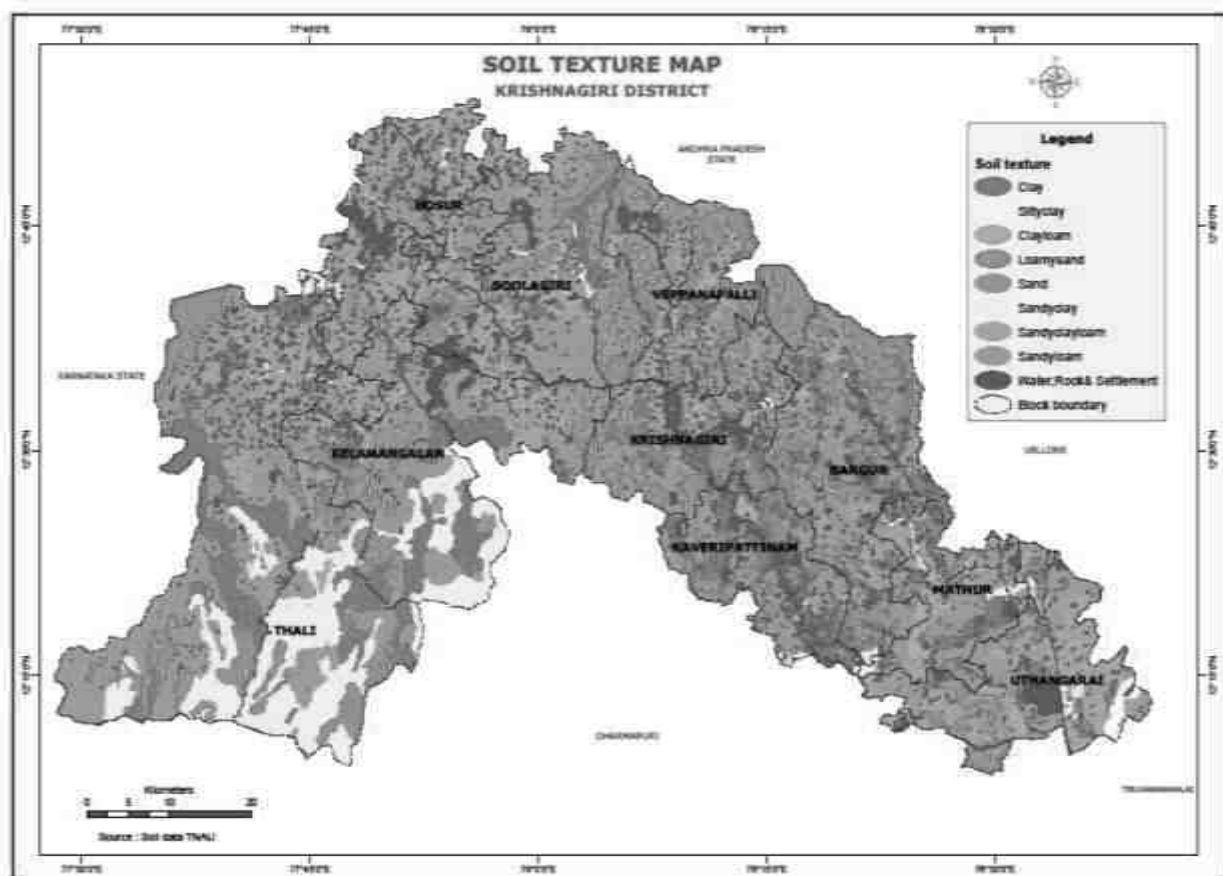


Figure 3.6 Soil Map of Krishnagiri District

3.3.1 Physical Characteristics & Chemical Characteristics

1. Soil pH and Electrical Conductivity (EC):

- **pH** ranged from 6.75 to 7.29 indicating that the soil is **neutral to slightly alkaline**, which is favourable for most crops.
- **EC** value ranged from 120.0 to 240.0 μ S/cm, suggesting low salt concentration and non-saline soil across the sampling area.

2. Physical Properties

- **Bulk Density** values ranged from 1.10 to 1.24kg/cm³, 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 1.05 to 1.16% by weight, classifying soils as low to moderately fertile in terms of organic matter.
- **Nitrogen (N)** content varied from 96.0 to 168.0kg/ha by mass indicating moderate nitrogen availability.
- **Potassium (K)** ranged from 62.0 to 107.3kg/ha by mass moderate fertility potential in terms of potassium.

4. Base Elements and Cation Ratios:

- **Calcium (Ca)** levels were highest with 120.0mg/kg and lowest with 156.7mg/kg.
- **Magnesium (Mg)** ranged from 70.0 to 96.4mg/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 @25°C	-	7.29	6.88	6.75	6.88	6.95
2	Electrical Conductivity	µS/cm	240.0	140.0	120.0	145.0	168.0
3	Total Organic Carbon	%	1.15	1.04	1.10	1.18	1.10
4	Available Nitrogen	Kg/ha	168.0	120.0	96.0	120.0	106.0
5	Available Potassium	Kg/ha	107.3	72.0	64.0	78.0	62.0
6	Available Phosphorous	mg/kg	25.2	20.4	21.8	24.0	30.0
7	Available Calcium	mg/kg	156.7	128.0	114.0	120.0	144.0
8	Available Magnesium	mg/kg	96.4	80.4	72.0	70.0	96.0
9	Moisture	%	11.25	10.94	10.15	10.20	8.45
10	Organic Matter	%	1.16	1.10	1.05	1.10	1.12
11	Chloride	mg/100g	28.0	40.0	32.0	35.0	51.0
Non- NABL Parameters							
12	Bulk Density	kg/cm ³	1.22	1.24	1.15	1.10	1.18
13	Sand	%	24.58	24.11	22.59	23.63	24.63
14	Clay	%	21.69	23.93	24.75	22.18	23.47
15	Slit	%	23.42	22.87	23.51	24.41	22.69
16	Porosity	%	24.04	23.93	24.11	22.96	23.21
17	Copper as Cu	Ppm	12.54	15.24	16.23	12.45	14.12
18	Nickel as Ni	Ppm	0.235	0.196	0.148	0.128	0.135
19	Zinc as Zn	Ppm	20.51	12.45	13.47	14.51	12.84

20	Iron as Fe	Ppm	870.0	840.0	920.0	1040.0	980.0
21	Lead as Pb	Ppm	14.57	20.15	19.63	22.36	18.74

Source: Sampling Results by Green Link Analytical & Research Lab, 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
OW1	Nearby Core	-	-	12°46'23.40"N, 78° 0'16.31"E
OW2	Athimugam	3.62	SW	12°45'19.51"N, 77°58'38.40"E
GW1	Pannapalli	1.08	NW	12°46'56.86"N, 78°0'3.04"E
GW2	Minnandoddi	1.29	NE	12°46'50.20"N, 78°1'0.40"E
SW1	Pannapalli lake	1.35	NW	12°47'20.72"N, 77°59'56.10"E

Source: Sampling Results by **Green Link Analytical & Research Lab**, 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	Pannapalli lake	1.35km	NW
2	Narasipuram Lake	1.67km	SW
3	Mahadevapuram Lake	2.6km	N
4	Kumbalam Lake	2.3km	E

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 7.04 to 7.22. 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 240mg/L to 980mg/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 28.05mg/L to 84.16mg/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 12.16mg/L to 48.64mg/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 48mg/L to 175mg/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 52mg/L to 92mg/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 120mg/L to 410mg/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	
			OW1	OW2	GW1	GW 2	Acceptable Limit	Permissible Limit
1	pH @25°C	-	7.04	7.22	7.01	7.10	6.5-8.5	6.5-8.5
2	Total Dissolved Solids	mg/L	920.0	840.0	980.0	940.0	500	2000
3	Electrical Conductivity@25°C	µS/cm	1510.0	1390.0	1630.0	1490.0	-	-
4	Turbidity	NTU	<0.1	<0.1	<0.1	<0.1	1.0	5.0
5	Colour	Hazen	<1.0	<1.0	<1.0	<1.0	5.0	15
6	Calcium as Ca	mg/L	72.14	64.12	84.16	80.16	75	200
7	Magnesium as Mg	mg/L	48.64	43.77	48.64	43.77	30	100
8	Chloride as Cl	mg/L	175.0	162.0	155.0	143.0	250	600
9	Sulphate (as SO ₄)	mg/L	96.0	104.0	89.0	85.0	250	600
10	Silica (as Na)	mg/L	16.4	18.7	20.4	17.9	-	-
11	Total Residual Chlorine	mg/L	BDL[DL-0.1]	BDL[DL-0.1]	BDL[DL-0.1]	BDL[DL-0.1]	0.2	1.0
12	Sodium (as Na)	mg/L	54.7	48.9	24.5	25.8	-	-

13	Total Hardness (as CaCO ₃)	mg/L	380.0	340.0	410.0	380.0	200	600
14	Total Alkalinity (as CaCO ₃)	mg/L	88.0	92.0	86.0	78.0	200	600
15	Fluoride (as F)	mg/L	0.55	0.69	0.65	0.62		
16	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
17	Taste	-	Disagreeable	Disagreeable	Disagreeable	Disagreeable	Agreeable	Agreeable
18	Total Solids	mg/L	948.0	852.0	1004.0	978.0	-	-
19	Dissolved Oxygen	mg/L	5.4	5.4	5.2	5.4	-	-
20	Phosphorous	mg/L	0.81	0.76	0.71	0.62	-	-
21	Potassium	mg/L	34.0	22.0	14.0	12.0	-	-
22	Nitrite as NO ₂	mg/L	BDL[DL-0.1]	BDL[DL-0.1]	BDL[DL-0.1]	BDL[DL-0.1]	-	-
23	Phenolphthalein Alkalinity (as CaCO ₃)	mg/L	BDL[DL-2.0]	BDL[DL-2.0]	BDL[DL-2.0]	BDL[DL-2.0]	200	600

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

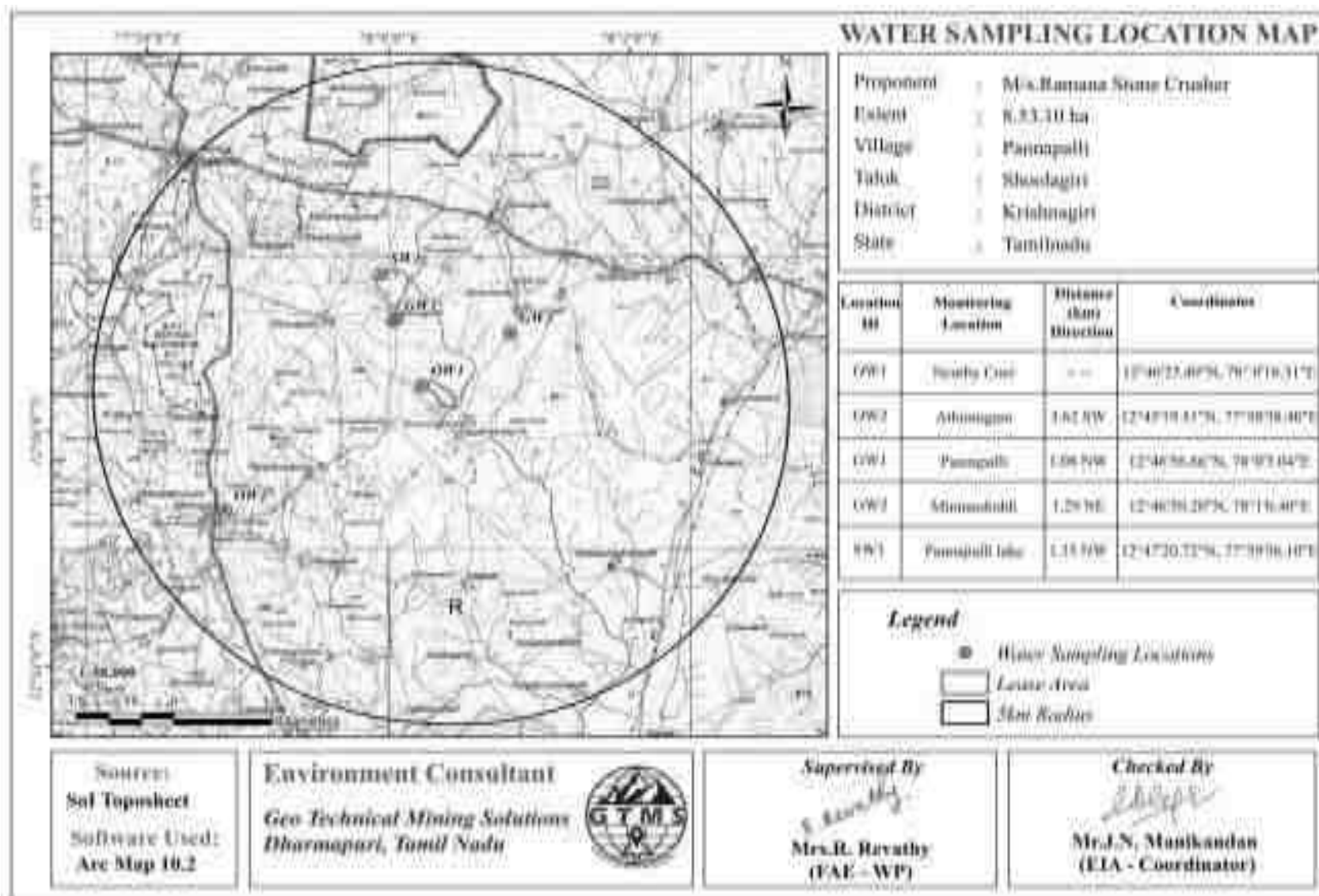


Figure 3.8 Topo- Map showing water sampling locations within 5km radius

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	Pannapalli Lake	1.35km	NW	891	874
4	Narasipuram Lake	1.67km	SW	891	849

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 Pannapalli lake is located at a distance of 1.35km in northwest direction of lease area and extent of 16.46heactares is a key surface water body in the area is characterized as Narasipuram Lake is located at a distance of 1.67km in Southwest direction of lease area. Water table is found at a depth of 75m in summer and 80m 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	As per IS 10500:2012	
				Acceptable Limit	Permissible Limit
1	pH @25 ⁰ C	-	7.06	6.5-8.5	6.5-8.5
2	Total Dissolved Solids	mg/L	240.0	500	2000
3	Electrical Conductivity@25 ⁰ C	μS/cm	510.0	-	-
4	Turbidity	NTU	<0.1	5	15
5	Colour	Hazen	<1.0	5.0	15
6	Calcium as Ca	mg/L	28.05	75	200
7	Magnesium as Mg	mg/L	12.16	30	100
8	Chloride as Cl	mg/L	48.0	250	600
9	Sulphate (as SO ₄)	mg/L	25.0	250	600
10	Silica (as Na)	mg/L	11.6	-	-
11	Total Residual Chlorine	mg/L	BDL[DL-0.1]	0.2	1.0

12	Sodium (as Na)	mg/L	08.0	-	-
13	Total Hardness (as CaCO ₃)	mg/L	120.0	200	600
14	Total Alkalinity (as CaCO ₃)	mg/L	52.0	200	600
15	Odour	-	Agreeable	Agreeable	Agreeable
16	Taste	-	Disagreeable	Agreeable	Agreeable
17	Total Solids	mg/L	262.0	-	-
18	Dissolved Oxygen	mg/L	5.8	-	-
19	Phosphorous	mg/L	0.48	-	-
20	Potassium	mg/L	04.0	-	-
21	Nitrite as NO ₂	mg/L	BDL[DL-0.1]	-	-
22	Phenolphthalein Alkalinity (as CaCO ₃)	mg/L	BDL[DL-2.0]	200	600
23	BOD	-	BLQ(LOQ:1.0)	-	-
24	COD	-	BLQ(LOQ:5.0)	-	-
25	E. Coli	CFU/ml	Absent	Absent	Absent
26	Total Coliform	CFU/ml	Absent	Absent	Absent

BDL: Below Detectable Level, CFU: Colony forming Unit,

Source: Sampling Results by **Green Link Analytical & Research Lab**, 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.

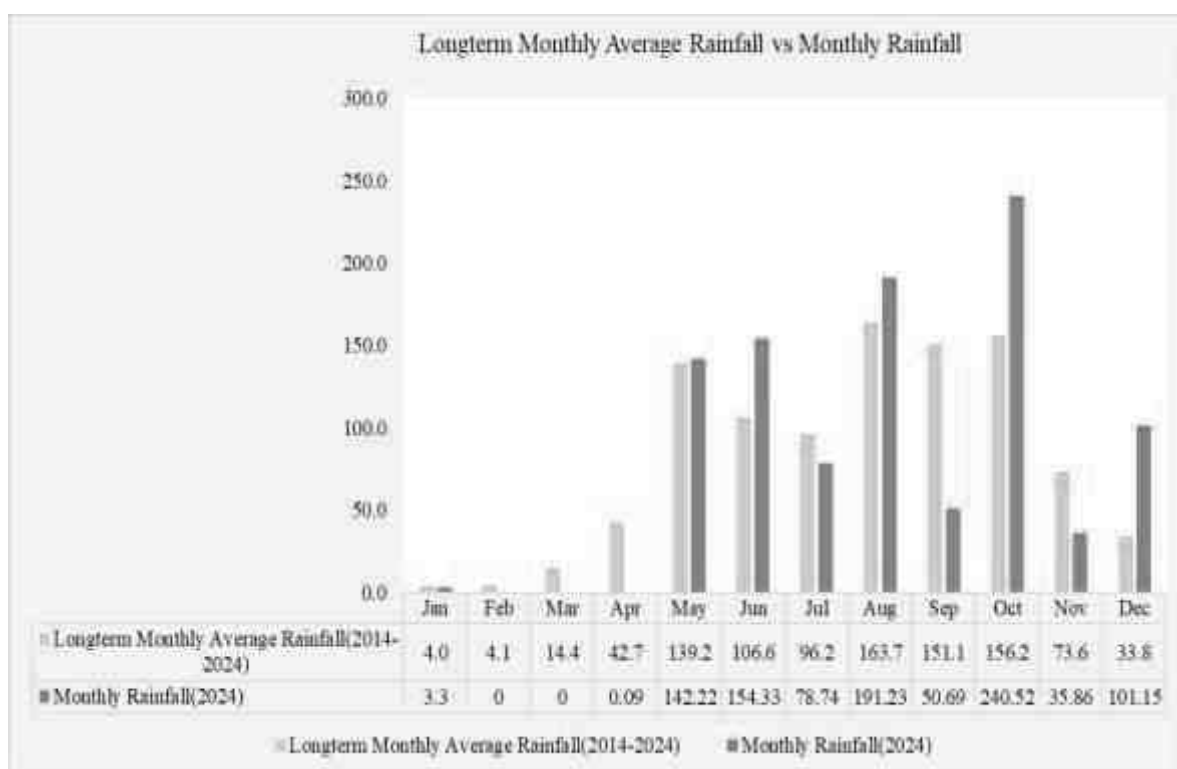


Figure 3.9 Long- Term Monthly Average Rainfall Vs Monthly Rainfall

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 8.73 to 11.13 m BGL in pre monsoon and 8.20 to 10.47 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 October through December (Post-Monsoon Season) vary from 70.17 to 74.23 m and from 72.37 to 76.23 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	9.1	9.5	10.2	9.60	12°46'23.40"N	78° 0'16.31"E
OW02	8.7	9.2	9.8	9.23	12°46'7.68"N	78° 0'18.66"E
OW03	9.2	9.7	10.3	9.73	12°46'24.73"N	78° 0'37.67"E
OW04	7.9	8.5	9.8	8.73	12°46'11.94"N	78° 0'51.31"E
OW05	8.4	9.2	9.6	9.07	12°45'47.52"N	78° 0'46.72"E
OW06	9.5	9.7	10.1	9.77	12°46'3.05"N	77°59'47.51"E
OW07	8.5	8.8	9.5	8.93	12°45'34.59"N	77°59'43.96"E
OW08	9.8	10.2	10.5	10.17	12°46'45.46"N	77°59'54.48"E
OW09	10.6	11.2	11.6	11.13	12°46'48.29"N	78° 1'2.19"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	8.5	8.8	9.2	8.83	12°46'23.40"N	78° 0'16.31"E
OW02	8.2	8.6	8.9	8.57	12°46'7.68"N	78° 0'18.66"E
OW03	8.7	9.2	9.5	9.13	12°46'24.73"N	78° 0'37.67"E
OW04	7.5	8.4	8.7	8.20	12°46'11.94"N	78° 0'51.31"E
OW05	8.2	8.8	9.2	8.73	12°45'47.52"N	78° 0'46.72"E
OW06	8.8	9.2	9.8	9.27	12°46'3.05"N	77°59'47.51"E
OW07	8.1	8.5	9.1	8.57	12°45'34.59"N	77°59'43.96"E
OW08	9.2	9.6	10.2	9.67	12°46'45.46"N	77°59'54.48"E
OW09	10.1	10.5	10.8	10.47	12°46'48.29"N	78° 1'2.19"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	71.8	72.4	73.1	72.43	12°45'59.38"N	78° 0'35.84"E
BW02	72.7	73.5	74.4	73.53	12°46'12.98"N	78° 0'42.03"E
BW03	73.2	73.8	74.5	73.83	12°46'4.59"N	78° 0'0.58"E
BW04	74.3	74.7	75.4	74.80	12°46'58.92"N	77°59'59.39"E

BW05	75.2	75.9	76.2	75.77	12°47'3.80"N	78° 1'1.52"E
BW06	72.5	73.4	74.1	73.33	12°45'37.19"N	78° 0'42.01"E
BW07	75.7	76.2	76.8	76.23	12°46'56.93"N	77°59'30.92"E
BW08	71.5	72.4	73.2	72.37	12°45'31.38"N	78° 0'5.33"E
BW09	73.5	73.8	74.4	73.90	12°46'37.49"N	78° 0'17.29"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	70.2	70.5	71.2	70.63	12°45'59.38"N	78° 0'35.84"E
BW02	71.2	71.4	71.8	71.47	12°46'12.98"N	78° 0'42.03"E
BW03	71.5	71.8	72.4	71.90	12°46'4.59"N	78° 0'0.58"E
BW04	72.4	73.1	73.5	73.00	12°46'58.92"N	77°59'59.39"E
BW05	73.1	73.5	74.1	73.57	12°47'3.80"N	78° 1'1.52"E
BW06	70.5	71.2	71.6	71.10	12°45'37.19"N	78° 0'42.01"E
BW07	73.7	74.2	74.8	74.23	12°46'56.93"N	77°59'30.92"E
BW08	69.8	70.2	70.5	70.17	12°45'31.38"N	78° 0'5.33"E
BW09	72.1	72.5	72.9	72.50	12°46'37.49"N	78° 0'17.29"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.

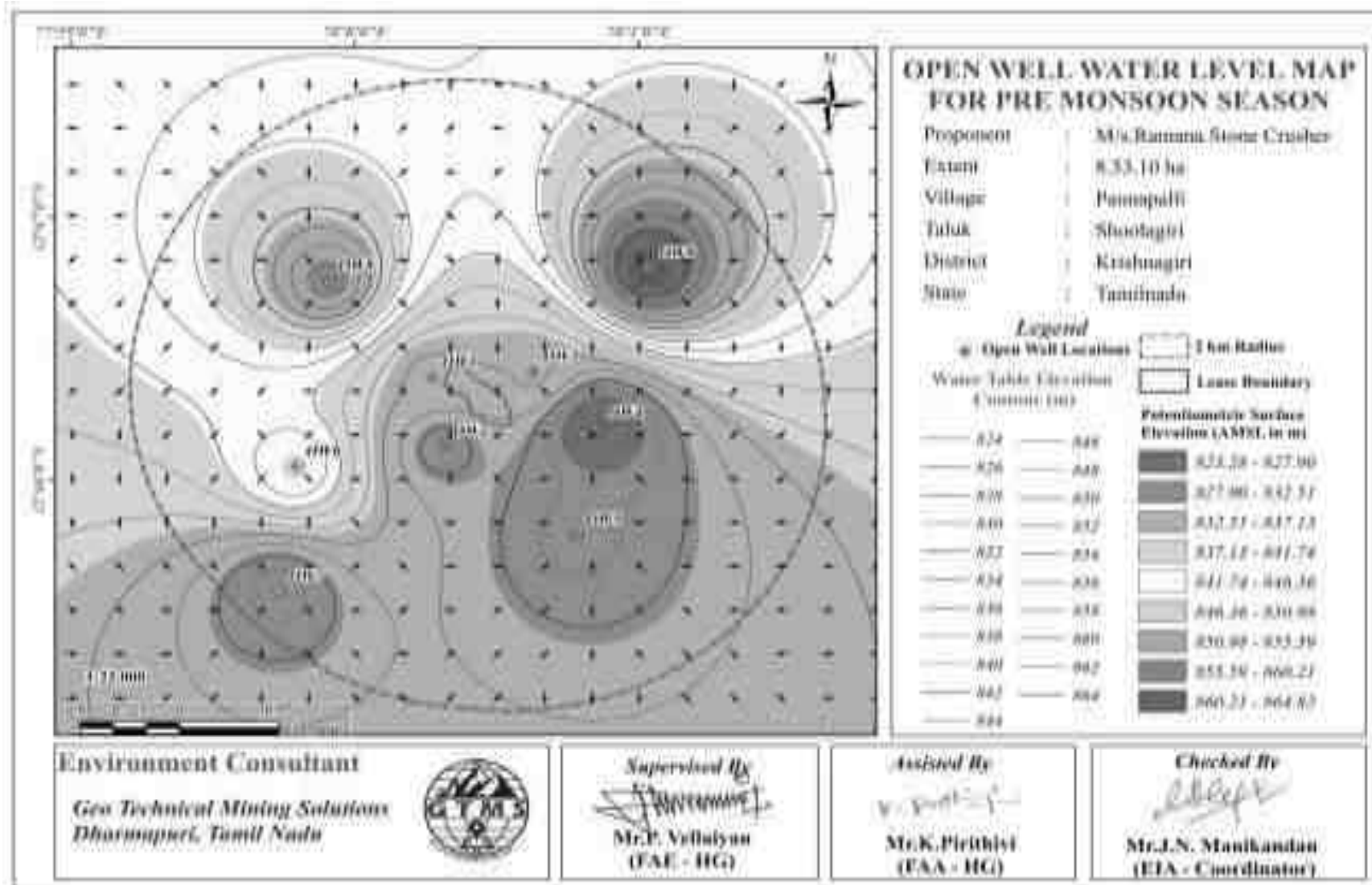


Figure 3.10 Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre- Monsoon Season

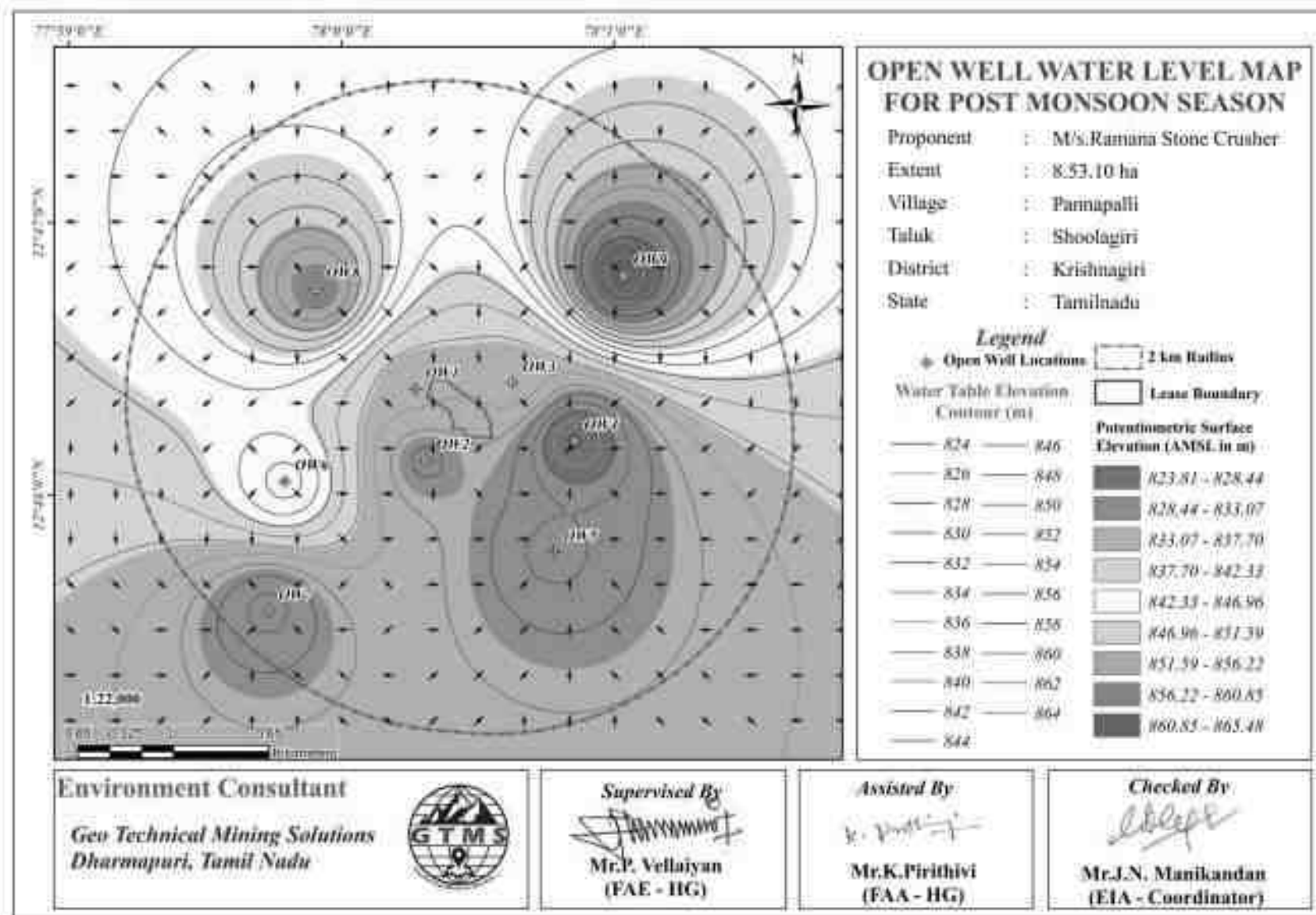


Figure 3.11 Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post-Monsoon Season

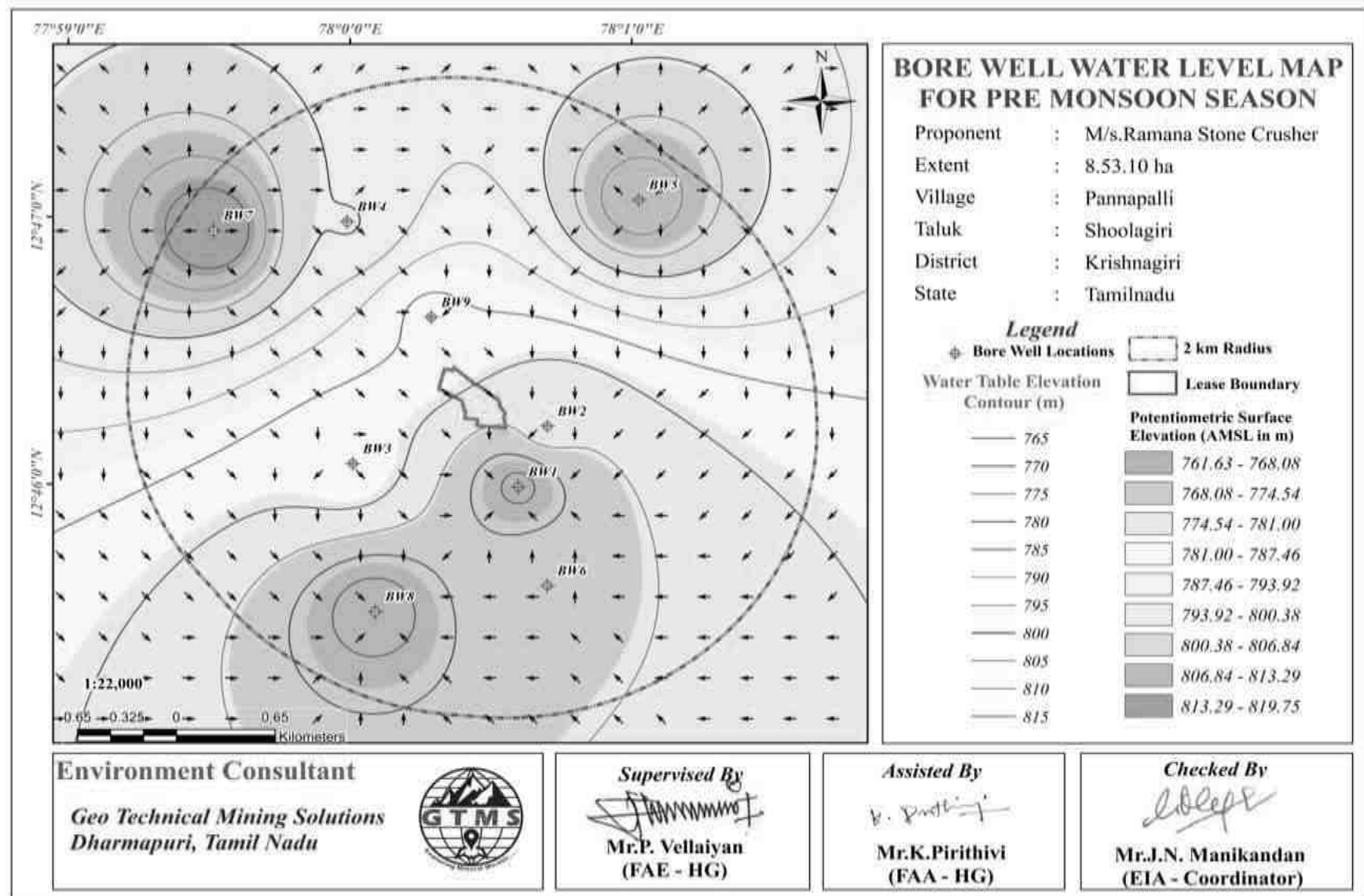


Figure 3.12 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Pre-Monsoon Season

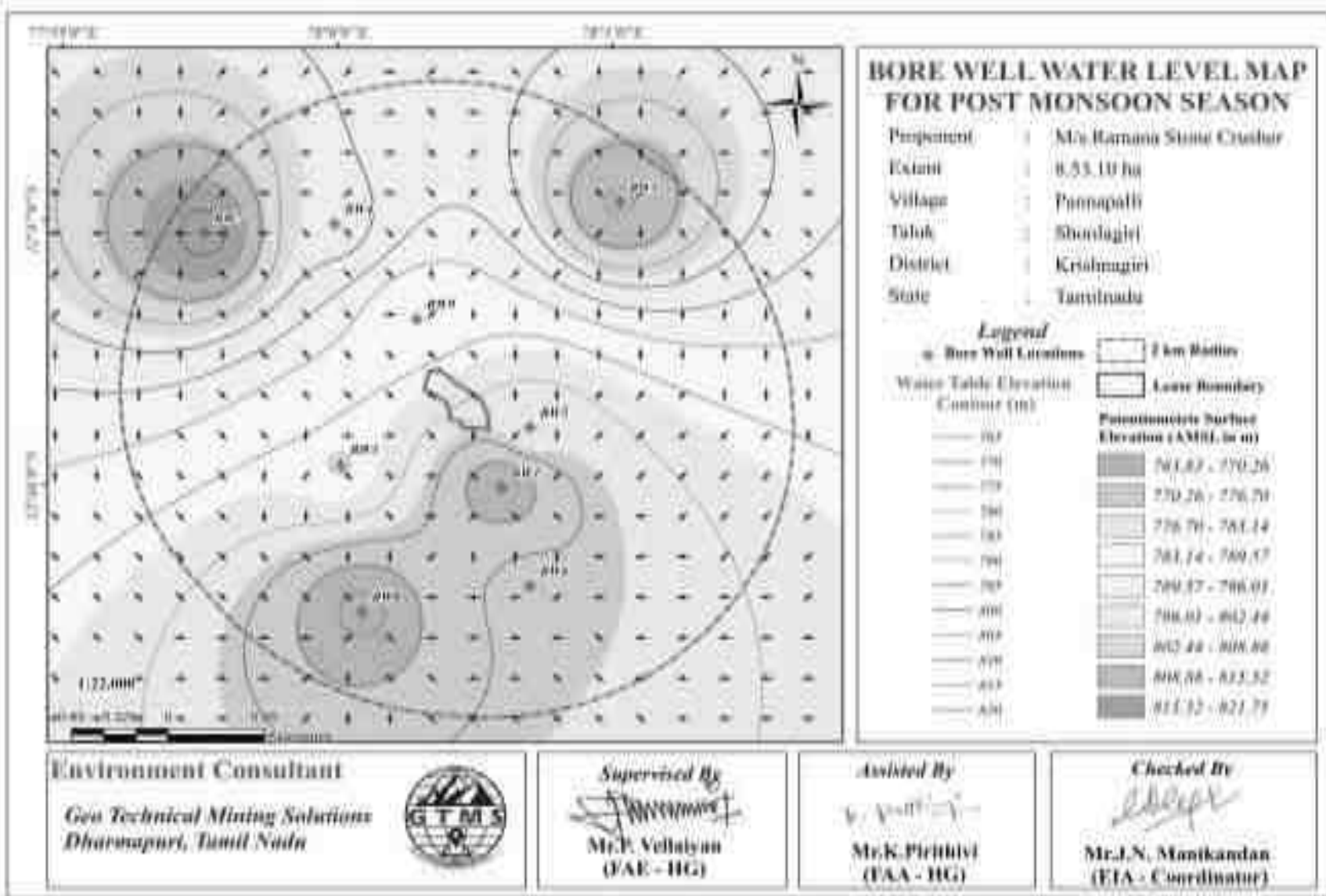


Figure 3.13 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow during Post- Monsoon Season

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°46'21.42"N 78° 0'23.57"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	65	20	453.6	4.50	2041.05
15	70	20	989.1	2.17	2149.5
16	80	20	1256	1.25	1567.45
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

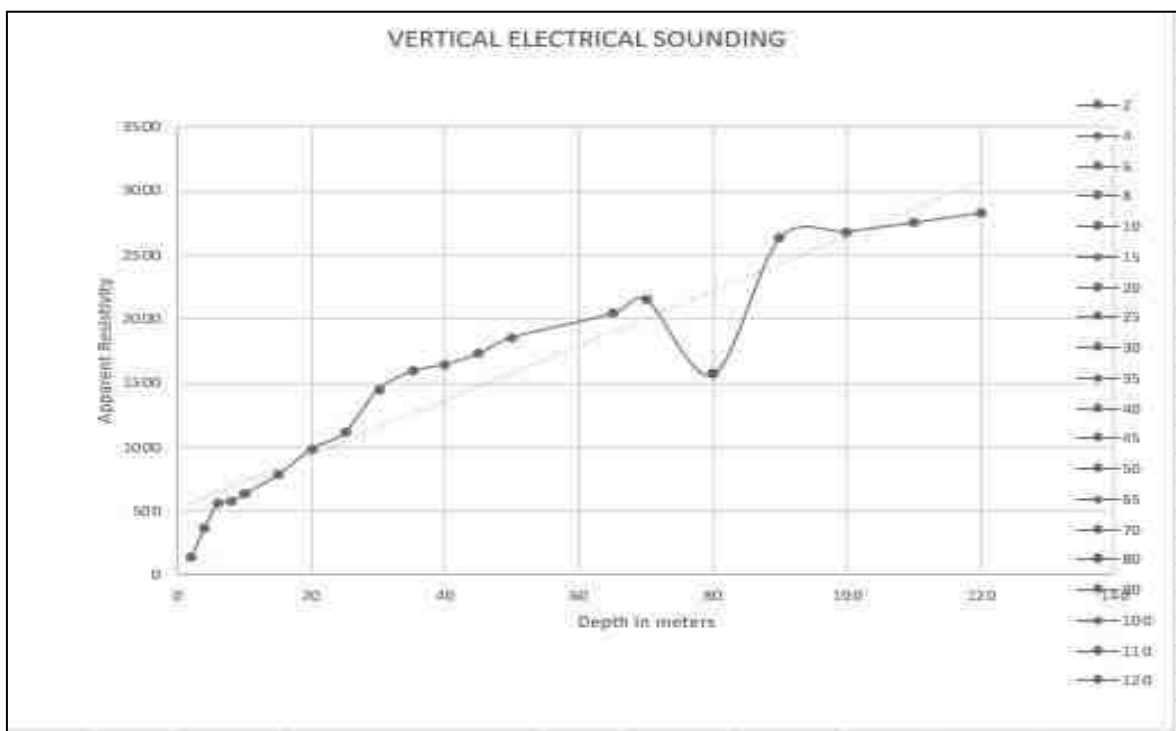


Figure 3.14 Graph showing occurrence of water bearing fracture zones at the depth in the proposed project site

The low resistance values indicate occurrence of water at the depth of about 80m below ground level. The maximum depth proposed for the proposed project is 75m 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 (⁰ 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.

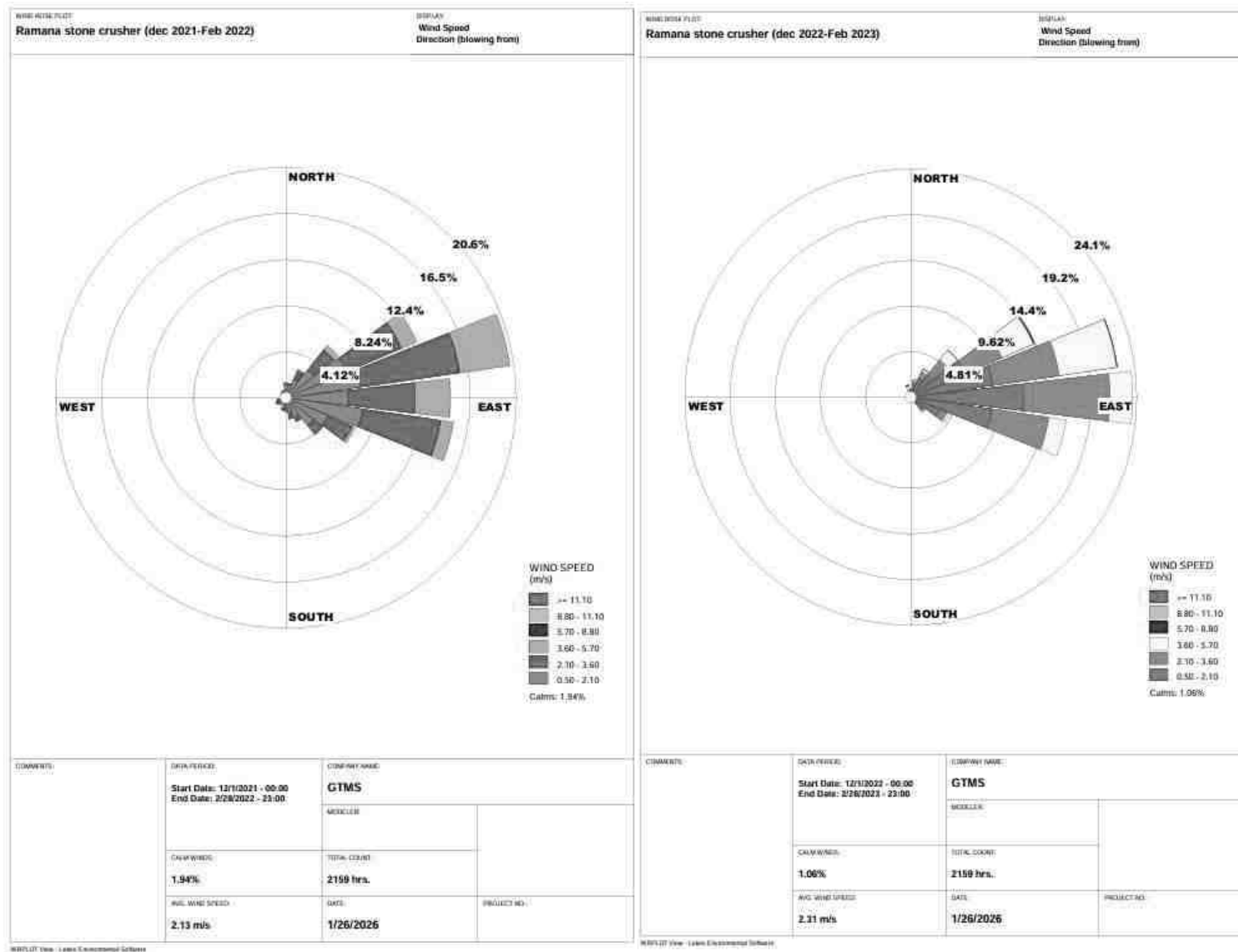


Figure 3.15 Windrose Diagram December 2021-February 2022 & December 2022- February 2023

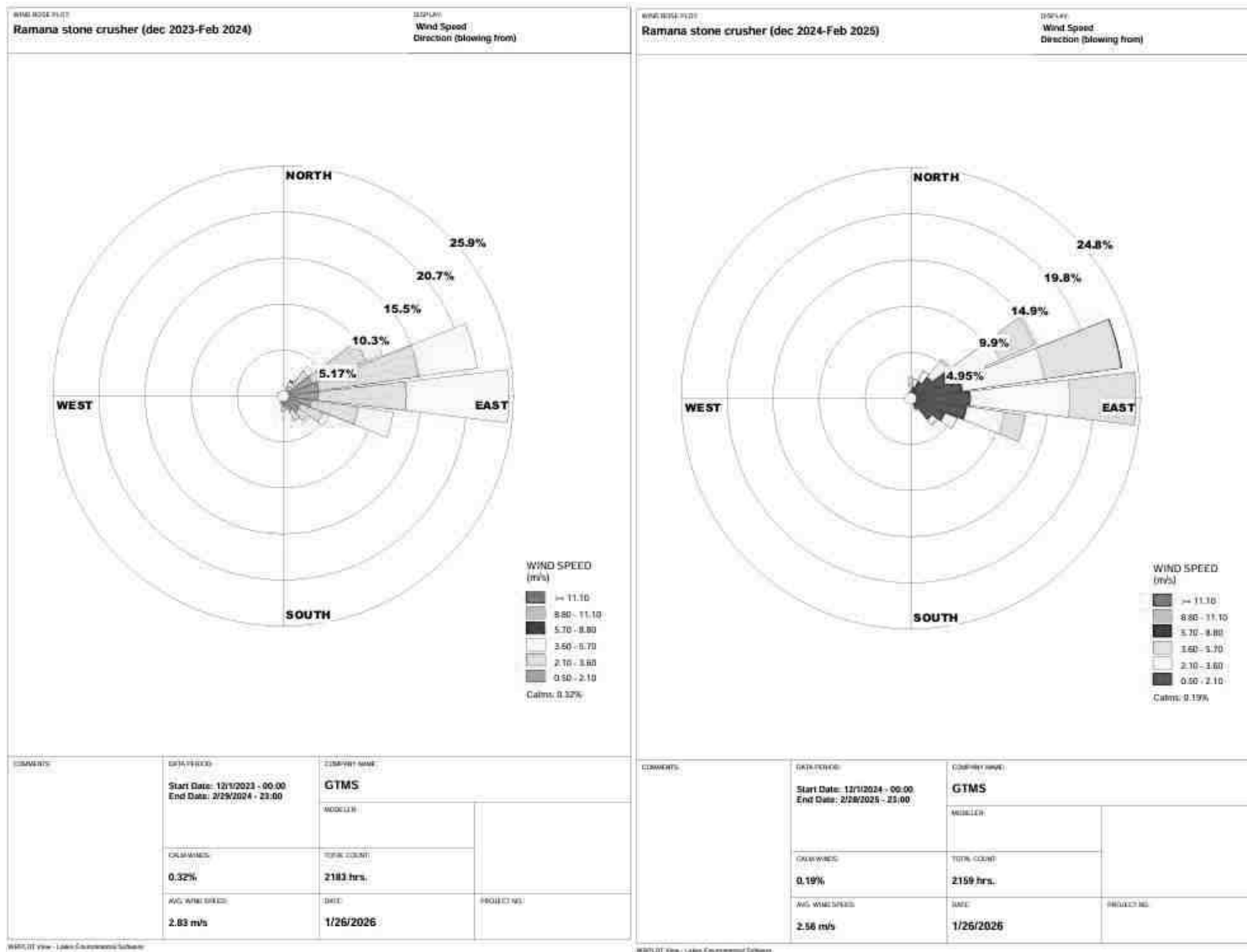


Figure 3.16 Windrose Diagram December 2023- February 2024 & December 2024-February 2025

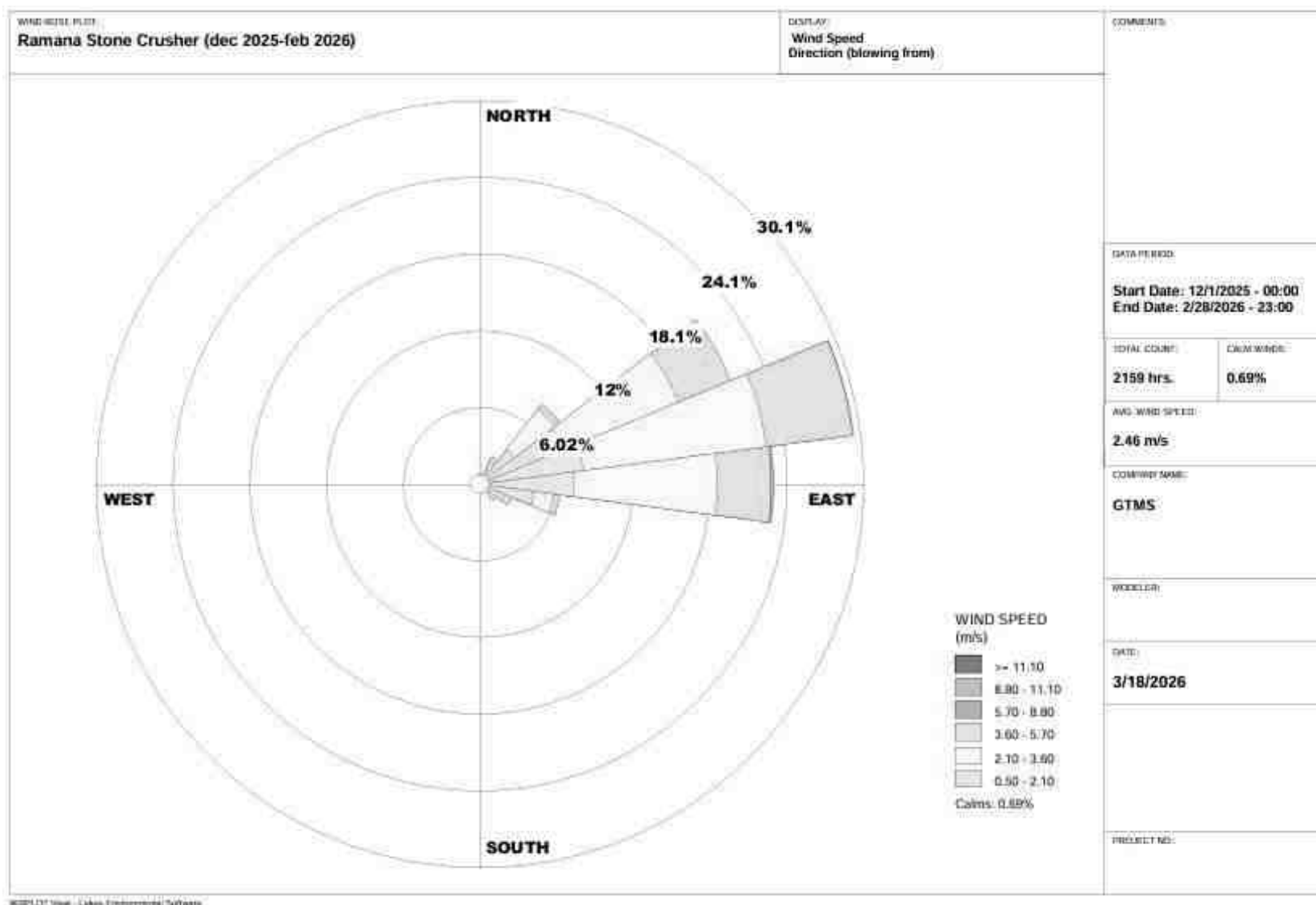


Figure 3.17 Onsite Wind Rose Diagram (December 2025- February 2026)

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 Beta attenuation method	Fine Particulate Sampler
PM ₁₀	Gravimetric method Beta attenuation method	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	Nearby Core	0.15	E	12°46'17.19"N	78°0'37.93"E
AAQ2	Naraseepuram	1.84	SW	12°45'44.21"N	77°59'32.10"E
AAQ3	Pannapalli	1.14	NNW	12°46'59.10"N	78°0'3.48"E
AAQ4	Muduguriki	2.39	NNE	12°47'39.75"N	78°0'48.12"E
AAQ5	Peddasigarlapalli	1.58	SSE	12°45'27.91"N	78°0'59.28"E

Source: On-site monitoring/sampling by **Green Link Analytical & Research Lab** in association with **GTMS**

Results

As per the monitoring data PM_{2.5} ranges from 18.39µg/m³ to 21.70µg/m³, PM₁₀ from 49.75µg/m³ to 53.34µg/m³, SO₂ from 12.78µg/m³ to 15.48µg/m³, NO_x from 16.82µg/m³ to 19.32g/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	98th Percentile	Max	Min	Mean	98th Percentile
AAQ1	22.50	18.21	20.95	22.48	52.10	48.33	50.51	52.09
AAQ2	23.60	19.65	21.88	23.45	54.00	50.18	52.39	53.75
AAQ3	19.60	17.20	18.64	19.22	50.10	47.11	48.74	50.08
AAQ4	20.10	18.06	19.25	20.08	54.50	51.02	52.85	54.37
AAQ5	22.70	18.82	20.68	22.59	56.00	52.11	54.16	55.75
SO ₂					NO _x			
AAQ1	14.90	12.01	13.65	14.75	18.50	16.92	17.68	18.41
AAQ2	16.00	13.35	14.80	15.98	20.50	17.85	19.25	20.47
AAQ3	14.50	12.22	13.56	14.43	18.10	15.32	17.02	18.07
AAQ4	15.60	13.04	14.67	15.53	19.40	16.91	18.34	19.39
AAQ5	16.40	13.29	15.01	16.36	20.10	17.11	18.85	20.06

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.

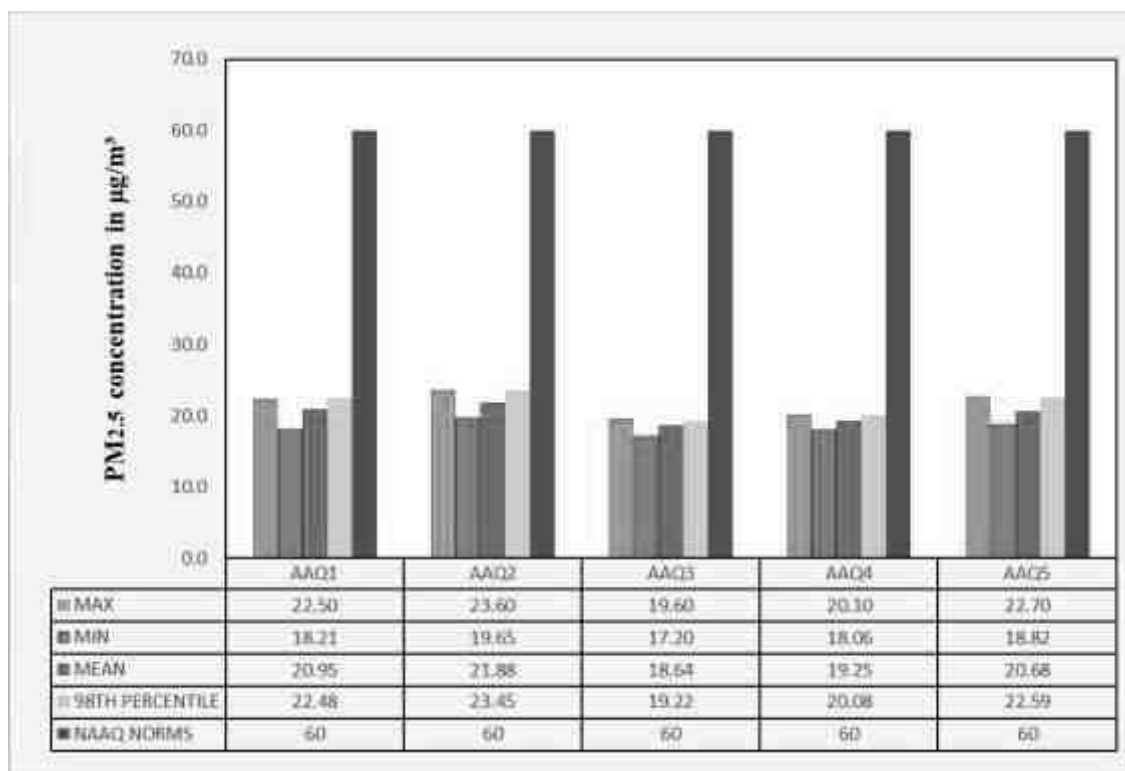


Figure 3.19 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM_{2.5} Measured from 5 Air Quality Monitoring Stations within 5 km Radius

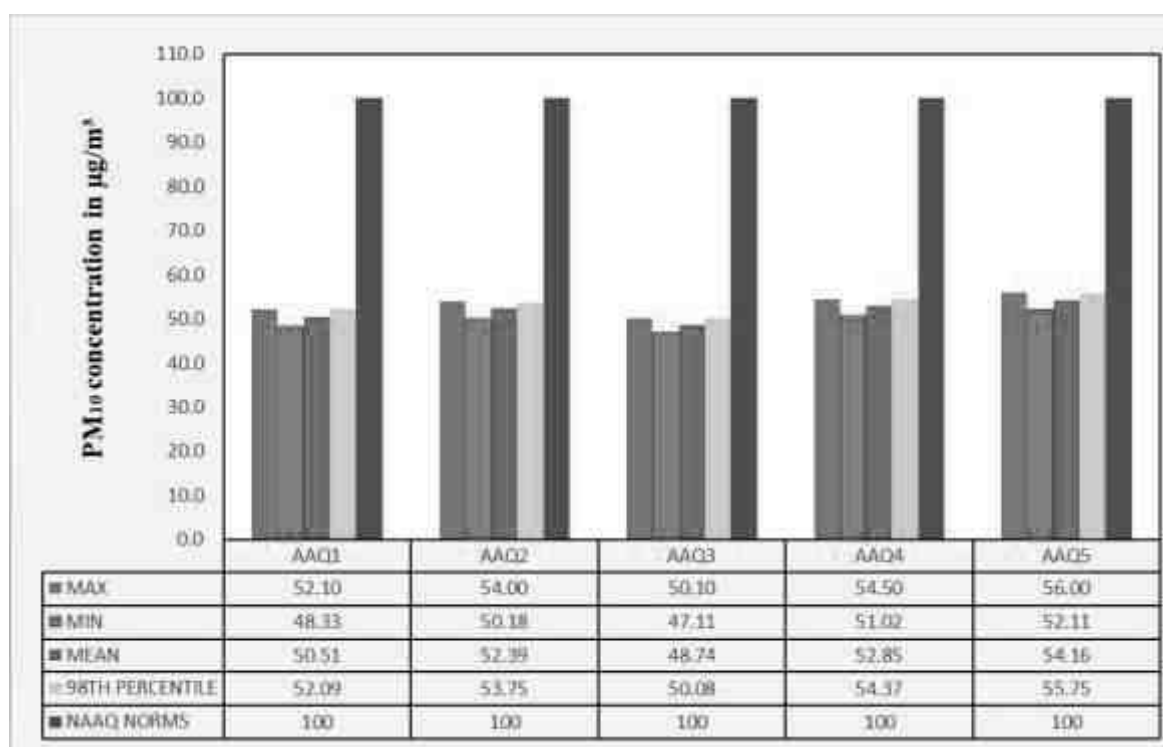


Figure 3.20 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM₁₀ Measured from 5 Air Quality Monitoring Stations within 5 km Radius

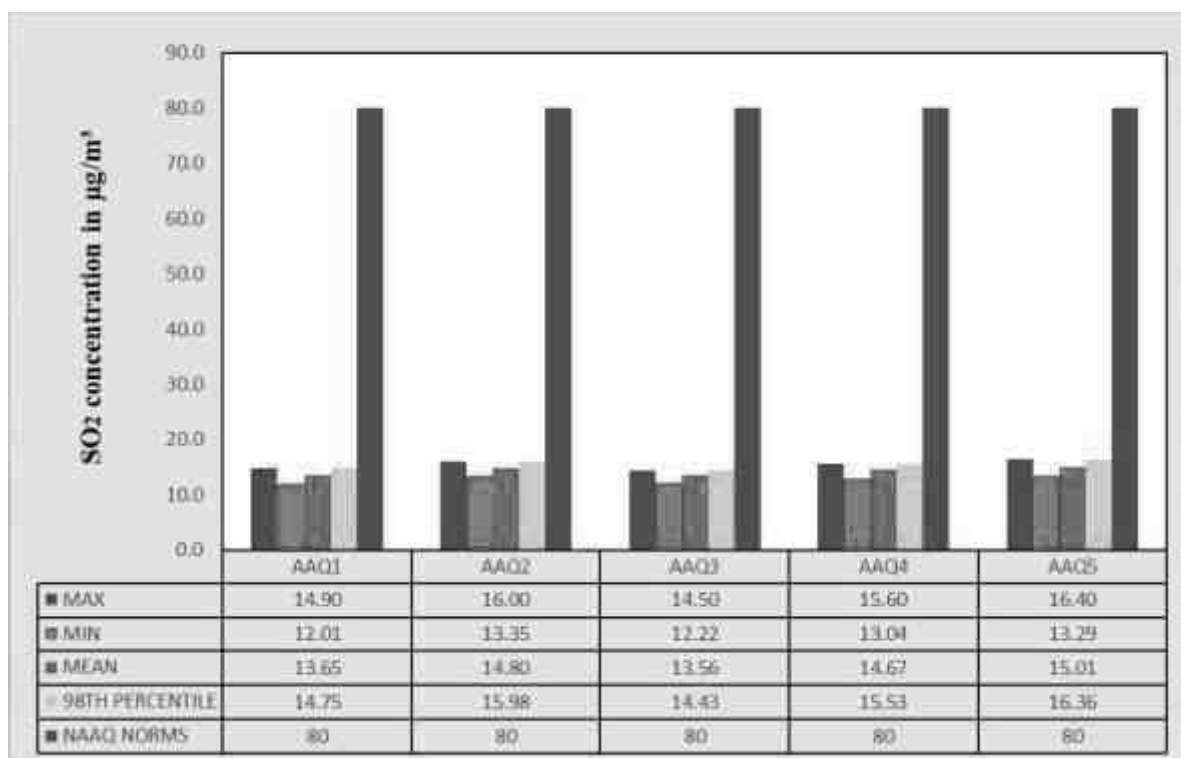


Figure 3.21 Bar Chart Showing Maximum, Minimum, and Average Concentrations of SO₂ Measured from 5 Air Quality Monitoring Stations within 5 km Radius

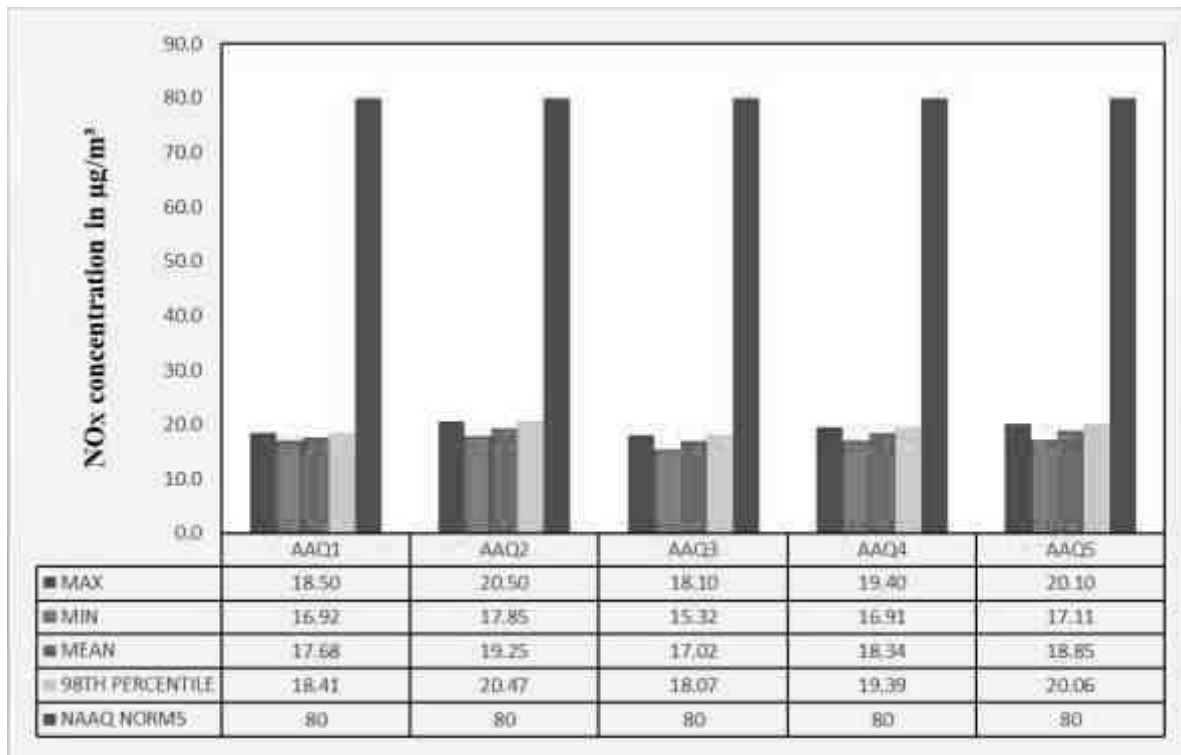


Figure 3.22 Bar Chart Showing Maximum, Minimum, and Average Concentrations of NO_x Measured from 5 Air Quality Monitoring Stations within 5km Radius

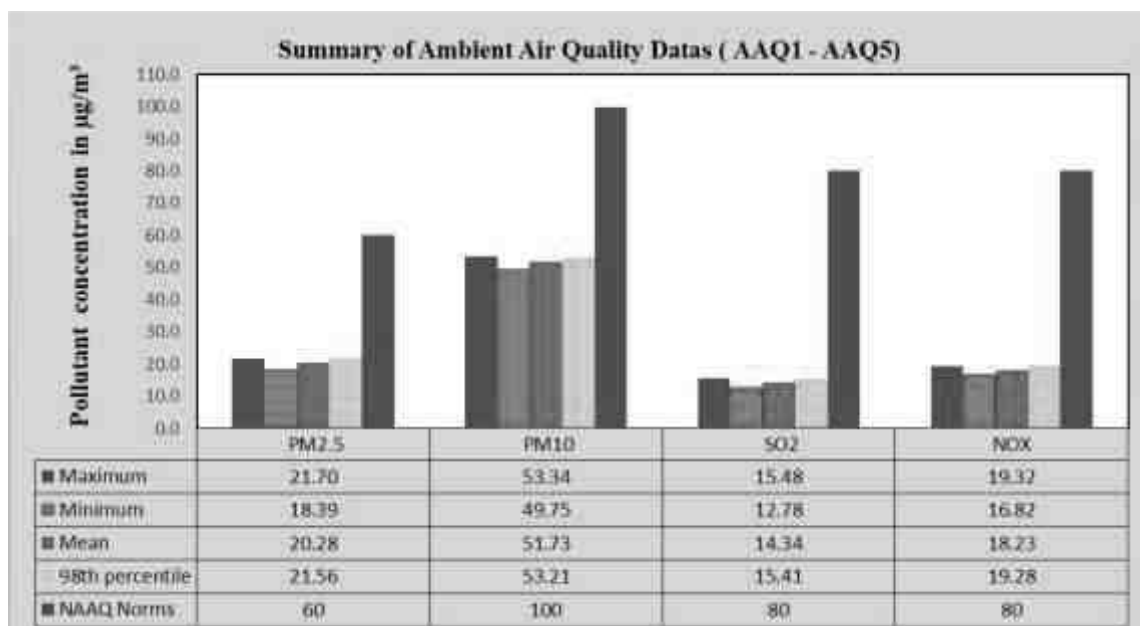


Figure 3.23 Bar Chart Showing Maximum, Minimum, And Average Concentrations of Pollutants in Atmosphere within 5 km Radius

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°46'23.57"N	78°0'23.41"E
2	N2	Naraseepuram	2.19	SW	12°45'39.98"N	77°59'20.86"E
3	N3	Pannapalli	1.12	NW	12°46'57.74"N	78°0'2.40"E
4	N4	Muduguriki	2.66	N	12°47'48.82"N	78°0'48.36"E
5	N5	Peddasigalapalli	1.31	SSE	12°45'30.08"N	78°0'38.06"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	57.6	52.1	75	70
N2	Naraseepuram	Residential Area	52.9	41.6	55	45
N3	Pannapalli		51.9	42.3		
N4	Muduguriki		51.7	41.7		
N5	Peddasigalapalli		51.4	42.7		

Source: On-site Monitoring/Sampling by **Green Link Analytical & Research Lab** in Association with GTMS

The table 3.21 shown that noise level in core zone was 57.6dB (A) Leq during day time and 52.1dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 51.4 to 52.9dB (A) Leq and during night time from 41.6 to 42.7dB (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.

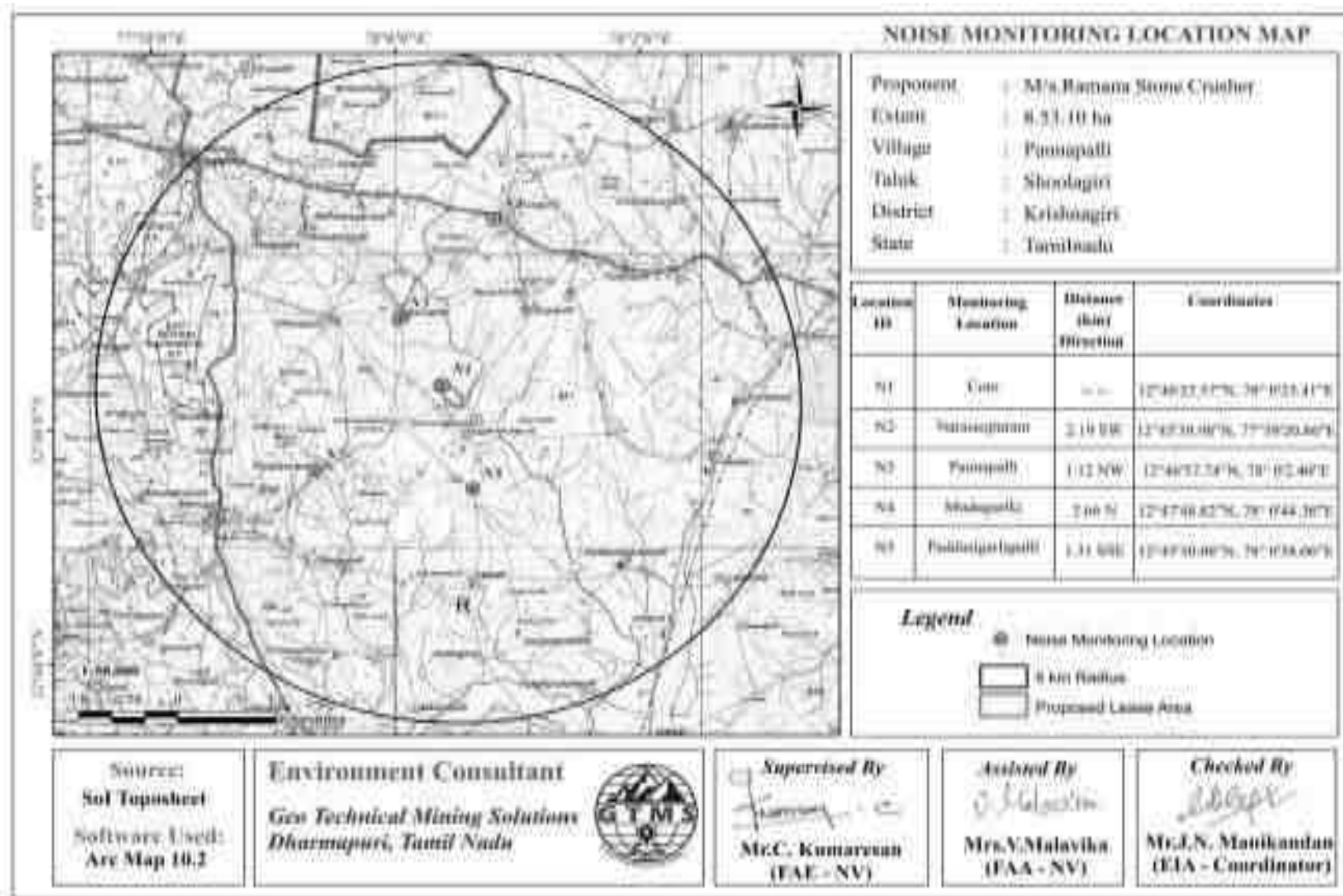


Figure 3.24 Map Showing Noise Level Monitoring Station Locations

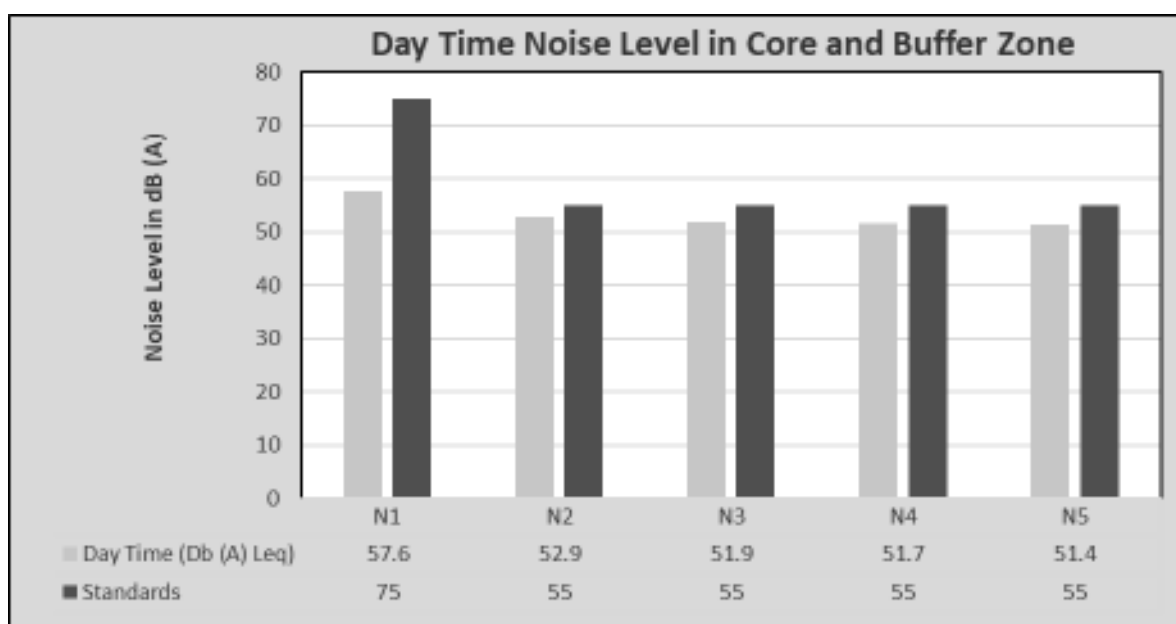


Figure 3.25 Bar Chart Showing Day Time Noise Levels Measured in Core and Buffer Zones

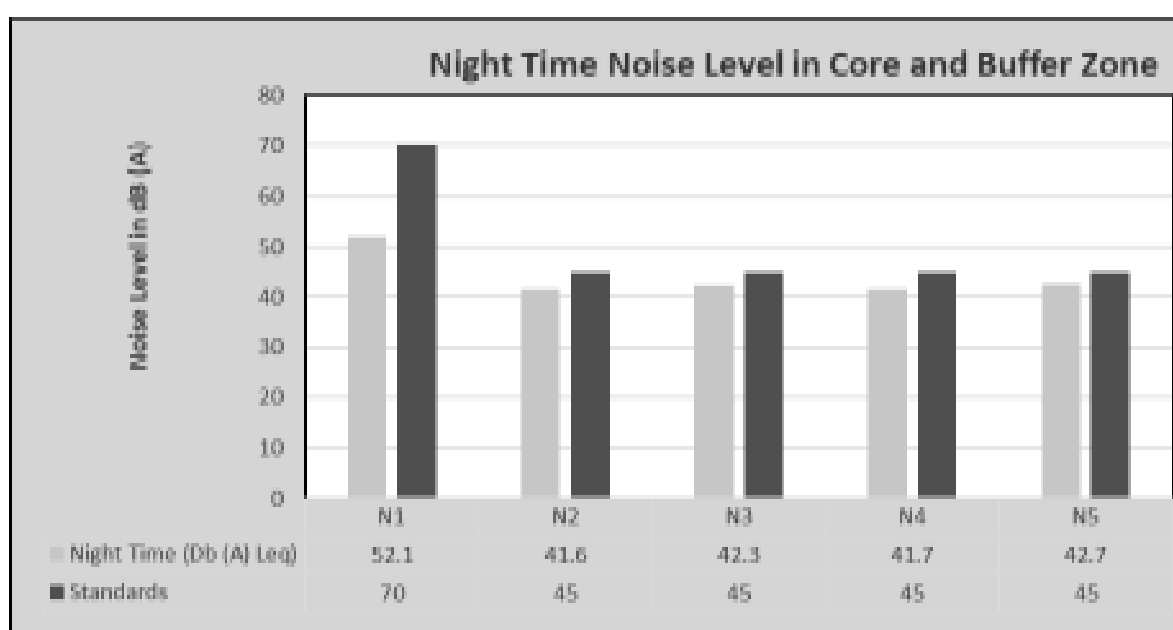


Figure 3.26 Bar Chart Showing Night Time Noise Levels Measured in Core and Buffer Zones

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 16 species belonging to 8 families 32 Plant have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were Herbs 3 followed by Trees 3 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 140 different species identified in the buffer zone. Among the identified, floral (140) species were 32 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	3	6
2.	Shrubs	4	11
3.	Herbs	5	9
4.	Climber	2	3
5.	Creepers	-	1
6.	Grasses	2	2
Total No. of Species		16	32

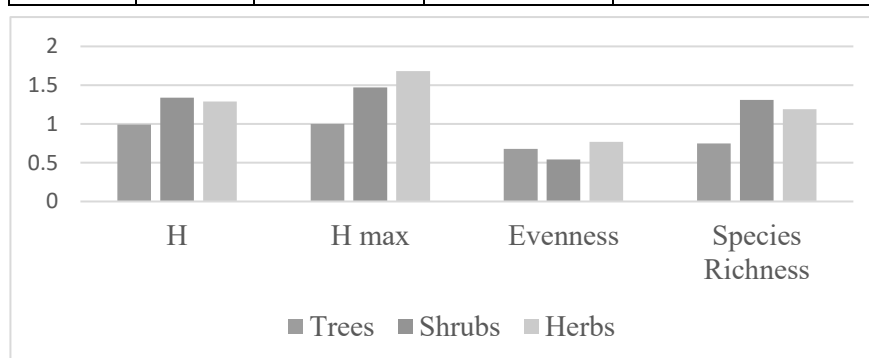
Table 3.23 Flora in mine lease area

S.no	Local name	Scientific name	Family name	IUCN- Conservation Status
Trees				
1.	Vembu (Neem)	<i>Azadirachta indica</i>	Meliaceae	LC
2.	Manjal Konrai	<i>Senna siamea</i>	Meliaceae	Not Listed
3.	Karuvealan	<i>Prosopis juliflora</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	Thazhuthaalai	<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	0.99	1.0	0.68	0.75
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.	Manjal Konrai	<i>Senna siamea</i>	Meliaceae	Not Listed
2.	Arapu maram	<i>Albizia amara</i>	Fabaceae	Not Listed
3.	Velikathan maram	<i>Prosopis juliflora</i>	Fabaceae	Not Listed

4.	Pongam oiltree	<i>Pongamia pin nata</i>	Fabaceae	Not Listed
5.	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	Not Listed
6.	Nuna maram	<i>Morinda citrifolia</i>	Rubiaceae	Not Listed
7.	Vembu	<i>Azadirachta indica</i>	Meliaceae	LC
8.	Manga maram	<i>Mangifera indica</i>	Anacardiaceae	Not Listed
9.	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	Not Listed
10.	Wetpalai maram	<i>Wrightia tinctoria</i>	Apocynaceae	Not Listed
11.	Unjai maram	<i>Albizia amara</i>	Fabaceae	Not Listed
12.	Neruppu Kondrai	<i>Delonix regia</i>	Fabaceae	LC
13.	Kodukkapuli maram	<i>Pithecellobium dulce</i>	Fabaceae	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.	Puliyamaram	<i>Tamarindus indica</i>	Fabaceae	Not Listed
18.	Arasanmaram	<i>Ficus religiosa</i>	Moraceae	Not Listed
19.	Punnaimaram	<i>Calophyllum inophyllum</i>	Calophyllaceae	Not Listed
20.	Athi	<i>Ficus recemosa</i>	Moraceae	Not Listed
21.	Vazhaimaram	<i>Musa</i>	Musaceae	Not Listed
22.	Kadukkai	<i>Terminalia chebula</i>	Combretaceae	Not Listed
23.	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae	Not Listed
24.	Sapota	<i>Manilkara zapota</i>	Sapotaceae	Not Listed
25.	Navalmaram	<i>Syzygium cumini</i>	Myrtaceae	Not Listed
26.	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae	Not Listed
27.	Alamaram	<i>Ficus benghalensis</i>	Moraceae	Not Listed
28.	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae	Not Listed
29.	Vadanarayani	<i>Delonix elata</i>	Fabaceae	Not Listed
30.	Manja kadambai	<i>Adina cordifolia</i>	Rubiaceae	Not Listed
31.	Pappali maram	<i>Carica papaya L</i>	Caricaceae	Not Listed
32.	Vilvam	<i>Aegle marmelos</i>	Rutaceae	Not Listed
Shrubs				
33.	Unichedi	<i>Lantana camara</i>	Verbenaceae	Not Listed
34.	Sundaika	<i>Solanum torvum</i>	Solanaceae	Not Listed
35.	Erukku	<i>Calotropis gigantea</i>	apocynaceae	Not Listed
36.	Avarai	<i>Senna auriculata</i>	Fabaceae	Not Listed
37.	Sappathikalli	<i>Cereus pterogonus</i>	Cactus	Not Listed
38.	Kattamanaku	<i>Jatropha gossypifolia</i>	Euphorbiaceae	Not Listed
39.	Nochi	<i>Vitex negundo</i>	Lamiaceae	Not Listed
40.	Idlipoo	<i>xorococ cineia</i>	Rubiaceae	Not Listed
41.	Neermulli	<i>Hydrophila auriculata</i>	Acanthaceae	Not Listed

42.	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae	Not Listed
43.	Thuthi	<i>Abutilon indicum</i>	Meliaceae	Not Listed
44.	Chemparuthi	<i>Hibiscus rosa-sinensis</i>	Malvaceae	Not Listed
45.	Arali	<i>Nerium indicum</i>	Apocynaceae	Not Listed
46.	Icham	<i>Phoenix pusilla</i>	Arecaceae	Not Listed
47.	Karunochi	<i>Vitex negundo</i>	Lamiaceae	Not Listed
48.	Arali (White)	<i>Nerium oleander</i>	Apocynaceae	Not Listed
49.	Peacock flower	<i>Caesalpinia pulcherrima</i>	Fabaceae	Not Listed
50.	Yellow Trumpet	<i>Tecoma stans</i>	Bignoniaceae	Not Listed
51.	Indian Nightshade	<i>Solanum violaceum</i>	Solanaceae	Not Listed
52.	Pomegrante	<i>Punica granatum</i>	Lythraceae	Not Listed
Herbs/ Climber				
53.	Amman Paccharisi	<i>Euphorbia hirta</i>	Euphorbiaceae	Not Listed
54.	Anachundaikai	<i>Solanum violaceum</i>	Solanaceae	Not Listed
55.	Agave	<i>Agave sisalana</i>	Asparagaceae	Not Listed
56.	Gopuram Tangi	<i>Andrographis echinoides</i>	Acanthaceae	Not Listed
57.	Katang kathrikai	<i>Solanum virginianum</i>	Solanaceae	LC
58.	Kombumul	<i>Acanthospermum hispidum</i>	Asteraceae	Not Listed
59.	Musumusukkai	<i>Mukia maderaspatana</i>	Cucurbitaceae	Not Listed
60.	Nagathali	<i>Opuntia dillenii</i>	Cactaceae	Not Listed
61.	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae	Not Listed
62.	Paca poondu	<i>Pavonia gallaensis</i>	Malvaceae	Not Listed
63.	Ponnangani	<i>Alternanthera pungens</i>	Amaranthaceae	Not Listed
64.	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	Not Listed
65.	Poolai poondu	<i>Aerva lanata</i>	Amaranthaceae	Not Listed
66.	Sirupunaikkali	<i>Passiflora foetida</i>	Passifloraceae	Not Listed
67.	Thottalchinungi	<i>Mimosa pudica</i>	Fabaceae	Not Listed
68.	Thumbai	<i>Leucas aspera</i>	Lamiaceae	Not Listed
69.	Vishnukrandai	<i>Evolvulus alsinoides</i>	Convolvulaceae	Not Listed
70.	Wild thulasi	<i>Hyptis suaveolens</i> (L.)	Lamiaceae	Not Listed
Creepers/ Grasses				
71.	Sithrapaalavi	<i>Euphorbia prostrata</i>	Euphorbiaceae	Not Listed
72.	Vallarai	<i>Merremia gangetica</i>	Convolvulaceae	Not Listed
73.	Thumattikai	<i>Cucumis callosus</i>	Cucurbitaceae	Not Listed
74.	Siru puladi	<i>Desmodium triflorum</i>	Fabaceae	Not Listed
75.	Vallikeerai	<i>Ipomoea aquatica</i>	Convolvulaceae	Not Listed
76.	Malli	<i>Jasminum augustifolium</i>	Oleaceae	Not Listed

77.	Sangupoo	<i>Clitoriaternatia</i>	Fabaceae	Not Listed
78.	Mudakkotan	<i>Cardiospermum helicacabum</i>	Sapindaceae	Not Listed
79.	Kattu kanchippul	<i>Apluda mutica</i>	Poaceae	Not Listed
80.	Korai	<i>Cyperus rotandus</i>	Poaceae	Not Listed
81.	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae	Not Listed
82.	Arugampul	<i>Cynodon dactylon</i>	Poaceae	Not Listed
83.	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>Danuschysippus</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
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 norwegicus</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 macrocerus</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 breviceps</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

*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	Thilopia	<i>Oreochromis niloticus</i>	Cichlidae	LC
6	Catla	<i>Catla</i>	Cyprinidae	LC
7	Koravi meen	<i>Channa striata</i>	Channidae	LC
8	Roghhu	<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 Krishnagiri district:

Major horticulture crops cultivated in this district are fruits crops like mango, banana, sapota, amla and guava, vegetables like brinjal, bhendi, capsicum, onion and chillies, spices like turmeric and pepper, and flower crops like rose, gerbera and carnations.

3.7.8.1 Major Agricultural Crops

Major horticulture crops cultivated in this district are vegetables crops like tomato, 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 Krishnagiri 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:

- a) To study the socio-economic status of the people living in the study area of the project.
- b) To identify the basic needs of the nearby villages within the study area.
- c) To assess the impact on socio-economic environment due to the project.
- d) To provide the employment and improved living standards.
- e) 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, 0-1 km radius) and Zone 2 (Low Impact Zone, 1–5 km radius). The primary data collection was conducted through structured interviews, field observation, and focus group discussions with the local people of in Pannapalli Village, Shoolagiri Taluk of Krishnagiri 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.

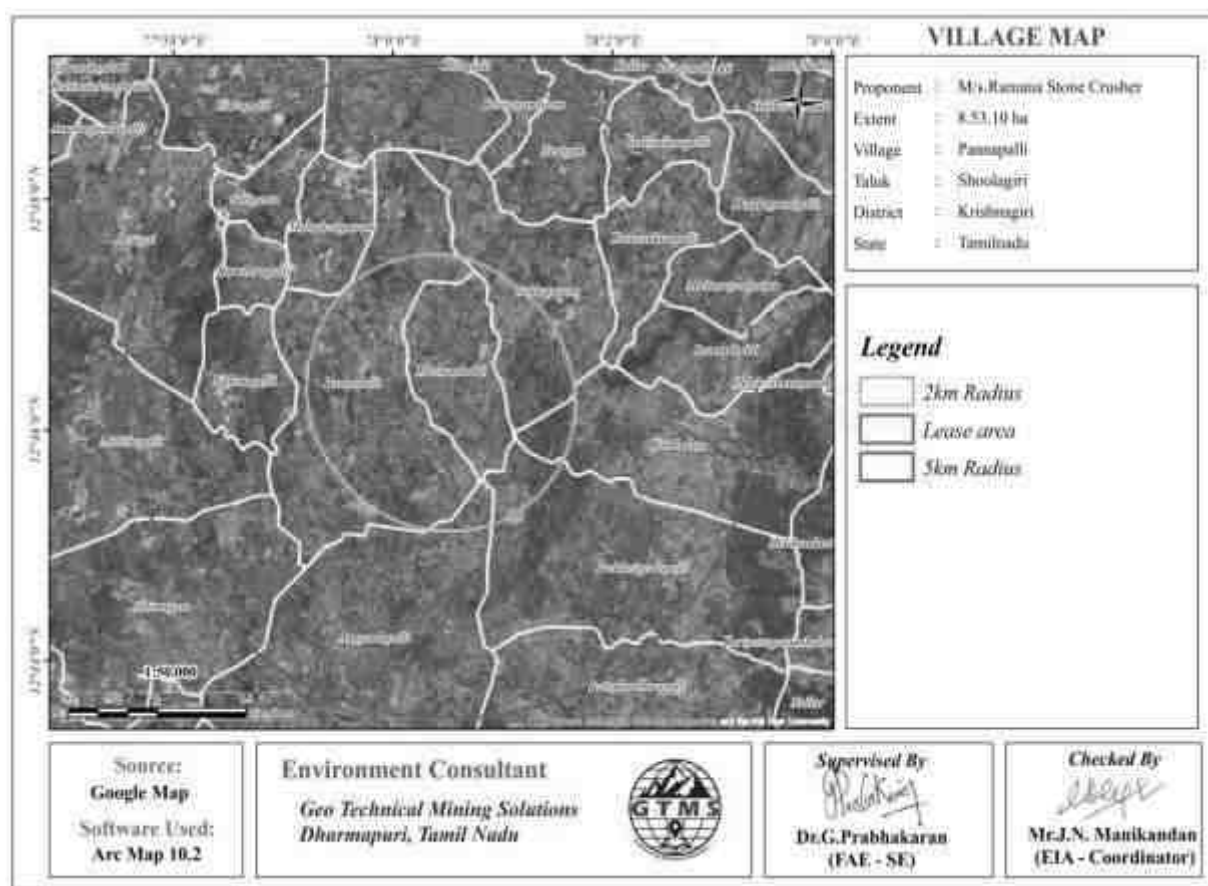


Figure 3.28 Details Village Boundaries within 2km and 5km Radius of the Project Lease area

3.8.3 Demographic Profile of Krishnagiri District

Krishnagiri district, located in Tamil Nadu is bordered by Vellore and Thiruvannamalai districts to the east, Karnataka to the west, Andhra Pradesh to the north, and Dharmapuri district to the south. The district covers an area of 5,143 sq. km and receives an average annual rainfall of 830mm. The primary languages spoken are Tamil, Telugu, and Kannada. According to the 2011 Census, the district had a total population of 1,879,809 (males: 960,232; females: 919,577), up from 1,561,118 in 2001. The overall literacy rate in 2011 was 71.46%, with male literacy at 78.72% and female literacy at 63.91%, reflecting significant improvement over 2001 levels (72.50% for males and 51.62% for females). The number of literates in 2011 was 1,187,958.

The sex ratio improved from 944 females per 1,000 males in 2001 to 958 in 2011, which is above the national average of 940. The child sex ratio also rose from 869 in 2001 to 926 in 2011. Children aged 0–6 years constituted 11.56% of the population in 2011 (217,323 children), slightly down from 13.77% in 2001 (214,954 children), indicating a 2.21% decrease. Hinduism is the major religion, practiced by 91.70% of the population, followed by Islam (6.13%).

Scheduled Castes and Scheduled Tribes account for 14.22% and 1.19% of the population, respectively.

Source: <https://www.census2011.co.in/data/town/803410-krishnagiri-tamil-nadu.html>

3.8.4 Profile of Study Area - Pannapalli Village

Pannapalli is a large village located in Shoolagiri Taluka of Krishnagiri district, Tamil Nadu with total 997 families residing. The Pannapalli village has population of 4431 of which 2275 are males while 2156 are females as per Population Census 2011. In Pannapalli village population of children with age 0-6 is 520 which makes up 11.74 % of total population of village. Average Sex Ratio of Pannapalli village is 948 which is lower than Tamil Nadu state average of 996. Child Sex Ratio for the Pannapalli as per census is 1008, higher than Tamil Nadu average of 943.

Pannapalli village has lower literacy rate compared to Tamil Nadu. In 2011, literacy rate of Pannapalli village was 56.43 % compared to 80.09 % of Tamil Nadu. In Pannapalli Male literacy stands at 64.09 % while female literacy rate was 48.28 %. The profile of Pannapalli Village includes demographic details such as the number of households, population statistics, literacy levels, child population (0- 6 years), caste composition, and workforce, as presented in Table 3.32.

Table. 3.32 Demographic Status of Pannapalli Village

Particulars	Total	Male	Female
Total No. of Houses	997	-	-
Population	4431	2275	2156
Child (0-6)	520	259	261
Schedule Caste	583	295	288
Schedule Tribe	0	0	0
Literacy %	56.43%	64.09%	48.28%
Total Workers	2068	1414	654
Main Worker	1810	-	-
Marginal Worker	258	119	139

Source: <https://www.census2011.co.in/data/village/643737-pannapalli-tamil-nadu.html>

3.8.5 Working Population- Thandarai Village

In Pannapalli village out of total population, 2068 were engaged in work activities. 87.52 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 12.48 % were involved in Marginal activity providing livelihood for less than 6 months. Of 2068 workers engaged in Main Work, 986 were cultivators (owner or co-owner) while 536 were Agricultural labourer.

Benefits:

The table 3.33 presents a village-wise distribution of households, population, social composition, literacy, and workforce participation for 22 villages, covering a total of 9,191 houses. The total population of the study area is 41,349, comprising 21,172 males and 20,177 females, which indicates a slightly higher male population across the study area.

Among the villages, Berigai, Kurubarapalli, Athimugam, Pannapalli, and Peddasigarlapalli have comparatively larger populations, while Kottasadanapalli, Kariyasandiram, Mahadevapuram, Meenandoddi, and Elucapalli 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 5,199, consisting of 2,646 male children and 2,553 female children. Villages such as Berigai, Kurubarapalli, Pannapalli, Athimugam, and Peddasigarlapalli 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 4,858 persons, with 2,420 males and 2,438 females. Villages like Berigai, Pannapalli, Kurubarapalli, Peddasigarlapalli, and Athimugam 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 404 persons (212 males and 192 females). ST population is mainly concentrated in villages such as Kumbalam, Muthurayanpudur, Peddasigarlapalli, Midithepalli, and Ramandoddi, while the majority of villages report no Scheduled Tribe population at all.

The total literate population comprises 22,503 persons, including 12,867 males and 9,636 females. Male literacy is consistently higher than female literacy across all villages, highlighting a persistent gender gap in education. Larger villages such as Berigai, Kurubarapalli, Pannapalli, Athimugam, and Peddasigarlapalli contribute substantially to the overall literate population.

Workforce participation in the study area totals 19,471 workers, consisting of 12,430 male workers and 7,041 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.

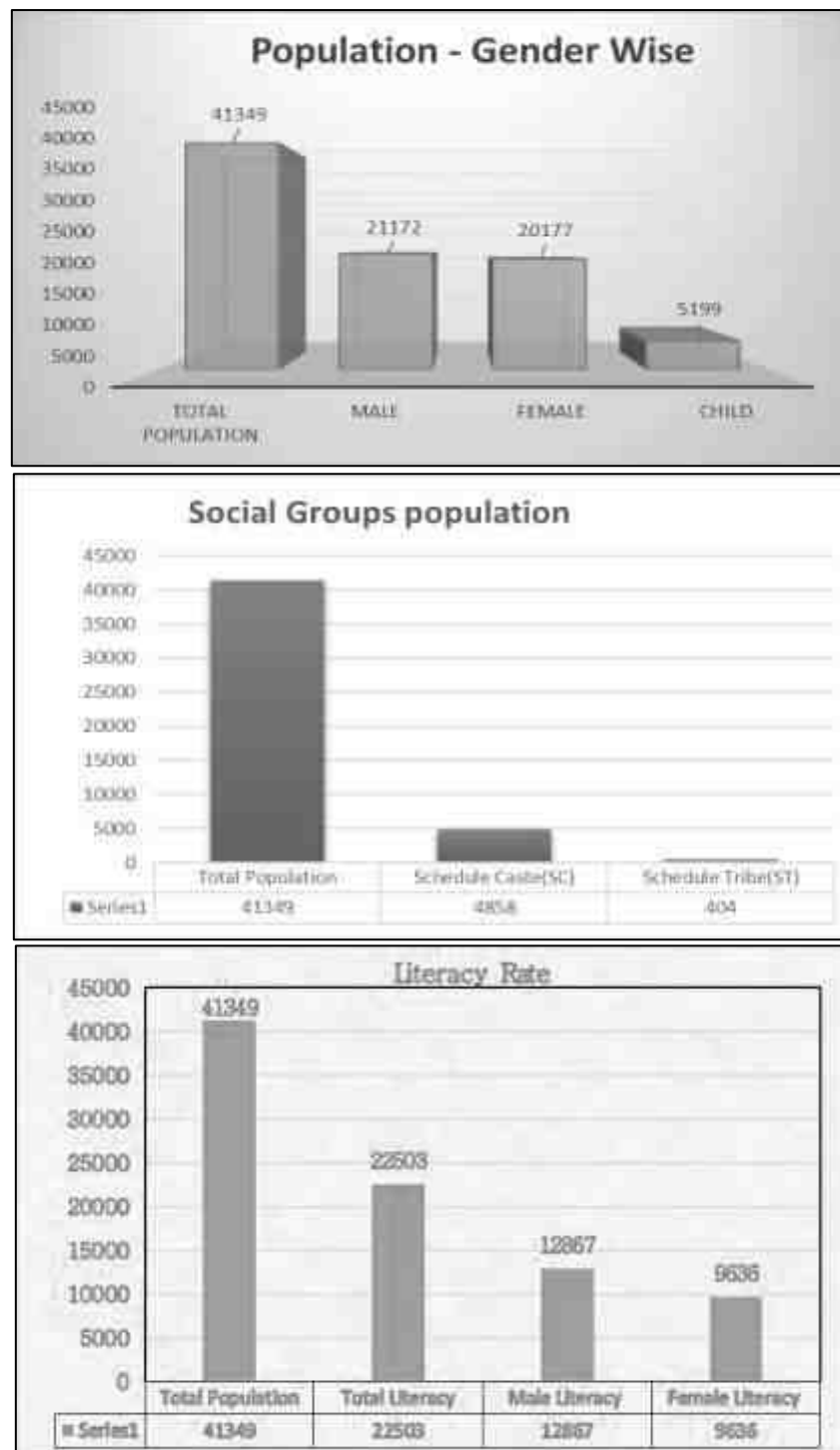


Figure 3.29 Demographic Details – Population, Social Groups, and Literacy Rate in the Study Villages

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
Amgondapalli	543	1371	1263	155	162	71	70	0	0	771	525	793	456
Athimugam	937	2339	2201	272	300	163	171	9	8	1317	980	1395	541
Berigai	1807	3970	3914	419	448	284	313	4	2	3007	2522	2404	931
Collapalli	97	234	206	38	29	12	12	0	0	120	72	140	127
Elucapalli	93	210	210	30	29	164	158	0	0	141	96	135	37
Gudisadanapalli	321	674	681	72	78	147	153	0	0	462	349	450	439
Kariyasandiram	95	184	162	29	27	0	0	0	0	23	24	130	111
Kottasadanapalli	26	48	52	8	7	15	10	0	0	33	25	28	32
Kumbalam	164	394	367	45	42	0	0	52	43	254	159	182	147
Kurubarapalli	1171	2760	2594	396	346	250	252	0	0	1766	1334	1470	765
Mahadevapuram	89	189	182	26	28	0	0	0	0	106	71	109	80
Meenandoddi	83	180	178	23	25	28	34	0	0	94	82	110	90
Midithepalli	287	667	620	96	68	141	137	14	17	369	261	399	330
Muthurayanpudur	100	202	180	28	30	0	1	77	63	105	68	117	110
Nerigam	242	537	497	61	70	228	208	0	0	317	195	322	246
Pannapalli	997	2275	2156	259	261	295	288	0	0	1292	915	1414	654
Pattakurubarapalli	533	1211	1129	184	150	141	155	0	0	735	516	676	436
Peddasigarlapalli	841	2025	1903	283	252	219	206	52	55	971	670	1176	880
Ramandoddi	133	295	287	56	47	0	1	4	4	153	101	160	148
Sikkanapalli	135	279	276	29	34	82	85	0	0	200	146	175	31
Sokkapuram	280	633	652	87	72	141	133	0	0	347	313	375	232
Suligunta	217	495	467	50	48	39	51	0	0	284	212	270	218
Total	9191	21172	20177	2646	2553	2420	2438	212	192	12867	9636	12430	7041

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
Amgondapalli	1249	793	456	1225	735	384	104	1385
Athimugam	1936	1395	541	1525	485	547	458	2604
Berigai	3335	2404	931	3089	514	775	1693	4549
Collapalli	267	140	127	259	18	241	0	173
Elucapalli	172	135	37	171	33	135	3	248
Gudisadanapalli	889	450	439	885	455	409	21	466
Kariyasandiram	241	130	111	240	0	240	0	105
Kottasadanapalli	60	28	32	51	35	9	3	40
Kumbalam	329	182	147	227	46	174	7	432
Kurubarapalli	2235	1470	765	1524	253	236	1008	3119
Mahadevapuram	189	109	80	187	64	106	17	182
Meenandoddi	200	110	90	200	25	134	41	158
Midithepalli	729	399	330	727	259	406	60	558
Muthurayanpudur	227	117	110	52	34	17	1	155
Nerigam	568	322	246	550	300	159	90	466
Pannapalli	2068	1414	654	1810	986	536	253	2363
Pattakurubarapalli	1112	676	436	1066	561	296	207	1228
Peddasigarlapalli	2056	1176	880	1961	757	755	445	1872
Ramandoddi	308	160	148	307	165	94	45	274
Sikkanapalli	206	175	31	198	75	77	46	349
Sokkapuram	607	375	232	604	234	300	69	678
Suligunta	488	270	218	466	116	102	140	474
Total	19471	12430	7041	17324	6150	6132	4711	21878

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 22 villages in the study area. Altogether, the study area records a total workforce of 19,471 persons, comprising 12,430 male workers and 7,041 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 Berigai, Kurubarapalli, Pannapalli, Peddasigarlapalli, and Athimugam report higher total worker strength, which corresponds closely with their larger population size. On the other hand, smaller villages like Kottasadanapalli, Kariyasandiram, Mahadevapuram, and Elucapalli show comparatively fewer workers.

Out of the total workers, 17,324 are main workers, indicating that a substantial proportion of the workforce is engaged in relatively stable or regular employment. Villages such as Berigai, Peddasigarlapalli, Pannapalli, Kurubarapalli, and Athimugam 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 6,150, forming a major segment of the workforce and highlighting the continued importance of agriculture. Villages like Pannapalli, Peddasigarlapalli, Pattakurubarapalli, Berigai, and Nerigam exhibit a strong dependence on cultivation. Main agricultural labourers total 6,132, underscoring sustained reliance on agricultural wage labour. This category is particularly prominent in villages such as Berigai, Peddasigarlapalli, Gudisadanapalli, Midithepalli, and Athimugam.

The total number of non-workers is 21,878, which is substantial and, in several villages, exceeds the number of workers. Villages such as Berigai, Kurubarapalli, Athimugam, Pannapalli, and Peddasigarlapalli 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.

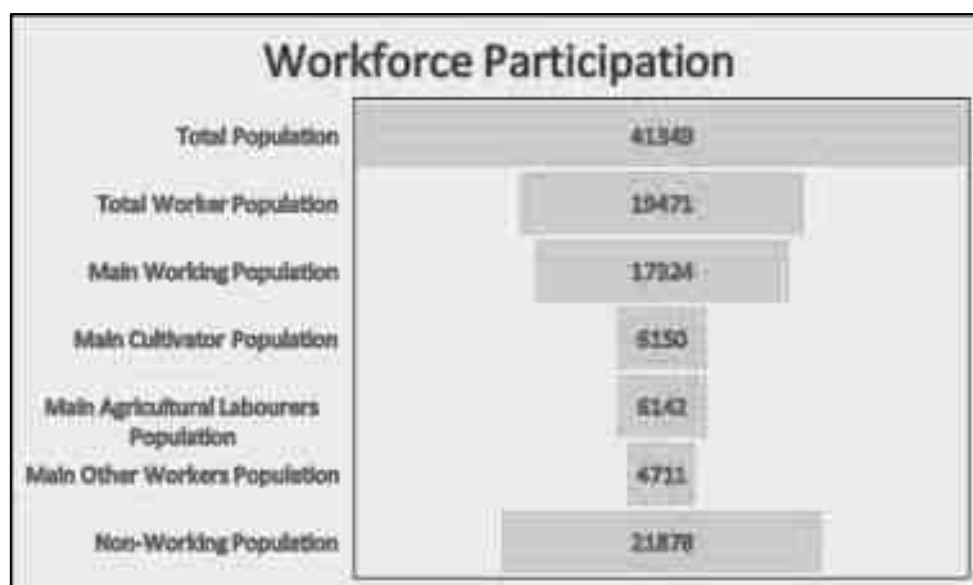


Figure 3.30 Details of Workforce in the Study Villages

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.
- Marginalized Communities and Vulnerable Groups: While Developing an Action Plan, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.
- Connectivity: Transport connectivity to easiness accessibility to the region.
- 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 Berigai– KFG 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	0.28 Km-E	Village Road
TS2	SH-456	2.68 Km- N	Berigai- KGF

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	18	54	32	32	68	34	120
TS2	49	147	86	86	212	106	339

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	89	267

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	120	267	387	1200
TS2	339	267	606	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.

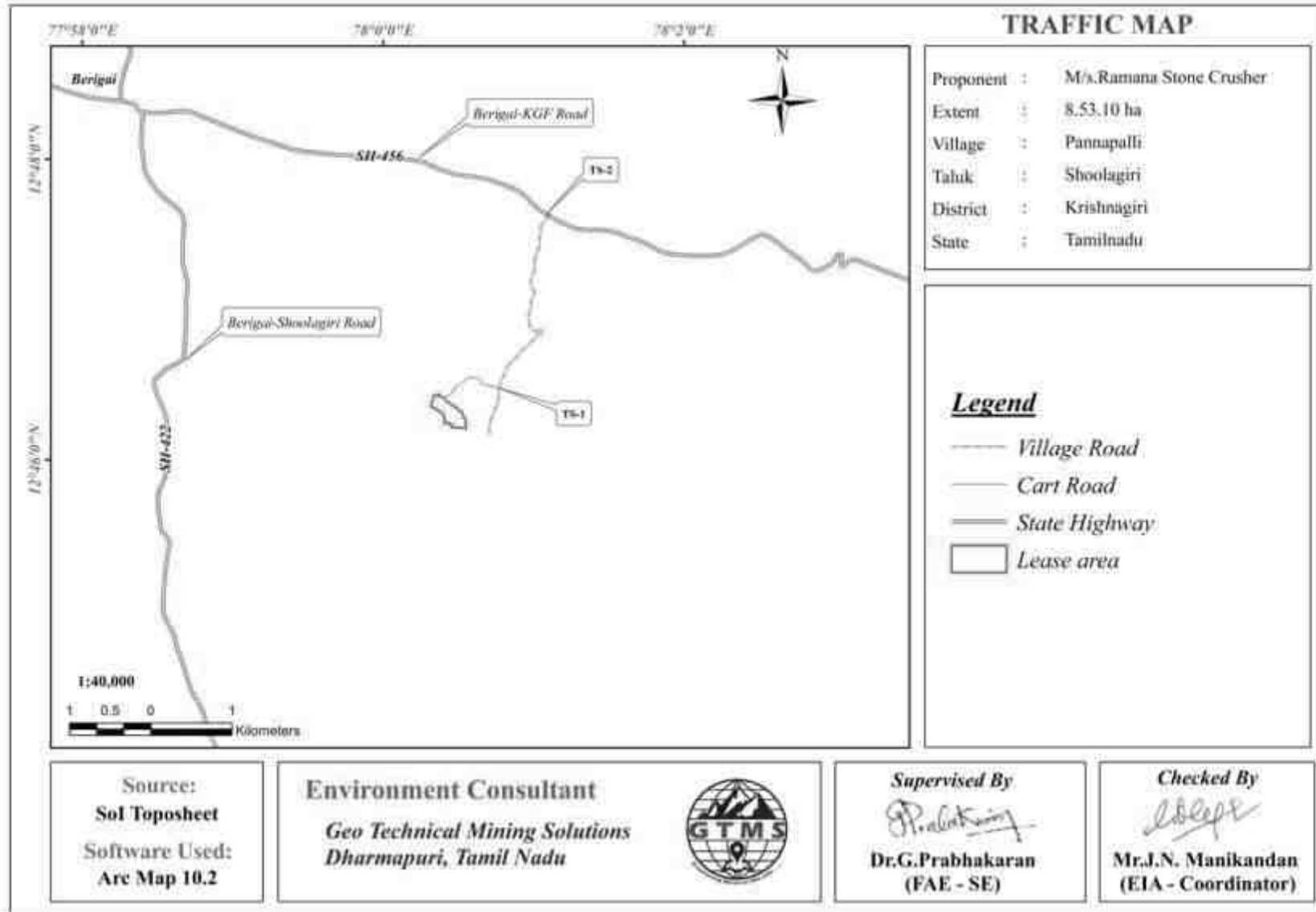


Figure 3.31 Traffic Density Map

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	Cauvery North Wildlife Sanctuary	26.47Km - S
		None	Nil within 10 km radius
2	Reserve Forest	Kodattur R.F	2.40km- E
		Midethepalli R.F	2.86km- W
		Gollapally R.F	3.57km- NE
		Kumbalam I R.F	4.92km- E
		Berigai EXTN R.F	4.35km- W
		Berigai R.F	4.87km- W
		Kariyanapallai I R.F	6.75km- S
		Athimugam II R.F	4.82km- SW
		Gullu R.F	6.10km- NE
		Settipalli R.F	6.32km- S
		Amudugondapalli R.F	7.27km- NW
		Chinnaradoddi R.F	8.5km- NE
		Nariganapuram R.F	8.88km- SW
3	Lakes /Reservoirs/ Dams/ Streams/ Rivers	Pannapalli Lake	1.35km- NW
		Narasipuram Lake	1.67km- SW
		Mahadevapuram Lake	2.6km- N
		Shoolagiri Dam	10.33km- SE
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

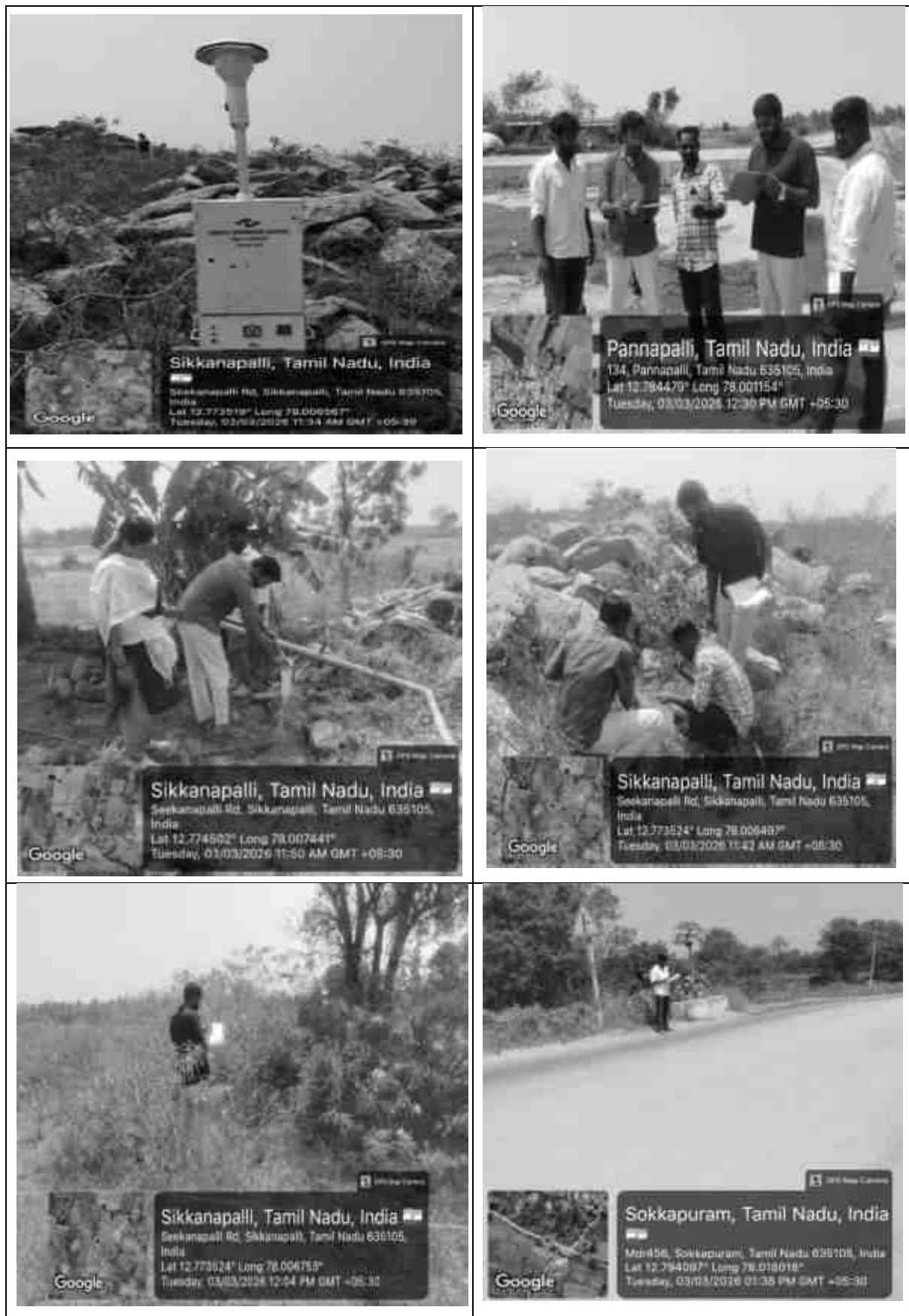


Figure 3.32 Field Study Photographs

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 8.53.10hectares 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 8.53.10hectares upto a depth of 75m 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 1.37.90hectares in the project site will store in safety area left for 7.5meters in the northern side as shown in mining plan.

Mitigation measures

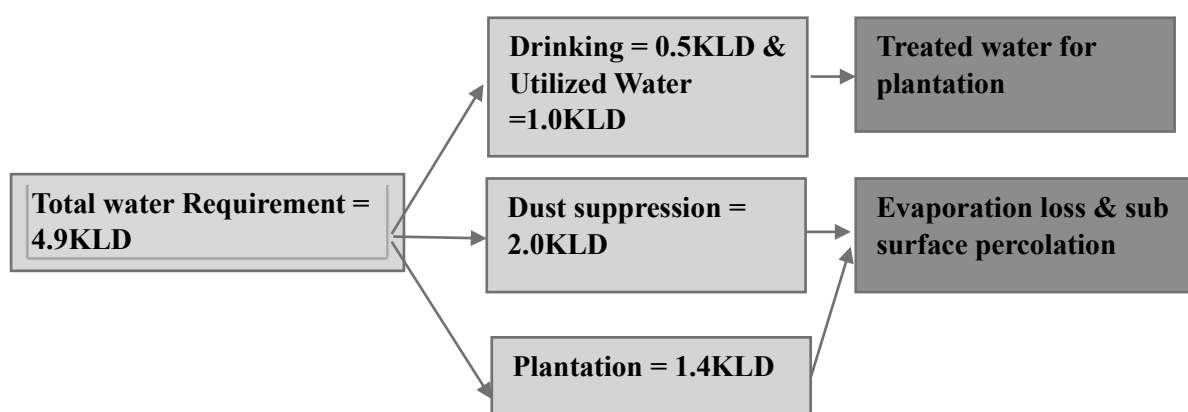
- ❖ When stock piling of top soil is done the mound should not be higher than 1.0m and Weathered Rock 3.0m.
- ❖ To minimize surface runoff and erosion the topography of a graded surface should be designed to create terraces or benches that follow land contours which intercept sheet flow. Additionally, 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

- ❖ 4.9KLD 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 607.500mm 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	0.15	E	20.95	9.29	30.24	Below standard	44.3	60
AAQ2	1.84	SW	21.88	1	22.88		4.6	60
AAQ3	1.14	NNW	18.64	0.5	19.14		2.7	60
AAQ4	2.39	NNE	19.25	0.7	19.95		3.6	60
AAQ5	1.58	SSE	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	0.15	E	50.51	18.3	68.81	Below standard	36.2	100
AAQ2	1.84	SW	52.39	3	55.39		5.7	100
AAQ3	1.14	NNW	48.74	1	49.74		2.1	100
AAQ4	2.39	NNE	52.85	1	53.85		1.9	100
AAQ5	1.58	SSE	54.16	0.2	54.36		0.4	100

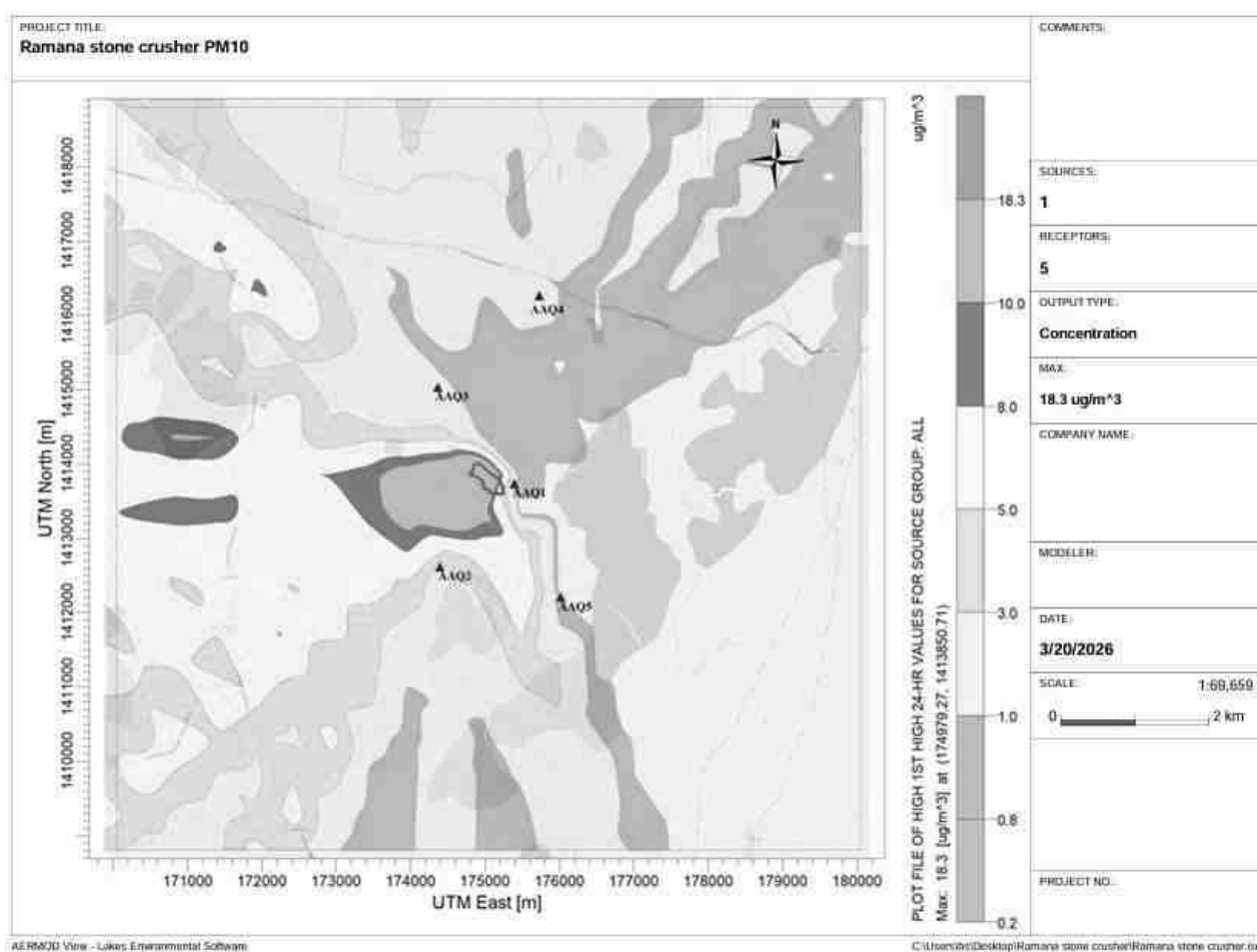


Figure 4.1 Predicted Incremental Concentration of PM₁₀

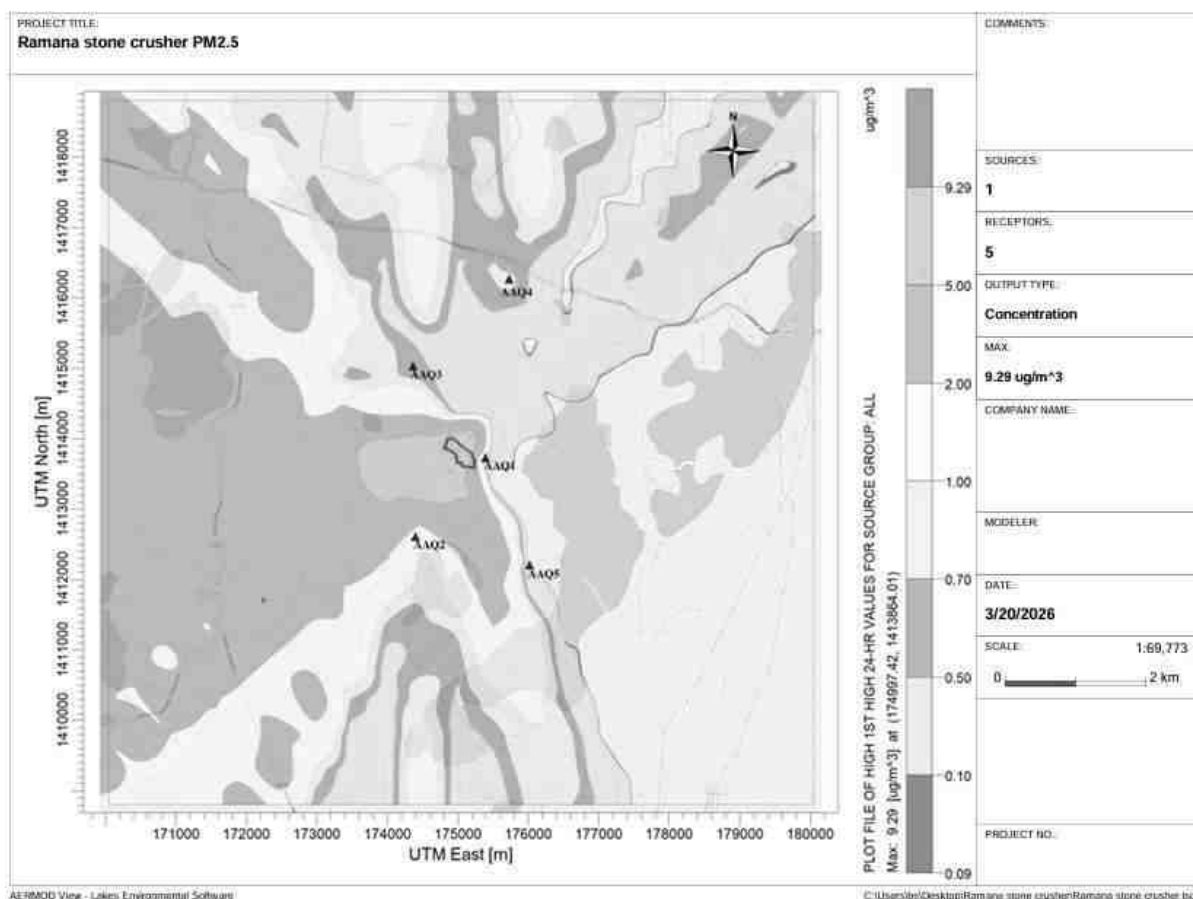
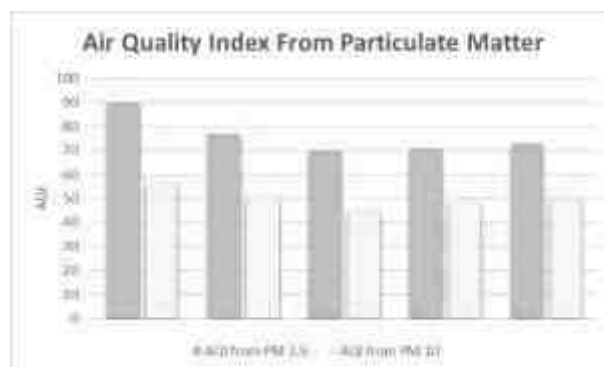


Figure 4.2 Predicted Incremental Concentration of PM2.5

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	PM2.5 (µg/m³)		AQI for PM2.5	PM10 (µg/m³)		AQI for PM10
			Baseline Conc.	Total (Baseline + Predicted GLC)		Baseline Conc.	Total (Baseline + Predicted GLC)	
AAQ1	0.15	E	20.95	30.24	90	50.51	68.81	57
AAQ2	1.84	SW	21.88	22.88	77	52.39	55.39	51
AAQ3	1.14	NNW	18.64	19.14	70	48.74	49.74	45
AAQ4	2.39	NNE	19.25	19.95	71	52.85	53.85	49
AAQ5	1.58	SSE	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 398660 tons 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. 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
Naraseepuram	2190	52.9	17.51	52.90
Pannapalli	1120	51.9	22.97	51.90
Muduguriki	2660	51.7	15.46	51.70
Peddasigalapalli	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 90 dB causes disruption, leading to annoyance, cognitive errors, and temporary hearing loss, while 85 dB 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.

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	51.66	300	1.277	19	0.40	146

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	51.66	100	7.404	19	1.49	157
		200	2.443		0.65	150
		300	1.277		0.40	146
		400	0.806		0.28	143
		500	0.564		0.22	141

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.

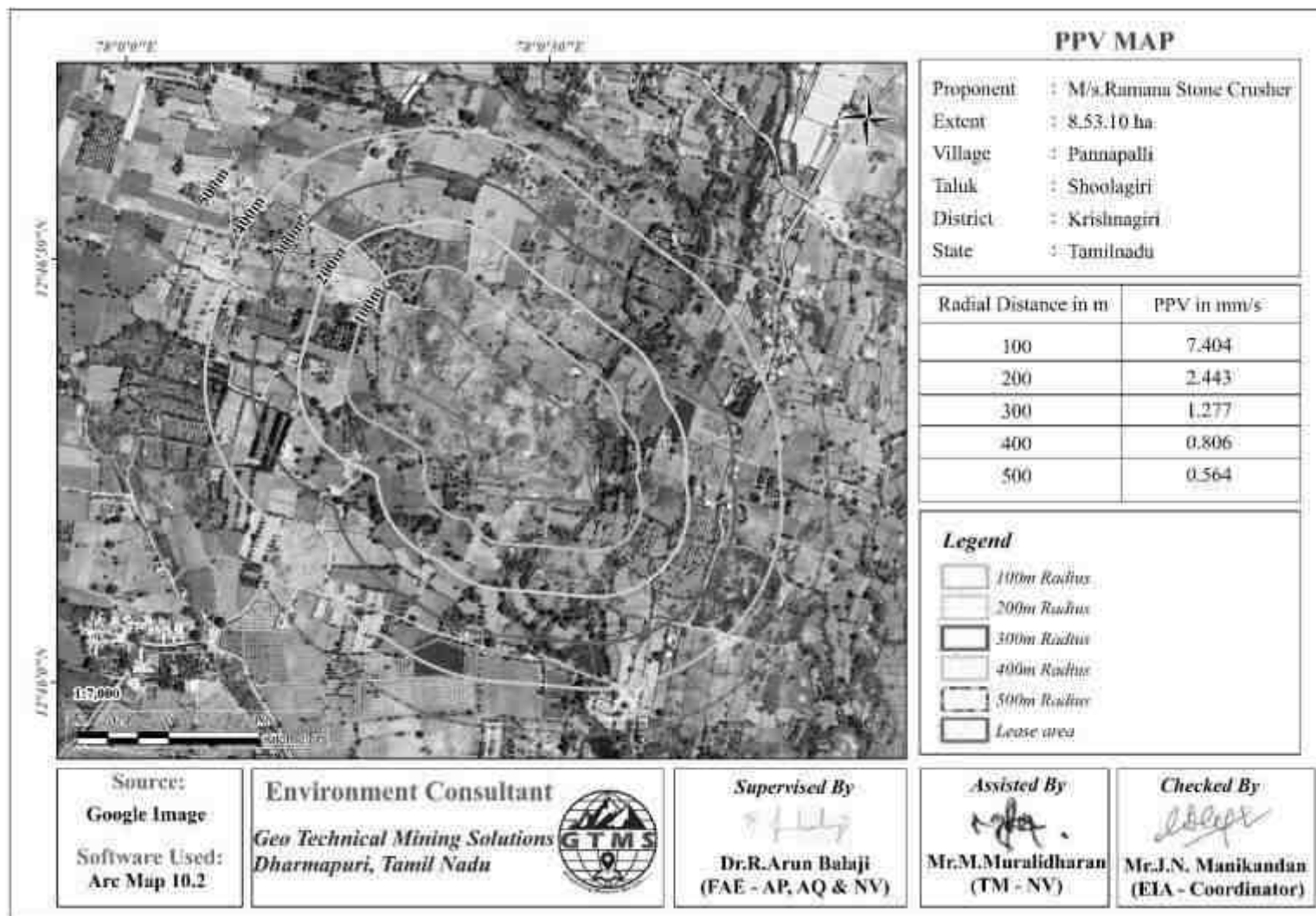


Figure 4.3 100-500m PPV Map

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 437kg per day, 118144kg per year and 590722kg over five 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 five years
Fuel consumption of excavator	437	118144	590722
Fuel consumption of tipper	1989	537225	2686127
Total fuel consumption in Liters	2426	655369	3276849
CO ₂ emission in kg	6501	1755453	8777268

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 49031kg 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 4266 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 245155kg of the total carbon as provided in Table 4.13.

Table 4.13 CO₂ Sequestration

CO ₂ sequestration in kg	182	49031	245155
Remaining CO ₂ not sequestered in kg	6320	1707358	8536801
Trees required for environmental compensation	71101		
Area required for environmental compensation in hectares	142		

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 lebbek</i>	Fabaceae	Vagai	Tree	
5	<i>Delonix regia</i>	Fabaceae	Cemmayir-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		
	1706	1365	15356
	Number of plants outside the mine lease area		
	2559	2047	23034
Total	4266	3412	38390

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
- ❖ Kodattur R.F located on 2.40km East of the mine lease area. There is no affected that birds will be by mining activities.

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.

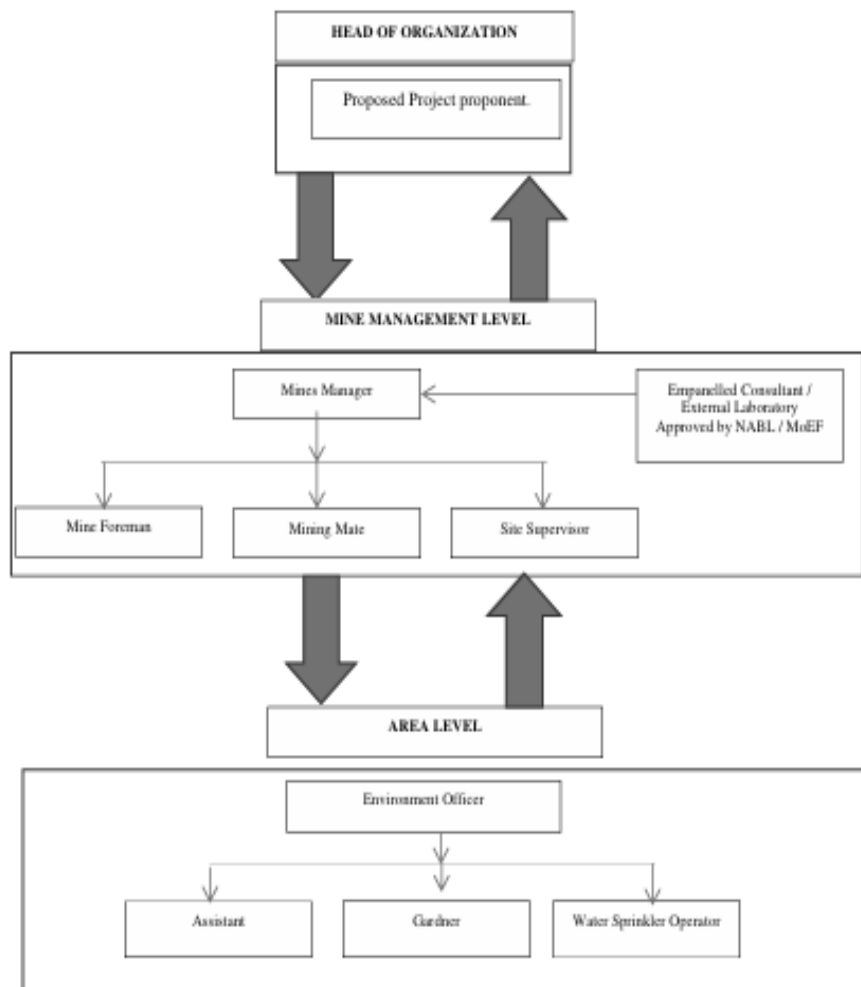


Figure 6.1 Proposed environmental monitoring chart

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.

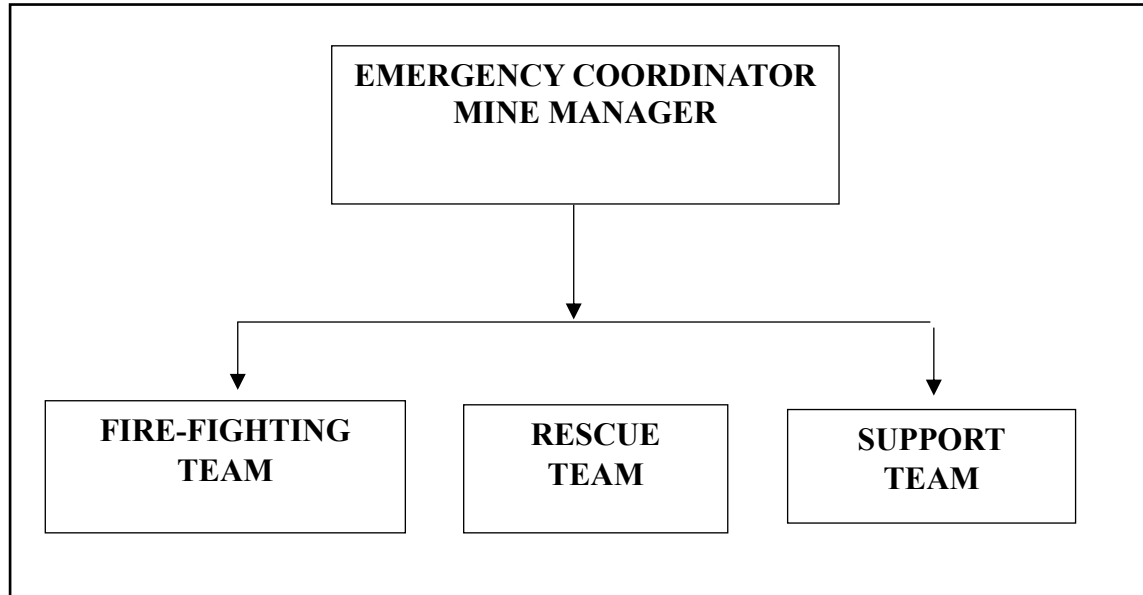


Figure 7.1 Disaster management team layout for proposed project

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 are taken into consideration details of have been given in Table 7.2.

Table 7.2 Salient Features of P1

Name of the Quarry	M/s. Ramana Stone Crusher	
Type of Land	Patta Land	
Extent	8.53.10ha	
S.F. No	243/2, 243/4, 244/2, 244/4B (Part), 244/5 (Part), 244/6, 246/5 and 261/1B	
Toposheet No	57- L/01	
Highest Elevation	853m AMSL	
Latitude	12°46'12.57"N to 12°46'26.21"N	
Longitude	78°0'18.85"E to 78°0'33.17"E	
Proposed depth for five years	50m BGL	
As per ToR Ultimate depth for 20 years	75m BGL	
Geological Resources	Rough stone in m ³ & Tons	Gravel in m ³ & Tons
	62,35,050 & 1,71,46,387.5	90,444 & 1,80,888
Mineable Reserves	23,70,358 & 65,18,484	65,114 & 1,30,228
Proposed production for 5 years	7,24,838 & 19,93,305	65,114 & 1,30,228
Method of Mining	Open cast mechanized mining method	
Topography	Elevated Topography	
Machinery requirements	Jack hammer	10
	Excavator	2
	Compressor	2
	Tipper	10
Proposed Manpower Deployment	35 Nos	
Project Cost	Rs.2,00,52,800/-	
Proposed Water Requirement	4.9 KLD	

7.4.1 Air Environment

As the production of rough stone & topsoil 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 7.3 and 7.4.

Table 7.3 Cumulative Production Load of Rough Stone

Proposed Production Details				
Quarry	5 Years in (m³ & Ts)	Per Year in (m³ & Ts)	Per Day in (m³ & Ts)	Number of Lorry Load Per Day
P1	724838 & 1993305	144968 & 398661	537 & 1476	90
Grand Total	724838 & 1993305	144968 & 398661	537 & 1476	90

Table 7.4 Cumulative Production Load of gravel

Proposed Production Details				
Quarry	3 Years in (m³ & Ts)	Per Year in (m³ & Ts)	Per Day in (m³ & Ts)	Number of Lorry Load Per Day
P1	65114 & 130228	21705 & 43409	80 & 161	13
Grand Total	65114 & 130228	21705 & 43409	80 & 161	13

The cumulative study shows that the overall production of rough stone from the quarry is 537m³ or 1476Ts per day with a capacity of 90 trips of rough stone per day and gravel from the quarry is 80m³ or 161Ts per day with a capacity of 13 trips of topsoil 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 7.5. The cumulative values resulting from the project for each pollutant do not exceed the permissible limits set by CPCB.

Table 7.5 Cumulative Impact Results from the proposed project

Pollutants	Baseline Data (µg/m³)	Incremental Values (µg/m³)	Cumulative Value (µg/m³)
		P1	
PM _{2.5}	20.95	9.29	30.24
PM ₁₀	50.51	18.3	68.81

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.7.6 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	1120	E	51.9	22.97	51.90	55
Cumulative Noise (dB (A))					51.90	

Source: Lab Monitoring Data

The cumulative analysis of noise due to cluster project shows that habitation will receive about 51.90dB(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 7.7.

Table 7.7 Cumulative Effect of Ground Vibrations Resulting from cluster Project

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s
P1	51.66	300	1.277
Total			1.277

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 7.8 the project together will contribute Rs. 20,00,000/-towards CER fund.

Table 7.8 Socio Economic Benefits from the Cluster Project

Location ID	Project Cost	CER Cost
P1	Rs.2,00,52,800/-	Rs. 5,00,000
Grand Total	Rs.2,00,52,800/-	Rs. 5,00,000

Table 7.9 Employment Benefits for Cluster Project

Location ID	Employment
P1	35
Grand Total	35

A total of 35 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 7.10 Greenbelt Development

Code	Number of Trees proposed	Area to be covered (m²)	No. of Trees expected to be grown @ 80% survival rate	Species recommended
P1	4266	38390	3412	<i>Azadirachta indica,</i> <i>Albizia lebbeck,</i> <i>Delonix regia,</i> <i>Tectona grandis, etc.,</i>
Total	4266	38390	3412	

Cumulative studies show that the proposed project proponent will plant about 4266 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., 3412 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 7.11.

Table 7.11 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 Pannapalli Village, aims to produce 23,70,358m³ or 65,18,484Ts of rough stone and 65,114m³ or 1,30,228Ts of Gravel over a period of 20 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 35 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 Pannapalli Village, Shoolagiri Taluk, Krishnagiri 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 Pannapalli 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. 22,18,18,174** 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	21,33,32,220	36,46,384
District Mineral Foundation Tax @ 10% of Seigniorage	21,33,322	36,463
Green Tax @ 10% of Seigniorage	21,33,322	36,463
Total	Rs. 21,80,98,864	Rs. 37,19,310

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 **M/s. Ramana Stone Crusher** 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

Activities	Mitigation Measure	Provision for Implementation	Capital Cost	Recurring Cost
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	85,000	85,000
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	8,00,000	50,000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags/ steel mesh/ old tyres/ 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 - 6Units	2,50,000	2,500
	No overloading of trucks/tippers/tractors	Monitoring through weighing machines	0	6,00,000
	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 - 7Units	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	1,60,000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50,000	20,000
Total			12,35,000	9,42,500
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0

	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Compentent Person (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; 6 tons of production requires 1 kg pf explosives; Cost of NONEL = Rs. 30 per kg.	0	6,00,000
Total			50,000	6,02,000
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
Total			30,000	22,000
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	85,000	44,000

	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	17,00,000	85,000
	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 area and @ 30 per plant maintenance (recurring)	6,00,000	90,000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	3,00,000	30,000
	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	2,68,000	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
Total			29,53,000	2,49,000

Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10,000	1,000
	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) – 18 Employees	1,40,000	35,000
	Health check-up for workers will be provisioned	IME & PME Health check-up @ Rs. 1000/- per employee	0	35,000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/- for 2 kits	0	16,000
	Slope stability action plan	Slope stability action plan when depth beyond 30m BGL	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	4,25,000	85,000

	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
Total			8,15,000	10,09,000
Conservation Measures	-	-	-	-
TOTAL			Rs. 50.83 Lakhs	Rs. 29.24 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)								
	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
29.24	30.72	32.25	33.86	35.55	37.32	39.18	41.13	43.18	45.39

Recurring cost in Year 11	Recurring cost @ 5% inflation Rs (in Lakhs)									Total Recurring cost for 20 years in Lakhs	Total Cost (Capital + Recurring) In Lakhs
	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20		
47.65	50.03	52.53	55.15	57.90	60.79	63.82	67.01	70.36	73.87	Rs. 936.93 Lakhs	(Rs. 50.83 L + Rs. 936.93 L) = Rs. 987.76 Lakhs

In order to implement the environmental protection measures an amount of **Rs. 50.83Lakhs** as capital cost and recurring cost as **Rs. 936.93Lakhs** 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 20 years will be **Rs. 987.76Lakhs** 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 8.53.10ha 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. 243/2, 243/4, 244/2, 244/4B (Part), 244/5 (Part), 244/6, 246/5 and 261/1B, over the extent of 8.53.10ha is situated in the cluster falling in Pannapalli Village, Shoolagiri Taluk, Krishnagiri District and Tamil Nadu. The quarries involved in the calculation of cluster extent is only one proposed quarry.

11.2 PROJECT DESCRIPTION

- The proposed project area is located between Latitudes from 12°46'12.57"N to 12°46'26.21"N and Longitudes from 78°0'18.85"E to 78°0'33.17"E in Pannapalli Village, Shoolagiri Taluk, Krishnagiri District and Tamil Nadu.
- The mining plan approved for quarrying 23,70,358m³ & 65,18,484MT of rough stone and 65,114m³ & 1,30,228MT of gravel to the ultimate depth of 75m (BGL) for 20 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 December 2025 to February 2026 as per CPCB guidelines. The data were collected by both the FAE's and NABL accredited and MoEF notified **Green Link Analytical & Research Lab** 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	14.55	0.17
2	Plantation	21.61	0.25
3	Crop land	4886.69	0.43
4	Mining/ Industrial area	36.34	57.25
5	Built-up land	873.87	10.24

6	Bare ground	Nil	Nil
7	Fallow land	2703.02	31.67
Total		8536.09	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 6.75 to 7.29 indicating that the soil is neutral to slightly alkaline, which is favourable for most crops.
- **EC** value ranged from 120.0 to 240.0 μ S/cm, suggesting low salt concentration and non-saline soil across the sampling area.

2. Physical Properties

- **Bulk Density** values ranged from 1.10 to 1.24kg/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 1.05 to 1.16% by weight, classifying soils as low to moderately fertile in terms of organic matter.
- **Nitrogen (N)** content varied from 96.0 to 168.0kg/ha by mass indicating moderate nitrogen availability.
- **Potassium (K)** ranged from 62.0 to 107.3kg/ha by mass moderate fertility potential in terms of potassium.

4. Base Elements and Cation Ratios:

- **Calcium (Ca)** levels were highest with 156.7mg/kg and lowest with 120.0mg/kg.
- **Magnesium (Mg)** ranged from 70.0 to 96.4mg/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

There is Pannapalli lake is located at a distance of 1.35km in northwest direction of lease area and extent of 16.46heactares is a key surface water body in the area is characterized as Narasipuram Lake is located at a distance of 1.67km in Southwest direction of lease area. Water table is found at a depth of 75m in summer and 80m 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.

Physical Parameters:

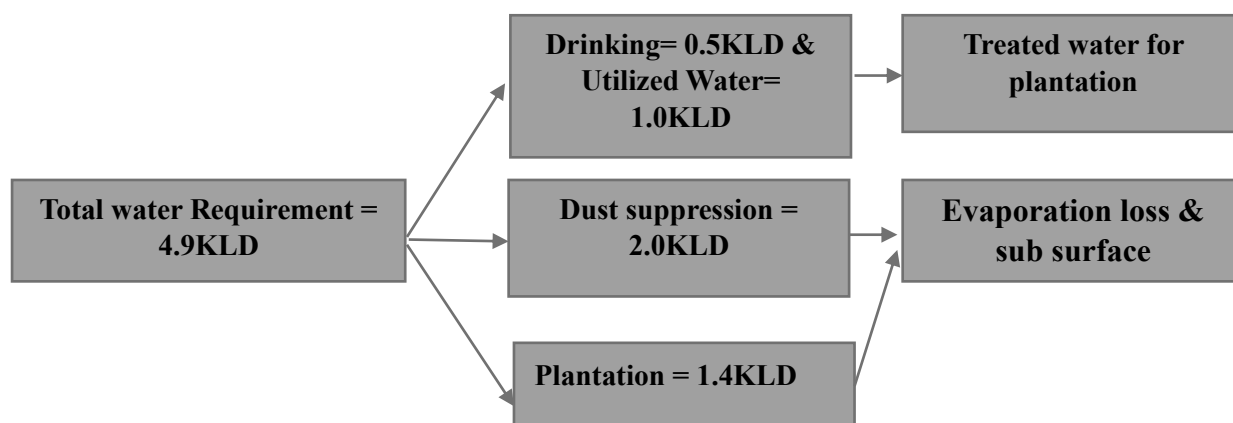
- The **pH** value ranges from 7.04 to 7.22mg/L. The World Health Organization (WHO) and the Bureau of Indian Standards (BIS) recommend a pH range of 6.5 to 8.5 for drinking water and the values are within the acceptable limits.
- **Turbidity** is measured by a nephelometric turbidimeter. NTU is the 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 240 to 980mg/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 28.05 to 84.16 mg/L which is within the permissible limit of 200 mg/L but slightly above the acceptable limit of 75 mg/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 12.16 to 48.64 mg/L which is within both the acceptable and permissible limits. However, elevated magnesium levels can cause diarrhea and vomiting in children.
- The **chloride** levels range from 48 to 175 mg/L which is within the acceptable and permissible limits of 250 mg/L and 1000 mg/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 52 to 92 mg/L are slightly above the acceptable limit of 200 mg/L but within the permissible limit of 600 mg/L. Excessive alkalinity can impart a soda taste to the water.

- The **hardness** levels ranging from 120 to 410 mg/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. 4.9KLD (4.9liters 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 18.39µg/m³ to 21.70µg/m³, PM₁₀ from 49.75µg/m³ to 53.34µg/m³, SO₂ from 12.78µg/m³ to 15.48µg/m³, NO_x from 16.82µg/m³ to 19.32g/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 57.6dB (A) Leq during day time and 52.1dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 51.4 to 52.9dB (A) Leq and during night time from 41.6 to 42.7dB (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 16 species belonging to 8 families 32 Plant have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were Herbs 3 followed by Trees 3 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 140 different species identified in the buffer zone. Among the identified, floral (140) species were 32 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 8.53.10hectares 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 8.53.10hectares upto a depth of 75m 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 1.37.90hectares in the project site will store in safety area left for 7.5meters in the northern side as shown in mining plan.

Mitigation Measures

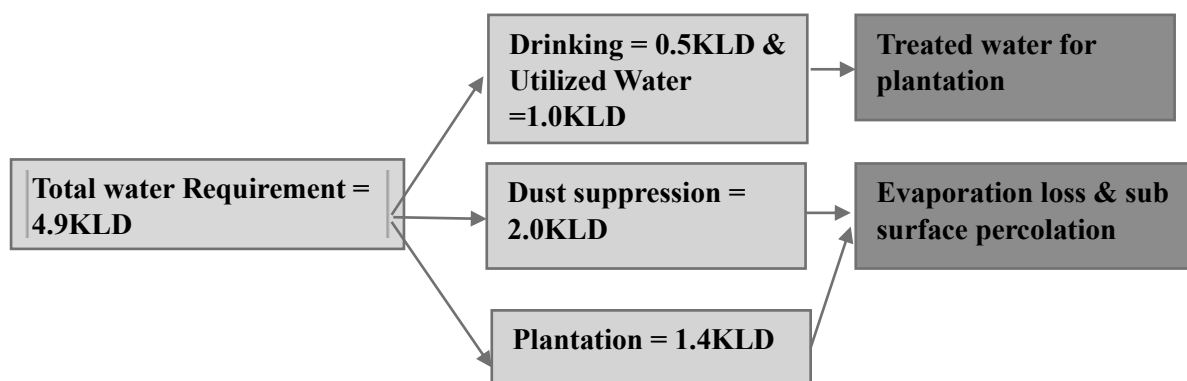
- ✚ When stock piling of top soil is done the mound should not be higher than 1.0m and Weathered Rock 3.0m.
- ✚ To minimize surface runoff and erosion the topography of a graded surface should be designed to create terraces or benches that follow land contours which intercept sheet flow. Additionally, 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.

11.4.2 Water Environment

Anticipated Impacts

- ❖ 4.9KLD 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 75m from average ground level. The specific water table depth in the core and buffer zone is between 65m and 70meters 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 DW7 and bore well BW3 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 607.500mm 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. 1476tons 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 498kg per day, 134448kg per year and 793714kg 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*, *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 49031kg 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 4266 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 245155kg 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 three 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 three 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 35 local people, in addition to indirect jobs
- ✚ The project will plant 4266 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 three proposed mine and benefits anticipated from the proposed project to the locality, neighbourhood, region and nation as a whole are:

- ✚ Direct employment to 35 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. 50.83Lakhs** as capital cost and recurring cost as **Rs. 936.93Lakhs** 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 20 years will be **Rs. 987.76Lakhs**.

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, **M/s. Ramana Stone Crusher** 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**

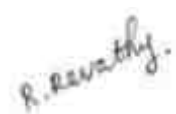
Designation : EIA Coordinator

Name of the EIA Consultant Organization : Geo Technical Mining Solutions

Period of Involvement : Till date

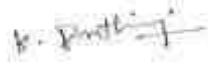
We, the FAEs, FAAs and TM hereby declare that information furnished in this EIA/EMP report for **M/s. M/s. Ramana Stone Crusher**, rough stone and gravel quarry project with the extent of 8.53.10ha situated in the cluster with the extent of 8.53.10ha in Pannapalli Village, Shoolagiri Taluk, Krishnagiri 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	

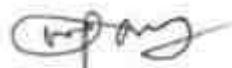
		○ Impact of the project on flora and fauna. ○ Suggesting species for greenbelt development.		
7	RH	○ Identification of hazards and hazardous substances ○ Risks and consequences analysis ○ Vulnerability assessment ○ Preparation of Emergency Preparedness Plan ○ Management plan for safety.	J.N. Manikandan	
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 **M/s. Ramana Stone Crusher**, rough stone & gravel quarry project with the extent of 8.53.10ha situated in the cluster with the extent of 8.53.10ha in Pannapalli Village, Shoolagiri Taluk, Krishnagiri 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: 13114
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA),
TAMIL NADU)



Dated: 13/02/2026



To,

Thiru. B. Jayaprakash
M/s. Ramana Stone Crusher
No. 113/22, Rajiv Gandhi Nagar, Bagalur Village and Post, Alasanatham, Hosur Taluk, Krishnagiri
District - 635103. TAMIL NADU.
ramanastone56@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, Tamil Nadu – Proposed Rough Stone and Gravel quarry over an area of 8.53.10 ha of in S.F.No's: 243/2, 243/4, 244/2, 244/4B(Part), 244/5(Part), 244/6, 246/5 & 261/1B in Pannapalli Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu by M/s. Ramana Stone Crusher- under project category – “B1” and Schedule S.No. 1(a) – **ToR issued along with Public Hearing-** preparation of EIA report – Regarding.

Ref: 1. Online proposal No. SIA/TN/MIN/560896/2025, Dated: 06/12/2025.

2. Your application submitted for Terms of Reference dated: 08.12.2025

3. Minutes of the 665th SEAC -I Meeting held on 19.01.2026.

4. Minutes of the 957th Authority meeting held on 05.02.2026

2. The particulars of the proposal are as below:

(i) TOR Identification No.	TO25B0108TN5134283N
(ii) File No.	13114
(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	Pannapalli Village Rough Stone & Gravel Quarry Project
(viii) Name of Company/Organization	RAMANA STONE CRUSHER
(ix) Location of Project (District, State)	KRISHNAGIRI, 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 05.02.2026. 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 **M/s. Ramana Stone Crusher** 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.

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 Project Proponent shall ensure that the Mining Plan submitted along with the EIA is clear, legible, and readable in all respects. 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 status, etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: (i) Copy of the agreement forming CMC. (ii) The Organisation 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 ensure the installation of CCTV at the proposed quarry site and ensure its inclusion during the EIA presentation.

2. Seac Standard Conditions

S. No	Terms of Reference
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: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. 2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site. 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc. 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry. 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report. 6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site. 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC. 8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth 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

S. No	Terms of Reference
	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 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,

S. No	Terms of Reference
	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 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

S. No	Terms of Reference
	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 23,70,358 m³ of rough stone and the 65,114 m³ of Gravel upto the depth of 75m BGL 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 & normal conditions & SEIAA Specific & Standard conditions.

4. Seiaa Standard Coonditions

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 individual quarry falling under the cluster in a holistic manner. - 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> - Impact on surrounding agricultural fields around the proposed mining Area. - Impact on soil flora & vegetation around the project site. - 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. - The Environmental Impact Assessment should study the agro-biodiversity, agro- forestry, horti-cultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. - Action should specifically suggest for sustainable management of the area and restoration of

S. No	Terms of Reference
	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 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.

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	<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/unfavorable accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued. <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
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

S. No	Terms of Reference
	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 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

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	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 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

S. No	Terms of Reference
	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 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

S. No	Terms of Reference
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
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

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	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



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

Dr. R.Elangoan, M.Sc.,Ph.D.,
Assistant Director,
Dept. of Geology and Mining,
Krishnagiri.

To

M/s. Ramana Stone Crusher,
No.113/22, Rajiv Gandhi Nagar,
Bagalur Village and Post,
Hosur Taluk,
Krishnagiri District-635 109.

Roc.No.339/2025/Mines Dated: 05.12.2025

Sir,

Sub: Mines and Minerals - Minor Mineral - Gravel and Rough Stone - Krishnagiri District - Shoolagiri Taluk - Pannapalli Village - Patta land - S.F.Nos. 243/2 (4.630), 243/4 (0.99.0), 244/2 (1.41.0), 244/4B (P) (0.15.00), 244/5 (P) (0.40.60), 244/6 (0.15.50), 246/5 (0.13.0) & 261/1B (0.66.0) - Over an extent of 8.53.10 Ha - M/s.Ramana Stone Crusher preferred application for the grant of Gravel and Rough stone quarry lease - Details of quarries situated within 500m radial distance requested - Quarry details furnished - Reg.

- Ref:**
1. M/s.Ramana Stone Crusher preferred application, dated: 19.03.2025 and 31.07.2025.
 2. The Assistant Director of Geology & Mining, Krishnagiri Rc.No.339/2025/Mines, dated 13.09.2025 (Precise area communication).
 3. The Assistant Director of Geology & Mining, Krishnagiri letter No.339/2025/Mines, dated 01.12.2025 (Mining plan approval).
 4. Representation of M/s. Ramana Stone Crusher, dated 03.12.2025.

B. Jaya Prakash

Kind attention is invited to the references cited above.

2. M/s.Ramana Stone Crusher, preferred an application vide the reference 1st cited for the grant of quarry lease to quarry Gravel and Rough stone in S.F.Nos.243/2 (4.630), 243/4 (0.99.0), 244/2 (1.41.0), 244/4B (P) (0.15.00), 244/5 (P) (0.40.60), 244/6 (0.15.50), 246/5 (0.13.0) & 261/1B (0.66.0) over an extent of 8.53.10 Ha of patta land in Pannapalli Village, Shoolagiri Taluk, Krishnagiri District under the Rule 19 of Tamil Nadu Minor Mineral Concession Rules, 1959.

3.Subsequently, M/s.Ramana Stone Crusher had been communicated precise area vide reference 2nd cited and directed to submit Mining plan and Environmental Clearance for grant of Gravel and Rough Stone quarry lease over an extent of 8.53.10 hectares of Patta land in S.F.Nos.243/2 (4.630), 243/4 (0.99.0), 244/2 (1.41.0), 244/4B (P) (0.15.00), 244/5 (P) (0.40.60), 244/6 (0.15.50), 246/5 (0.13.0) & 261/1B (0.66.0) in Pannapalli Village, Shoolagiri Taluk, Krishnagiri District for a period of 20 (Twenty) years under the provisions of Rule 8 of Tamil Nadu Minor Mineral Concession Rules, 1959.

4. Accordingly, the applicant submitted Mining Plan and the same was approved by the Assistant Director of Geology & Mining vide the reference 3rd cited.

5. At this juncture, the applicant has requested the details of quarries situated within 500m radial distance from the lease applied area vide letter dated 03.12.2025. As requested by the applicant, the

details of quarries situated within 500m radial distance from the subject area is furnished as follows:

I. Details of Existing Quarries

S. No.	Name of the Lessee	Village & Taluk	S.F.No.	Extent in ha	Proceedings Rc.No. & date	Lease period
-----NIL-----						

II. Details of Expired/Abandoned Quarries

S. No.	Name of the Applicant/Lessee	Village & Taluk	S.F.No.	Extent (ha)	Proceeding Rc.No. & date	Lease period
-----NIL-----						

III. Details of Proposed/applied quarries

S. No.	Name of the Applicant/Lessee	Village & Taluk	S.F.No.	Extent (ha)	Proceeding Rc.No. & date	Remarks
1.	M/s. Ramana Stone Crusher	Pannaspalli & Shoolagiri	243/2 (4.630), 243/4 (0.99.0), 244/2 (1.41.0), 244/4B (P) (0.15.00), 244/5 (P) (0.40.60), 244/6 (0.15.50), 246/5 (0.13.0) & 261/1B (0.66.0)	8.53.10 ha	---	Applied

[Signature]
Assistant Director,
Dept. of Geology and Mining,
Krishnagiri.

[Signature]
S. J.

Copy to:

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

From

Dr. R.Elangovan, M.Sc.,Ph.D.,
Assistant Director,
Dept. of Geology and Mining,
Krishnagiri.

To

M/s. Ramana Stone Crusher,
No.113/22, Rajiv Gandhi Nagar,
Bagalur Village and Post,
Hosur Taluk,
Krishnagiri District-635 109.

Roc.No.339/2025/Mines**dated: 01.12.2025.****Sir,**

Sub: Mines and Minerals - Minor Mineral - Gravel and Rough Stone - Krishnagiri District - Shoolagiri Taluk - Pannapalli Village - Patta land in S.F.Nos.243/2(4.630), 243/4(0.99.0), 244/2(1.41.0), 244/4B (P) (0.15.00), 244/5 (P) (0.40.60), 244/6(0.15.50), 246/5(0.13.0) & 261/1B(0.66.0) over an extent of 8.53.10 Ha - M/s.Ramana Stone Crusher preferred an application for the grant of Gravel and Rough stone quarry lease - Draft mining plan submitted - Approved - Reg.

Ref:

1. M/s.Ramana Stone Crusher preferred application, dated: 19.03.2025 and 31.07.2025.
2. Precise area Communication issued vide Rc.No.339/2025/Mines, dated :13.09.2025.
3. Representation of M/s.Ramana Stone Crusher, dated: 17.11.2025.

Kind attention is invited to the references cited above.

2) M/s.Ramana Stone Crusher, preferred an application vide the reference 1st cited for the grant of quarry lease to quarry Gravel and Rough stone in S.F.Nos.243/2(4.630), 243/4(0.99.0), 244/2(1.41.0), 244/4B (P) (0.15.00), 244/5 (P) (0.40.60), 244/6(0.15.50), 246/5(0.13.0) & 261/1B(0.66.0) over an extent of 8.53.10 Ha of patta land in Pannapalli Village, Shoolagiri Taluk, Krishnagiri District under the Rule 19 of Tamil Nadu Minor Mineral Concession Rules, 1959.

3.Subsequently, M/s.Ramana Stone Crusher had been communicated precise area vide letter dated: 13.09.2025 and directed to

B. Jaya Prakash

submit the Mining plan and Environmental Clearance for grant of Gravel and Rough stone quarry lease over an extent of 8.53.10 Ha of Patta land in S.F.Nos.243/2(4.630), 243/4(0.99.0), 244/2(1.41.0), 244/4B(P) (0.15.00), 244/5(P) (0.40.60), 244/6(0.15.50), 246/5(0.13.0) & 261/1B(0.66.0) in Pannapalli Village, Shoolagiri Taluk, Krishnagiri District for a period of 20 (Twenty) years under the provisions of Rule 20(2)(a) of Tamil Nadu Minor Mineral Concession Rules, 1959.

4.At this juncture, M/s.Ramania Stone Crusher, has submitted representation vide letter dated: 17.11.2025 with a request to approve draft Mining Plan prepared by the Recognized Qualified Person (RQP).

5.As per the a draft Mining Plan, the year wise production for the Twenty years is given as below:

Yearwise production for the first 5 years

Year	Rough Stone		Gravel	
	m ³	MT	m ³	MT
1 st Year	153424	421916	19780	39560
2 nd Year	159946	439852	17020	34040
3 rd Year	159778	439390	28314	56628
4 th Year	128230	352633	0	0
5 th Year	123460	339515	0	0
Total	724838	1993305	65114	130228

Yearwise production for the Second 5 years

Year	Rough Stone		Gravel	
	m ³	MT	m ³	MT
6 th Year	109440	300960	0	0
7 th Year	101620	279455	0	0
8 th Year	105740	290785	0	0
9 th Year	106320	292380	0	0
10 th Year	91780	252395	0	0
Total	514900	1419875	0	0

B. Jaya Prakash

Yearwise production for the Third 5 years

Year	Rough Stone		Gravel	
	m ³	MT	m ³	MT
11 th Year	110980	305195	0	0
12 th Year	115060	316415	0	0
13 th Year	103390	284323	0	0
14 th Year	111390	306323	0	0
15 th Year	107680	296120	0	0
Total	548500	1508375	0	0

Yearwise production for the Fourth 5 years

Year	Rough Stone		Gravel	
	m ³	MT	m ³	MT
16 th Year	133560	367290	0	0
17 th Year	116760	321090	0	0
18 th Year	115560	317790	0	0
19 th Year	113940	313335	0	0
20 th Year	102300	281325	0	0
Total	582120	1600830	0	0

6.Hence, the power delegated under Rule 41 of the 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 draft Mining Plan is hereby approved subject to the following conditions:

- i. The a draft 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 draft Mining Plan does not in any way imply the approval of the Government in terms of any other provisions of Mines 1991 Minerals (Development and

B. Jaya Prakash

Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1957, or any other connected Laws, Forest (Conservation) Act, 1980, Forest Conservation Rules 1981, Environment protection Act, 1986, Indian Explosives Act, 1884 (Central Act IV of 1884), Metalliferous Mines Regulations, 1961 and the rules made thereunder, Minor Mineral Conservation and Development Rules, 2017 and the Tamil Nadu Minor Mineral Concession Rules, 1959.

- iii. The draft 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 communicated to the applicant shall be followed during quarry operation as per Act and Rules.

Sony
6/11/2025
Assistant Director,
Dept. of Geology and Mining,
Krishnagiri.

1.1
1.1.1

Copy to: -

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

B. Jaya Prakash

GTMS/QMP/8.3/MP-220/RST/10/2025

MINING PLAN

FOR

PANNAPALLI VILLAGE ROUGH STONE AND GRAVEL MINING
PROGRESSIVE QUARRY CLOSURE PLAN

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

Lease period 20 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 : KRISHNAGIRI
TALUK : SHOOLAGIRI
VILLAGE : PANNAPALLI
S.F. No : 243/2, 243/4, 244/2, 244/4B(Part),
244/5(Part), 244/6, 246/5 & 261/1B
EXTENT : 8.53.10Hectares

ADDRESS OF THE APPLICANT

M/s.RAMANA STONE CRUSHER,

No.113/22, Rajiv Gandhi Nagar,
Bagalur Village and Post, Hosur Taluk,
Alasanatham, Hosur Taluk,
Krishnagiri District – 635 103.

PREPARED BY

Dr. S. KARUPPANNAN, M.Sc., Ph.D.

Qualified Person



GEO TECHNICAL MINING SOLUTIONS

(ANABET accredited & ISO certified Company)

No: 1/213-B, Natesan Complex,

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Ph: +91 9443937841, 7010076633

E-mail: info.gtmsdpi@gmail.com .

Website: www.gtmsind.com



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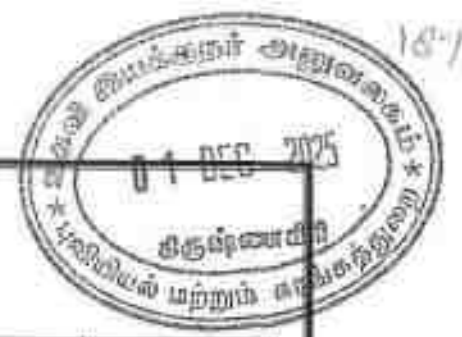
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1.	Copy of precise area communication letter	I
2.	Copy of FMB (Field Measurement book)	II
3.	Copy of "A" register	III
4.	Copy of Patta & Sale Deed	IV
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7.	Photo copy of the applied lease area	VII
8.	Copy of ID Proof of the authorized signatory	VIII
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LIST OF PLATES

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1	Key Map	I	Not to scale
2	Location Plan	I-A	Not to scale
3	Toposheet Map	I-B	1:1,00,000
4	Satellite Imagery Map	I-C	1: 5,000
5	Environmental Plan	I-D	1: 5,000
6	Mine Lease Plan	II	1:2000
7	Surface & Geological Plan	III	Plan 1:2000
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9	Conceptual Plan	IV	Plan 1:2000
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11	Mine Layout Plan and Land Use Pattern	V	Plan 1:2000
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		VIB	

M/s.RAMANA STONE CRUSHER,

No.113/22, Rajiv Gandhi Nagar,

Bagalur Village and Post,

Hosur Taluk,

Krishnagiri District – 635 103.



CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of rough stone and gravel quarry lease in patta land at S.F.No: 243/2, 243/4, 244/2, 244/4B(Part), 244/5(Part), 244/6, 246/5 and 261/IB, over an extent of 8.53.10 hectares of Pannapalli Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State has been prepared by

Dr. S. KARUPPANNAN. MSc., Ph.D. (Qualified Person)

I request "The Regional Joint Director / Deputy Director (i/c)", Department of Geology and Mining, Krishnagiri District to make further correspondence regarding modifications of the Mining Plan with the said Qualified Person on this following address,

Dr. S. KARUPPANNAN. MSc., Ph.D.

Qualified Person

GEO TECHNICAL MINING SOLUTIONS

(A NABET accredited & ISO certified Company)

No: 1/213-B, Ground Floor, Natesan Complex,

Oddapatti, Collectorate Post office, Dharmapuri-636705

Ph: +91 9443937841, +91 7010076633

E-mail: info.gtmsdpi@gmail.com,

Website: www.gtmsind.com

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

Place: Krishnagiri, TN

Date:


Signature of the applicant

(M/s.Ramana Stone Crusher)

M/s.RAMANA STONE CRUSHER,

No.113/22, Rajiv Gandhi Nagar,

Bagalur Village and Post,

Hosur Taluk,

Krishnagiri District – 635 103.



DECLARATION

The Mining Plan in respect of rough stone quarry and gravel lease in Patta land at S.F.No: 243/2, 243/4, 244/2, 244/4B(Part), 244/5(Part), 244/6, 246/5 and 261/1B, over an extent of 8.53.10hectares of Pannapalli Village, Shoolagiri Taluk, Krishnagiri 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: Krishnagiri, TN

Date:

B. Jaya Prakash
Signature of the applicant

(M/s.Ramana Stone Crusher)



B. Jaya Prakash

Dr. S. KARUPPANNAN, M.Sc., Ph.D.

Qualified Person

GEO TECHNICAL MINING SOLUTIONS

(A NABET accredited & ISO certified Company)

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Oddapatti, Collectorate Post office, Dharmapuri-636705

Ph: +91 9443937841, +91 7010076633

E-mail: info.gtmsdpi@gmail.com.

Website: www.gtmsind.com



CERTIFICATE

This is to certify that, the provisions of 19 Tamil Nadu Minor Minerals Concession Rules, 1959 have been observed in the Mining Plan for the grant of rough stone and gravel quarry lease at S.F.No: 243/2, 243/4, 244/2, 244/4B(Part), 244/5(Part), 244/6, 246/5 and 261/1B, over an extent of 8.53.10 hectares of Pannapalli Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State granted to **M/s.Ramana Stone Crusher**, Krishnagiri 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: Dharmapuri, TN

Date :

Signature of the Qualified Person

Dr.S.KARUPPANNAN, M.Sc., Ph.D.,
Qualified Person
GEO TECHNICAL MINING SOLUTIONS
A NABET Accredited and ISO Certified Company
1/213-B, Ground Floor, Natesan Complex,
Collectorate Post Office, Oddapatti,
Dharmapuri-636705, Tamil Nadu, India

Dr. S. KARUPPANNAN, M.Sc., Ph.D.

Qualified Person

GEO TECHNICAL MINING SOLUTIONS

(A NABET accredited & ISO certified Company)

No: 1/213-B, Ground Floor, Natesan Complex,

Oddapatti, Collectorate Post office, Dharmapuri-636705

Ph: +91 9443937841, +91 7010076633

E-mail: info.gtmsdpi@gmail.com,

Website: www.gtmsind.com



CERTIFICATE

I certify that, in preparation of Mining Plan for rough stone and gravel quarry lease at S.F.No: 243/2, 243/4, 244/2, 244/4B(Part), 244/5(Part), 244/6, 246/5 and 261/1B, over an extent of 8.53.10 hectares of Pannapalli Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State prepared to **M/s.Ramana Stone Crusher**, Krishnagiri 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: Dharmapuri, TN

Date:

Signature of the Qualified Person

DR.S.KARUPPANNAN, M.Sc., Ph.D.,
Qualified Person
GEO TECHNICAL MINING SOLUTIONS
(A NABET Accredited and ISO Certified Company)
1/213-B, Ground Floor, Natesan Complex,
Collectorate Post Office, Oddapatti,
Dharmapuri-636705, TamilNadu, India

MINING PLAN

FOR PANNAPALLI VILLAGE ROUGH STONE AND GRAVEL MINING LEASE AREA

PROGRESSIVE QUARRY CLOSURE PLAN

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

Lease period 20 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 M/s.Ramana Stone Crusher, No.113/22, Rajiv Gandhi Nagar, Bagalur Village and Post, Hosur Taluk, Krishnagiri District - 635 103 Tamilnadu State and filed with application for new proposals has submitted to the Department of Geology and Mining, Krishnagiri dated 19.03.2025 and 31.07.2025 had requested to grant the quarry lease for rough stone and gravel in S.F.No. 243/2, 243/4, 244/2, 244/4B(Part), 244/5(Part), 244/6, 246/5 and 261/1B, over an extent of 8.53.10 hectares of Pannapalli Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State.
- b) **The Precise area communication letter:** The Regional Joint Director / Deputy Director (I/c), Department of Geology and mining, Krishnagiri has directed to the applicant M/s.Ramana Stone Crusher, through his precise area communication letter vide Roc.No.339/2025/Mines Dated: 13.09.2025, for quarrying lease rough stone and gravel at Tamil Nadu State, Krishnagiri District, Shoolagiri Taluk, Pannapalli Village in S.F.No. 243/2, 243/4, 244/2, 244/4B(Part), 244/5(Part), 244/6, 246/5 and 261/1B, over an extent of 8.53.10 hectares has recommended as following conditions for a period of Twenty (20) years under Rule 19 Tamil Nadu Minor Mineral concession rules, 1959.
 - a) Quarrying work should be carried out without any interference from the south-north running Odai in S.F.No. 242 to the east of the applied Area.
 - b) Quarrying work should be carried out with a safety distance of 10 m from the east-west crossing (access road) in S.F.Nos. 243/1 and 244/1 to the north of the field for which permission is sought.
 - c) Quarrying work should be carried out from the south of the Applied Area at S.F.No. 248/1 with a safety distance of 10m.

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- TAMIL NADU MINOR MINERAL CONCESSION RULES, 1959
- பி. ஜயே பிரகாஷ்
- d) Minerals should be transported on payment of seniority amount for quarried minerals as seen in Schedule II of the Tamil Nadu Minor Mineral Concession Rules, 1959 from time to time.
- e) Quarrying work should be carried out with a safety distance of 7.5 meters from nearby patta lands and 10 meters from poramboke lands.
- f) Quarrying should be carried out by authorized and experienced explosive users using low-energy explosives without any disturbance to nearby leaseholders.
- g) As per the rules, the approved mining plan should be submitted within due time.
- h) Quarrying license will be issued only after approval is submitted to the Environmental Impact Assessment Authority for the area for which the quarrying license is to be issued.
- 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.339/2025/Mines Dated: 13.09.2025.
- d) **Geological resources and Mineable reserves:** Geological resource of estimated as 6338002m^3 or 17327275.5MT including the resources of safety zone, gravel etc. Of which, rough stone resources of about 6235050m^3 or 17146387.5MT and Gravel is 90444m^3 or 180888MT up to a depth of 75m below ground level. The total mineable reserve is estimated to be 2435472m^3 or 6648712MT by deducting the reserve safety zone, block in benches from the total Geological resources. of which, rough stone is about 2370358m^3 or 6518484MT and gravel is 65114m^3 or 130228MT up to a depth of 75m below ground level (Refer Plate No. IIIA & IVA).
- e) **Proposed Production Schedule:** Total proposed production of rough stone is 724838m^3 or 1993305MT and gravel is 65114m^3 or 130228MT up to a depth of 50m below ground level for first years plan period. (Refer Plate No. VIA&VIB).
- f) **Environmental Sensitivity of the proposed lease area: -**
- i). **Interstate boundary:** There is no Interstate boundary situated around 10km radius from the lease area.
- ii). **Wildlife Sanctuaries any:** There are no notified wildlife sanctuaries within the radius of 10km from the project site under the wildlife (Protection) Act, 1972.

iii). **Forest (conservation) Act, 1980:** No forest land granted for quarrying and there is no reserve forest within the radius of 60m.

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	:	M/s.Ramana Stone Crusher,
	Applicant address	:	No.113/22, Rajiv Gandhi Nagar, Bagalur Village and Post, Hosur Taluk,
	District	:	Krishnagiri.
	State	:	Tamilnadu
	Pin code	:	635103
	Phone	:	.....
	Fax	:	Nil
	Gram	:	Nil
	Telex	:	Nil
b.	Status of the Applicant	:	.....
	Private individual	:	---
	Cooperative Association	:	---
	Private company	:	Private company
	Public Company	:	---

	Public Sector Undertaking	:	---
	Joint Sector Undertaking	:	---
	Other (pl. specify)	:	---
c.	Mineral(s) Which are occurring in the area and which the applicant intends to mine	:	Rough Stone and gravel
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 Twenty (20) years.
	Name of the QP preparing the Mining Plan	:	Dr. S.KARUPPANNAN.M.Sc.,Ph.D.,
	Address	:	Geo Technical Mining Solutions (A NABET Accredited & ISO certified Company) No: 1/213-B, Natesan Complex, Oddapatti, Collectorate Post office, Dharmapuri-636705 Web site: www.gtmsind.com
	Phone	:	+91 9443937841, 7010076633
	Fax	:	Nil
	e-mail	:	info.gtmsdpi@gmail.com
	Telex	:	Nil
	Registration number	:	Nil
	Date of grant/renewal	:	Nil
	Valid upto	:	Nil
f.	Name of the prospecting agency	:	Geo Technical Mining Solutions GSR 286(E) No:272, Ministry of Mines Notification 7th April 2022.
	Address	:	No: 1/213-B, Natesan Complex, Oddapatti, Collectorate Post office, Dharmapuri-636705 Web site: www.gtmsind.com
	Phone	:	+91 9443937841, 7010076633
g.	Reference No. and date of consent letter from the state government	:	The precise area communication letter issued by the Regional Joint Director / Deputy Director (i/c), Department of Geology and Mining, Krishnagiri vide Roc.No.339/2025/Mines Dated: 13.09.2025.

2.0 LOCATION AND ACCESSIBILITY:

a.	Details of the Area:	:	Refer plate no: IA & IB			
	District & State	:	Krishnagiri, Tamil Nadu			
	Taluk	:	Shoolagiri			
	Village	:	Pannapalli			
Khasra No./ Plot No./ Block Range/ Felling Series etc.:						
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.
243	2	4.63.00	2554	1.Mr.B.Jayaprakash, 2.Mr.A.Prasad Ravulapalli 3.Mr.R.Muniraj 4.M/s.Ramana Stone Crusher	243/2	4.63.00
243	4	0.99.00	2554		243/4	0.99.00
244	2	1.41.00	2554		244/2	1.41.00
244	4B	0.76.50	2554		244/4B(P)	0.15.00
244	5	0.87.50	2554		244/5(P)	0.40.60
244	6	0.15.50	2554		244/6	0.15.50
246	5	0.13.00	2554		246/5	0.13.00
261	1B	0.66.00	2554		261/1B	0.66.00
Total Extent		9.61.50	Applied lease area extent		8.53.10	
Lease area (hectares)		:	8.53.10 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: V)			
Ownership / Occupancy		:	This is a patta land S.F.No. S.F.No. 243/2, 243/4, 244/2, 244/4B(Part), 244/5(Part), 244/6, 246/5 and 261/1B is registered on the name of 1.Mr.B.Jayaprakash, 2.Mr.A.Prasad Ravulapalli, 3.Mr.R.Muniraj, 4.M/s.Ramana Stone Crusher as patta No. 2554. (Pattadhars consent to the applicant).			
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 Northwestern side of the lease area. ☒ There is an MDR-456 is situated about 2.6km radius away on the North side of the lease area. ☒ There is an SH-53 is situated about 5.2km radius away on the Northwest side of the			



	lease area. ✓ There is no NH road situated around 5km radius from the lease area. ✓ There is no railway line is situated around 5km radius from the lease area.																																																												
Toposheet No. with latitude and longitude	: Toposheet No. 57 L/01 Latitude: From 12°46'12.57"N to 12°46'26.21"N Longitude: From 78° 0'18.85"E to 78° 0'33.17"E																																																												
Geo-Coordinates of the lease boundary:																																																													
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Land use pattern (Forest, Agricultural, Grazing, Barren etc.)	: It is an barren and Ryotwari land.																																																												
b. <i>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</i>	: Refer plate no-IA & IB																																																												

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.



i) INFRASTRUCTURE AND COMMUNICATION:

S.No	Description	Place	Distance	Direction
a.	Nearest post office	Peddasigarlapalli	3.5Km	Southeast
b.	Nearest police station	Athimugam	3.9km	Southwest
c.	Nearest fire station	Hosur	22.3km	West
d.	Nearest medical facility	Athimugam	3.4km	Southwest
e.	Nearest school	Berigai	4.5km	Northwest
f.	Nearest railway station	Hosur	20.1km	West
g.	Nearest port facility	Chennai	250km	East
h.	Nearest airport	Bangalore	39.7km	Northwest
i.	Nearest DSP office	Hosur	20.2km	West
j.	Nearest villages	Pannapalli	1.1km	North
		Meenandoddi	1.4km	East
		Athimugam	2.0Km	South
		Seekkanapalli	1.6km	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 elevated topography. The maximum elevation (853m) was observed west side of the lease area and minimum elevation (852m) was observed East side of the site. The slope is towards East side and falls in Toposheet no. 57 L/01

(ii) **General Geology of the District:**

The geological formations of the district belong mainly to Archaean age along with rock of Proterozoic age. The former is represented by Khondalite Group of rocks, Charnockite Group of rocks, Migmatites Complex, Sathyamangalam Group of rocks, while the latter is represented by Alkaline rocks. The Khondalite Group includes garnet sillimanite gneiss and quartzite which occur as small patches. The migmatite complex includes garnetiferous quartz feldspathic gneiss and hornblends biotite gneiss, the former exposed on the western part of the district. The Sathyamangalam Group includes fuchsite quartzite, sillimanite mica schist and amphibolites. The Bhavani Group in this area includes fissile hornblende-biotite gneiss, granitoid gneiss and pink migmatite. Amphibolites with barbed ferruginous quartzite and associated quartzo-feldspathic rocks (Champion Gneiss) represent the Kolar group and are found west and southwest of Epiphani. Following this there are basic intrusions occurring as dykes.

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 North-East and Northern part of the district mainly consist of granite gneiss with small patches of Pink Migmatite, hornblende-biotite gneiss and dolerite dykes. The Eastern part of the district consists of Epidote-Hornblende Gneiss, Ultra Mafics, Syenite and Carbonatite.

Order of superposition of the proposed lease area,

	Age	Group	Rock Formation
	Recent to Sub recent	----	Top Soil (2m 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
(iii)	Local / Mine Geology of The Mineral Deposit: Topography of the proposed lease area: The proposed lease area is elevated terrain. The maximum elevation (853m) was observed west side of the lease area and minimum elevation (852m) was observed east side of the site. The rocks exhibits layered, medium to coarse grained hornblende biotite, orthopyroxene charnockite gneiss. The gravel is obtained the average of 0-2.0m and a rough stone starts from 2.0m to 75m (R.L.853m-778m). 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: General characteristics of the rocks of this series has recorded that the rocks are in general bluish gray or darkish in colour and extremely fresh in appearance with an even grained granular structure. Chemical composition of rocks: The compositional characteristics of coexisting orthopyroxene, garnet and biotite have established several petrographic varieties within the Charnockites-Enderbites such as the granulite's and gneisses. Plagioclase feldspars, alkali feldspars and quartz are the silic minerals present in this series of rocks.		

Order of superposition of the proposed lease area,		
Age	Group	Rock Formation
Recent to Sub recent	----	Gravel
Archaean	Charnockite Group	Charnockites

(iv) Drainage Pattern : There is no major river or water bodies found within 50m radius. The drainage in the area is sub-dendritic in nature.

(b) *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:*

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: 2000, 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 1:1000, as shown in Plate No. IIIA

(d) *Broadly indicate the Yearwise future programme of exploration, taking into consideration the future production programme planned in next five years as in table below:-*

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 two longitudinal

and two transverse section to calculate the volume of material up to the depth of 7.8m below ground level for twenty years lease period. (Refer Plate No. III & IIIA). The two longitudinal and two transverse cross section were assigned XY-AB and X1Y1-CD as respectively. Using the cross-sectional method, total reserve is estimated to be 6338002m³ or 17327275.5MT including the resources of safety zone, and gravel, etc. Of which, rough stone resources of about 6235050m³ or 17146387.5MT and gravel is 90444m³ or 180888MT.

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	168	132	2	44352	.....	44352	2	.....	88704
	I	31	155		9610	9610	.....	2.75	26427.50	.....
	I	199	155	3	92535	92535	.....	2.75	254471.25	.....
	II	199	155	5	154225	154225	.....	2.75	424118.75	.....
	III	199	155	5	154225	154225	.....	2.75	424118.75	.....
	IV	199	155	5	154225	154225	.....	2.75	424118.75	.....
	V	199	155	5	154225	154225	.....	2.75	424118.75	.....
	VI	199	155	5	154225	154225	.....	2.75	424118.75	.....
	VII	199	155	5	154225	154225	.....	2.75	424118.75	.....
	VIII	199	155	5	154225	154225	.....	2.75	424118.75	.....
	IX	199	155	5	154225	154225	.....	2.75	424118.75	.....
	X	199	155	5	154225	154225	.....	2.75	424118.75	.....
	XI	199	155	5	154225	154225	.....	2.75	424118.75	.....
	XII	199	155	5	154225	154225	.....	2.75	424118.75	.....
	XIII	199	155	5	154225	154225	.....	2.75	424118.75	.....
	XIV	199	155	5	154225	154225	.....	2.75	424118.75	.....
	XV	199	155	5	154225	154225	.....	2.75	424118.75	.....
	TOTAL				2305647	2261295	44352	.....	6218561.25	88704
X1Y1-CD	I	167	138	2	46092	.....	46092	2	.....	92184
	I	118	53		12508	12508	.....	2.75	34397.00	.....
	I	285	191	3	163305	163305	.....	2.75	449088.75	.....
	II	285	191	5	272175	272175	.....	2.75	748481.25	.....
	III	285	191	5	272175	272175	.....	2.75	748481.25	.....
	IV	285	191	5	272175	272175	.....	2.75	748481.25	.....
	V	285	191	5	272175	272175	.....	2.75	748481.25	.....
	VI	285	191	5	272175	272175	.....	2.75	748481.25	.....
	VII	285	191	5	272175	272175	.....	2.75	748481.25	.....
	VIII	285	191	5	272175	272175	.....	2.75	748481.25	.....
	IX	285	191	5	272175	272175	.....	2.75	748481.25	.....
	X	285	191	5	272175	272175	.....	2.75	748481.25	.....
	XI	285	191	5	272175	272175	.....	2.75	748481.25	.....
	XII	285	191	5	272175	272175	.....	2.75	748481.25	.....
	XIII	285	191	5	272175	272175	.....	2.75	748481.25	.....
	XIV	285	191	5	272175	272175	.....	2.75	748481.25	.....
	XV	285	191	5	272175	272175	.....	2.75	748481.25	.....
	TOTAL				4032355	3973755	46092	.....	10927826.25	92184
	GRAND TOTAL				6338002	6235050	90444	.....	17146387.5	180888

(f) Indicate mineable reserves by slice plan / level plan method, as applicable, as per the proposed mining parameters: -

The mineable reserve is estimated to be 2435472m³ or 6648712MT by deducting the reserve safety zone, block in benches from the total Geological resources up to a depth of 75m below ground level. Of which, rough stone is about 2370358m³ or 6518484MT and gravel is 65114m³ or 130228MT. The commercially viable rough stone has been prepared on 1: 1000 scale and sections are prepared in a scale of 1:1000 in horizontal axis and 1:1000 as vertical axis (Refer plate no's. IV & IVA).

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	Rough Stone in (MT)	Gravel in (MT)
XY-AB	I	160	115	2	36800	.....	36800	2	.....	73600
	I	31	23		1426	1426	.....	2.75	3921.50	.....
	I	191	138	3	79074	79074	.....	2.75	217454	.....
	II	186	128	5	119040	119040	.....	2.75	327360	.....
	III	181	118	5	106790	106790	.....	2.75	293673	.....
	IV	176	108	5	95040	95040	.....	2.75	261360	.....
	V	171	98	5	83790	83790	.....	2.75	230423	.....
	VI	166	88	5	73040	73040	.....	2.75	200860	.....
	VII	161	78	5	62790	62790	.....	2.75	172673	.....
	VIII	156	68	5	53040	53040	.....	2.75	145860	.....
	IX	151	58	5	43790	43790	.....	2.75	120423	.....
	X	146	48	5	35040	35040	.....	2.75	96360	.....
	XI	141	38	5	26790	26790	.....	2.75	73673	.....
	XII	136	28	5	19040	19040	.....	2.75	52360	.....
	XIII	131	18	5	11790	11790	.....	2.75	32422	.....
TOTAL					847280	810480	36800	.....	2228820	73600
XIV1-CD	I	117	121	2	28314	.....	28314	2	.....	56628
	I	118	53		12508	12508	.....	2.75	34397.00	.....
	I	235	174	3	122670	122670	.....	2.75	337343	.....
	II	230	164	5	188600	188600	.....	2.75	518650	.....
	III	225	154	5	173250	173250	.....	2.75	476438	.....
	IV	220	144	5	158400	158400	.....	2.75	435600	.....
	V	215	134	5	144050	144050	.....	2.75	396138	.....
	VI	210	124	5	130200	130200	.....	2.75	358050	.....
	VII	205	114	5	116850	116850	.....	2.75	321338	.....
	VIII	200	104	5	104000	104000	.....	2.75	286000	.....
	IX	195	94	5	91650	91650	.....	2.75	252038	.....
	X	190	84	5	79800	79800	.....	2.75	219450	.....
	XI	185	74	5	68450	68450	.....	2.75	188238	.....
	XII	180	64	5	57600	57600	.....	2.75	158400	.....
	XIII	175	54	5	47250	47250	.....	2.75	129937	.....
	XIV	170	44	5	37400	37400	.....	2.75	102850	.....
	XV	160	34	5	27200	27200	.....	2.75	74800	.....
TOTAL					1588192	1559878	28314	.....	4289664	56628
GRAND TOTAL					2435472	2370358	65114	.....	6518484	130228

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 and 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 for first five years of rough stone is about 724838m³ or 1993305MT and gravel is 65114m³ or 130228MT up to a depth of 50m below ground level. (Refer Plate No's. VI & VIA).

Year	Pit No.(s)	Topsoil/Overburden (m ³)	ROM (m ³)	Salable rough stone (m ³) @ 100%	Salable rough stone (Ts) @ 100%	Rough stone rejects(m ³)	Sub grade/Weathered rock (m ³)	Salable Gravel (m ³)	Salable Gravel (m ³)	Rough stone to waste ratio
I	I	---	173204	153424	421916	---	---	19780	39560	---
II	I	---	176966	159946	439852	---	---	17020	34040	---
III	I	---	188092	159778	439390	---	---	28314	56628	---
IV	I	---	128230	128230	352633	---	---	---	---	---
V	I	---	123460	123460	339515	---	---	---	---	---
Grand Total	---	---	789952	724838	1993305	---	---	65114	130228	---

- c) Composite plans and Year wise sections (In case of 'A' class mines):
- Not applicable. It is a "B" class quarry lease

FIRST FIVE 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	86	115	2	19780	.....	19780	2	.....	.....
		I	86	138	3	35604	35604	.....	2.75	97911	.....
		II	76	128	5	48640	48640	.....	2.75	133760	.....
		III	66	118	5	38940	38940	.....	2.75	107085	.....
		IV	56	108	5	30240	30240	.....	2.75	83160	.....
TOTAL						173204	153424	19780	.....	421916	19560
II	XY-AB	I	74	115	2	17020	.....	17020	2	.....	34040
		I	31	23		1426	1426	.....	2.75	3921	.....
		I	105	138	3	43470	43470	.....	2.75	119543	.....
		II	65	128	5	41600	41600	.....	2.75	114400	.....
		III	65	118	5	38350	38350	.....	2.75	105463	.....
		IV	65	108	5	35100	35100	.....	2.75	96525	.....
TOTAL						176966	159946	17020	.....	439852	34040
III	XIYI-CD	I	117	121	2	28314	.....	28314	2	.....	56628
		I	118	53		12508	12508	.....	2.75	34397	.....
		I	235	174	3	122670	122670	.....	2.75	337343	.....
	XY-AB	II	20	128	5	12800	12800	.....	2.75	35200	.....
		III	20	118	5	11800	11800	.....	2.75	32450	.....
TOTAL						188092	159778	28314	.....	439390	56628
IV	XY-AB	IV	20	108	5	10800	10800	.....	2.75	29700	.....
		V	131	98	5	64190	64190	.....	2.75	176523	.....
		VI	121	88	5	53240	53240	.....	2.75	146410	.....
TOTAL						128230	128230	0	.....	352633	0
V	XY-AB	VII	111	78	5	43290	43290	.....	2.75	119048	.....
		VIII	101	68	5	34340	34340	.....	2.75	94435	.....
		IX	91	58	5	26390	26390	.....	2.75	72572	.....
		X	81	48	5	19440	19440	.....	2.75	53460	.....
TOTAL						123460	123460	0	.....	339516	0
GRAND TOTAL						789952	724838	65114	.....	1993305	130228
SECOND FIVE 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)
VI	XY-AB	II	25	128	5	16000	16000	.....	2.75	44000	.....
	XIYI-CD	II	67	164	5	54940	54940	.....	2.75	151085	.....
		III	50	154	5	38500	38500	.....	2.75	105875	.....
TOTAL						109440	109440	.....	.....	300960	0
VII	XY-AB	III	12	154	5	9240	9240	.....	2.75	25410	.....
		III	30	118	5	17700	17700	.....	2.75	48675	.....
		IV	35	108	5	18900	18900	.....	2.75	51975	.....
	XIYI-CD	IV	57	144	5	41040	41040	.....	2.75	112860	.....
		V	22	134	5	14740	14740	.....	2.75	40535	.....
TOTAL						101620	101620	.....	.....	279455	0
VIII	XIYI-CD	V	30	134	5	20100	20100	.....	2.75	55275	.....
	XY-AB	V	40	98	5	19600	19600	.....	2.75	53900	.....
		VI	45	88	5	19800	19800	.....	2.75	54450	.....
	XIYI-CD	VI	47	124	5	29140	29140	.....	2.75	80135	.....
TOTAL						105740	105740	0	.....	290785	0
IX	XIYI-	VII	12	114	5	6840	6840	.....	2.75	18810	.....



1	CD										
	XY-AB	VII	50	78	5	19500	19500		2.75	53625	
		VIII	55	68	5	18700	18700		2.75	51425	
	XIYI-CD	VIII	37	104	5	19240	19240		2.75	52940	
		IX	32	94	5	15040	15040		2.75	41360	
	XY-AB	IX	60	58	5	17400	17400		2.75	47850	
		X	40	48	5	9600	9600		2.75	26400	
TOTAL						106320	106320	0		292380	0
X	XY-AB	X	25	48	5	6000	6000		2.75	16500	
		XI	141	38	5	26790	26790		2.75	73673	
		XII	136	28	5	19040	19040		2.75	52360	
		XIII	131	18	5	11790	11790		2.75	32422	
		X	27	84	5	11340	11340		2.75	31185	
		XI	22	74	5	8140	8140		2.75	22385	
		XII	17	64	5	5440	5440		2.75	14960	
		XIII	12	54	5	3240	3240		2.75	8910	
TOTAL						91780	91780	0		252395	0
GRAND TOTAL						514900	514900	0		1415975	0
THIRD FIVE 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)
XI	XIYI-CD	II	79	164	5	64780	64780		2.75	178145	
		III	60	154	5	46200	46200		2.75	127050	
TOTAL						110980	110980			305195	
XII	XIYI-CD	III	19	154	5	14630	14630		2.75	40232	
		IV	79	144	5	56880	56880		2.75	156420	
		V	65	134	5	43550	43550		2.75	119763	
TOTAL						115060	115060			316415	
XIII	XIYI-CD	V	14	134	5	9380	9380		2.75	25795	
		VI	79	124	5	48980	48980		2.75	134695	
		VII	79	114	5	45030	45030		2.75	123833	
TOTAL						103390	103390			284323	
XIV	XIYI-CD	VIII	79	104	5	41080	41080		2.75	112970	
		IX	79	94	5	37130	37130		2.75	102108	
		X	79	84	5	33180	33180		2.75	91245	
TOTAL						111390	111390			306323	
XV	XIYI-CD	XI	79	74	5	29230	29230		2.75	80383	
		XII	79	64	5	25280	25280		2.75	69520	
		XIII	79	54	5	21330	21330		2.75	58657	
		XIV	86	44	5	18920	18920		2.75	52030	
		XV	76	34	5	12920	12920		2.75	35530	
TOTAL						107680	107680			296120	
GRAND TOTAL						548500	548500			1508375	
FOURTH FIVE 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)
XIV	XIYI-CD	II	84	164	5	68880	68880		2.75	189420	
		III	84	154	5	64680	64680		2.75	177870	
TOTAL						133560	133560			367290	
XII	XIYI-CD	IV	84	144	5	60480	60480		2.75	166320	
		V	84	134	5	56280	56280		2.75	154770	
TOTAL						116760	116760			321090	
XIII	XIYI-CD	VI	84	124	5	52080	52080		2.75	143220	
		VII	84	114	5	47880	47880		2.75	131670	

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		VIII	30	104	5	15600	15600		2.75	42900	
		TOTAL				115560	115560			317790	
XIV	XIYI- CD	VIII	54	104	5	28080	28080		2.75	77220	
		IX	84	94	5	39480	39480	.....	2.75	108570	.....
		X	84	84	5	35280	35280	.....	2.75	97020	.....
		XI	30	74	5	11100	11100	.....	2.75	30525	.....
		TOTAL				113940	113940	.....	.....	315335	.....
XV	XIYI- CD	XI	54	74	5	19980	19980	.....	2.75	54945	.....
		XII	84	64	5	26880	26880	.....	2.75	73920	.....
		XIII	84	54	5	22680	22680	.....	2.75	62370	.....
		XIV	84	44	5	18480	18480	.....	2.75	50820	.....
		XV	84	34	5	14280	14280	.....	2.75	39270	.....
		TOTAL				102300	102300	.....	.....	281325	.....
		GRAND TOTAL				582120	582120	.....	.....	1600830	.....

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)	<i>Indicate proposed rate of production when the mine is fully developed and the expected life of the mine and the year from which effected:</i> At this rate of production, the expected life of quarry is calculated as given below: <u>Rough stone:</u> Mineable reserves of rough stone (20Years) = 2370358m³ or 6518484MT Production reserves of rough stone (5 Years) = 724838m³ or 1993305MT Annual Peak production = 159946m³ or 439852MT <u>Gravel:</u> Mineable reserves of gravel = 65114m³ or 130228MT		
f)	<i>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>		
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 75m below ground level 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 20 years.

- ii) Whether ultimate pit limit has been determined and demarcated on surface and geological plan :-

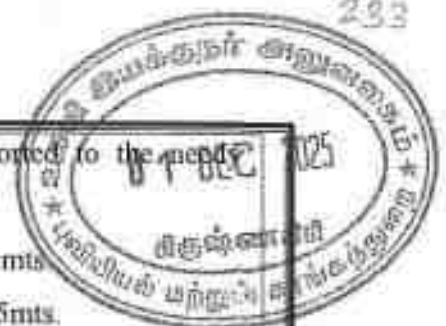
The ultimate pit limit has been determined and demarcated in the conceptual plan

SECTION XY-AB					
Bench	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
I	Twenty Years Period	Gravel	160	115	2
I			31	23	
I		Rough Stone	191	138	3
II			186	128	5
III			181	118	5
IV			176	108	5
V			171	98	5
VI			166	88	5
VII			161	78	5
VIII			156	68	5
IX			151	58	5
X			146	48	5
XI			141	38	5
XII			136	28	5
XIII			131	18	5
Total Depth					65
SECTION XIYI-CD					
Bench	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
I	Twenty Years Period	Gravel	117	121	2
I			118	53	2
I		Rough Stone	235	174	3
II			230	164	5
III			225	154	5
IV			220	144	5
V			215	134	5
VI			210	124	5
VII			205	114	5
VIII			200	104	5
IX			195	94	5
X			190	84	5
XI			185	74	5
XII			180	64	5
XIII			175	54	5
XIV			170	44	5
XV			160	34	5
Total Depth					75

- 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

The recovery of rough stone in this quarry is 100%. There is no waste rock will be proposed in this lease area.

	in the event of continuation of mining activity: -	
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-Mechanized, manual)	It is a fresh quarry lease. The mining operation is opencast, semi-mechanized methods are adopted and on single shift basis 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 6m 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



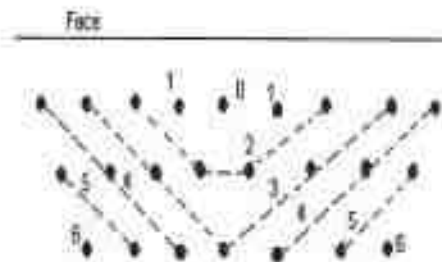
		the tippers and transported to the needy customer. Bench height = 5mts Bench width = 5mts.																					
	a. Details of Topsoil/Overburden	There is no topsoil will be removed.																					
	b. Rough Stone waste and side burden waste:-	The recovery of rough stone and gravel in this quarry 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>10</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	10	32 mm	Hand held	--	Diesel	--	Compressor	2	--	Air	--	Diesel	--	
Type	Nos	Dia of hole (mm)	Size / Capacity	Make	Motive power	H.P.																	
Jack Hammer	10	32 mm	Hand held	--	Diesel	--																	
Compressor	2	--	Air	--	Diesel	--																	
	(2) Loading Equipment: <table border="1"> <thead> <tr> <th>Type</th><th>Nos</th><th>Size / Capacity</th><th>Make</th><th>Motive power</th><th>H.P.</th></tr> </thead> <tbody> <tr> <td>Hydraulic Excavator</td><td>2</td><td>2.9-4.5m³</td><td>--</td><td>Diesel</td><td>--</td></tr> </tbody> </table>		Type	Nos	Size / Capacity	Make	Motive power	H.P.	Hydraulic Excavator	2	2.9-4.5m ³	--	Diesel	--									
Type	Nos	Size / Capacity	Make	Motive power	H.P.																		
Hydraulic Excavator	2	2.9-4.5m ³	--	Diesel	--																		
	(3) Haulage and Transport Equipment (a) Haulage within the mining leasehold:																						
	<table border="1"> <thead> <tr> <th>Type</th><th>Nos</th><th>Size / Capacity</th><th>Make</th><th>Motive power</th><th>H.P.</th></tr> </thead> <tbody> <tr> <td>Tipper</td><td>10</td><td>--</td><td>--</td><td>Diesel</td><td>--</td></tr> </tbody> </table>	Type	Nos	Size / Capacity	Make	Motive power	H.P.	Tipper	10	--	--	Diesel	--										
Type	Nos	Size / Capacity	Make	Motive power	H.P.																		
Tipper	10	--	--	Diesel	--																		
	Whether the dumpers are fitted with exhaust conditioner should be indicated: 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
	—	—	—
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: <i>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.</i> Blasting pattern: The quarrying operation is proposed to carried by open cast mining in conjunction with conventional method using jack hamner drilling and blasting for shattering effect and loosen the rough stone. Rough stone production for 5 years = 724838m ³ or 1993305MT		
	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	12
Burden stiffness ratio	2.08
Blast volume/hole in m ³	434
Production of rough stone/day in m ³	518
Number of blast holes/day	125
Number of blast round/day	5
Blasthole pattern	Staggered
Mass of explosive /day in kg	54.71
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 >2kg 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 heaving 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

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Blasting program for the production per day	
No of holes	: 125 holes
Yield	: 518m ³
Total explosive required	: 54.71kg-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 90m in summer and 85m in rainy season from the below ground level observed in the adjacent bore well.
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 topsoil will be removed,
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
b).	Indicate physical and chemical specifications stipulated by buyers : Basically, the materials produced at this quarry are rough stone (charnockite) 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 will be directly loaded to the needy customer.
9. OTHERS	

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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 twenty 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.

1.	Highly Skilled	Mines Manager	1No
		Mine Engineer	1No
		Mine Geologist	1No
		Blaster	1No
2.	Unskilled	Musdoor / Labours	31 No's
Total =			35No's

10 MINERAL PROCESSING/BENEFICIATIONS:

(a) If processing / beneficiations of the ore or minerals mined is planned to be conducted on site 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. : Excavated rough stone minerals directly will be used by the applicant for required size ½, ¾ and 1½ inches Jelly which are mainly used 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 : 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

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	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).		used for drilling and spraying hard 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 0.5KLD, utilized water is 1.0KLD, Dust suppression is 2.0KLD and Green Belt is 1.4KLD. Minimum quantity of water 4.9KLD 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 1.2KLD 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.																									
	<table border="1"> <thead> <tr> <th>Sl. No.</th><th>Land Use</th><th>Present area (Hect.)</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Area under Mining</td><td>Nil</td></tr> <tr> <td>2.</td><td>Infrastructure</td><td>Nil</td></tr> <tr> <td>3.</td><td>Roads</td><td>Nil</td></tr> <tr> <td>4.</td><td>Unutilized</td><td>8.53.10</td></tr> <tr> <td>5.</td><td>Dump</td><td>Nil</td></tr> <tr> <td>6.</td><td>Settling Tank & Drainage</td><td>Nil</td></tr> <tr> <td></td><td>Grand Total</td><td>8.53.10</td></tr> </tbody> </table>	Sl. No.	Land Use	Present area (Hect.)	1.	Area under Mining	Nil	2.	Infrastructure	Nil	3.	Roads	Nil	4.	Unutilized	8.53.10	5.	Dump	Nil	6.	Settling Tank & Drainage	Nil		Grand Total	8.53.10	
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11.2	Water Regime	: Water table in this area is noticed at a depth of 90m in summer and 85m in rainy season from the below ground level and presently the quarrying of rough stone is ultimate up to a depth of 75m 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: Krishnagiri, India weather forecasted for the maximum temperature of 29°C / 84°F. Min temperature will be 18°C/64°F. Most precipitation falling will be 8.20mm/0.32inch. Windiest day is expected to see wind of upto 17kmph/ 11mph.																										
11.6	Human Settlement: The nearest villages are found in the buffer zone with population as per 2011 census. <table><tr><th>S.No</th><th>Village</th><th>Direction</th><th>Distance in Kms</th><th>Population</th></tr><tr><td>1</td><td>Pannapalli</td><td>North</td><td>1.1km</td><td>4431</td></tr><tr><td>2</td><td>Meenandoddi</td><td>East</td><td>1.4km</td><td>358</td></tr><tr><td>3</td><td>Athimugam</td><td>South</td><td>2.0Km</td><td>4540</td></tr><tr><td>4</td><td>Seekkanapalli</td><td>West</td><td>1.6km</td><td>555</td></tr></table>		S.No	Village	Direction	Distance in Kms	Population	1	Pannapalli	North	1.1km	4431	2	Meenandoddi	East	1.4km	358	3	Athimugam	South	2.0Km	4540	4	Seekkanapalli	West	1.6km	555
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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 not 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 border="1"> <thead> <tr> <th>Sl. No.</th><th>Land Use</th><th>Area in use during the quarrying period (Hect.)</th></tr> </thead> <tbody> <tr> <td>1</td><td>Area under Mining</td><td>6.92.38</td></tr> <tr> <td>2</td><td>Infrastructure</td><td>0.05.00</td></tr> <tr> <td>3</td><td>Roads</td><td>0.05.00</td></tr> <tr> <td>4</td><td>Green Belt</td><td>1.37.90</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>0.12.82</td></tr> <tr> <td colspan="2">Grand Total</td><td>8.53.10</td></tr> </tbody> </table>		Sl. No.	Land Use	Area in use during the quarrying period (Hect.)	1	Area under Mining	6.92.38	2	Infrastructure	0.05.00	3	Roads	0.05.00	4	Green Belt	1.37.90	5	Un-Utilized Area	Nil	6	Drainage & Settling Tank	0.12.82	Grand Total		8.53.10
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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 oad 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 500m 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	: There is no topsoil will be removed.
ii).	Yearwise proposal for reclamation of land affected by abandoned quarries and other mining activities during twenty 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 to an average 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 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 twenty 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	13790	1500	80%	@100 Rs Per sapling	50,000/-
Second	Approach road and Nearby Village Road	—	250	80%		25,000/-
Third	Schools	—	250	80%		25,000/-
Total						2,00,000/-

iv).	Stabilization and vegetation of dumps along with waste dump management Year wise for the twenty 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 villagers 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

		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 20 years mining period the employment potential will be generated, general financial status and socio-economic conditions of approx. 35 labors will be improved.

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

A	Fixed Asset Cost:	
	1. Land Cost (Patta Land – Sale Deed)	: Rs. 1,24,05,000/-
	2. Labour Shed	: Rs. 1,00,000/-
	3. Sanitary Facility	: Rs. 1,00,000/-
	4. Fencing	: Rs. 5,60,000/-
	5. Other expenses (Security guard, dust bin, etc)	: Rs. 5,00,000/-
	Total	: Rs. 1,36,65,000/-
B	B. Machinery cost	: Rs. 30,00,000/- (Hire Basis)
C	Total Expenditure of EMP cost (for five years)	
	1. Drinking Water Facility	: Rs. 1,00,000/-

2. Sanitary facility & Maintenance	:	Rs. 1,50,000/-
3. Permanent water sprinkler	:	Rs. 2,00,000/-
4. Afforestation and its maintenance	:	Rs. 2,00,000/-
5. Safety Kits	:	Rs. 75,000/-
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 (0.12.82Hect or 1282Sq.m x 400)		Rs. 5,12,800/-
9. Environment monitoring	:	Rs. 5,00,000/-
Total	:	Rs. 33,87,800/-
D Total Project Cost (A+B+C)	:	Rs. 2,00,52,800/-

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 Regional Joint Director / Deputy Director (i/c), Department of Geology and Mining, Krishnagiri vide letter **Roc.No.339/2025/Mines Dated: 13.09.2025.**
- (iv) Total proposed production rough stone is **724838m³** or **1993305MT** and gravel is **65114m³** or **130228MT** up to a depth of 50m below ground level for first five 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:

Signature of the Qualified Person

DR. K. RUPPANNAN, M.Sc, Ph.D.,
Qualified Person
CEO TECHNICAL MINING SOLUTIONS
NABL Accredited and ISO Certified Company
1/233-0, Ground Floor, Mahalan Complex,
Collectorate Post Office, Oddapatti,
Channarayana-636705, Krishnagiri, Tamil Nadu

This Mining Plan is approved based on guidelines / instruction issued and in corporation of the particulars specified in the letter Roc. No. 339/2023 Dated 01.12.25 of the Deputy Director of Geology and Mining, Krishnagiri and subject to further fulfillment of the conditions laid down under Tamil Nadu Minor Mineral Concession Rules, 1959 and Minor Mineral Conservation and Development Rule 2010.

ASSISTANT DIRECTOR
Department of geology and Mining
Collectorate, Krishnagiri.

This Mining Plan is approved subject to the conditions / Stipulation indicated in the Mining Plan Approval

Letter Roc. No. 339/2023 Dated 01.12.25



ந.க.எண். 339/2025/கனிமம் நான்: .09.2025.

புவியியல் மற்றும் தரங்கத்துறை
மாவட்ட ஆட்சியர் அலுவலகம்
கிருஷ்ணகிரி மற்றும் கரங்குத்தலை

குறிப்பாணை

பொருள் : கனிமங்களும் சுரங்கங்களும் - சிறு கனிமம் - சாதாரண கற்கள் - கிருஷ்ணகிரி மாவட்டம் - குளகிரி வட்டம் - பன்னப்பள்ளி கிராம புல எண்கள். 243/2(4.630), 243/4(0.99.0), 244/2(1.41.0), 244/4B (P) (0.15.00), 244/5 (P) (0.40.60), 244/6(0.15.50), 246/5(0.13.0) & 261/1B(0.66.0) விலத்திரணம் 8.53.10 ஹெக்டேர் பரப்பில் சாதாரண கற்குவாரி செய்ய M/s.Ramana Stone Crusher என்ற நிறுவனத்தினரால் விண்ணப்பம் அளித்தது - வருவாய்துறை, வனத்துறை மற்றும் புவியியல் மற்றும் சுரங்கத்துறை புலத்தணிக்கை அறிக்கை சமர்ப்பிக்கப்பட்டது - தகுதியான நிலப்பரப்பாக கருதி ஏற்பளிக்கப்பட்ட சுரங்க திட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய இசைவினை பெற்று சமர்ப்பிக்கக் கோருதல் - தொடர்பாக.

- பார்வை :
1. M/s. Ramana Stone Crusher என்ற நிறுவனத்தின் விண்ணப்ப நாள்: 19.03.2025 மற்றும் 31.07.2025.
 2. வட்டாட்சியர், குளகிரி கடிதம் ந.க.1270/2025/அ2 நாள்: 02.06.2025.
 3. சார் ஆட்சியர், ஓசூர் கடிதம் ந.க.எண். 3388/2025/பி2 நாள்: 10.07.2025.
 4. வன உயிரினக்காப்பாளர், ஓசூர் கடித ந.க.எண்.3531/2025/எல் நாள்: 12.06.2025.
 5. அரசு ஆணை (3D) எண்.243 தொழில், முதலீட்டு ஊக்குவிப்பு மற்றும் வர்த்தகம் (எம்எம்இ-2) துறை நாள்: 14.12.2022.
 6. அரசு ஆணை (3D) எண்.37 இயற்கை வளங்கள் (எம்எம்இ-2) துறை நாள்: 22.04.2025.
 7. உதவி இயக்குநர் (கனிமம்) மற்றும் உதவி புவியியலாளர் (கனிமம்) ஆகியோரின் புலத்தணிக்கை அறிக்கை நாள்.02.08.2025.
 8. மற்றும் உரிய ஆவணங்கள்.

பார்வையில் காணும் கடிதங்களின்பால் கனிவான கவனம் வேண்டப்படுகிறது.

2. கிருஷ்ணகிரி மாவட்டம் குளகிரி வட்டம், பன்னப்பள்ளி கிராம புல எண்கள். 243/2(4.630), 243/4(0.99.0), 244/2(1.41.0), 244/4B (P) (0.15.00), 244/5 (P) (0.40.60), 244/6(0.15.50), 246/5(0.13.0) & 261/1B(0.66.0) விலத்திரணம் 8.53.10 ஹெக்டேர் பரப்பில் 10 வருடங்களுக்கு சாதாரண வகை கற்குவாரி செய்ய உரிமம் வழங்க

B. Joya Rakesh



கோரி M/s.Ramana Stone Crusher என்ற நிறுவனத்தினரால் 19.03.2025 நாளிட்ட விண்ணப்பத்தினை உரிய ஆவணங்களுடன் சமர்ப்பித்துள்ளார். மேலும், விண்ணப்பதாரர் நிறுவனம் 31.07.2025 நாளிட்ட கடிதத்தில் அரசு ஆணை (3D) எண்.37 இயற்கை வளங்கள் (எம்எம்இ-2) துறை நான்: 22.04.2025-ன்படி 20 வருட காலங்களுக்கு சாதாரண வகை கற்குவாரி செய்ய உரிமம் வழங்க கடிதம் அளித்துள்ளனர்.

3. மேற்கண்ட விண்ணப்பம் தொடர்பாக வட்டாட்சியர், குளகிரி, சார் ஆட்சியர், ஓசூர், வன உயிரின காப்பாளர், ஓசூர், உதவி இயக்குநர் (கனிமம்) மற்றும் உதவி புலியியலாளர் (கனிமம்) கிருஷ்ணகிரி ஆகியோர் புலத்தணிகளை மேற்கொண்டு குளகிரி வட்டம், பன்னப்பள்ளி கிராம புல எண்கள். 243/2(4.630), 243/4(0.99.0), 244/2(1.41.0), 244/4B (P) (0.15.00), 244/5 (P) (0.40.60), 244/6(0.15.50), 246/5(0.13.0) & 261/1B(0.66.0) விஸ்தீரணம் 8.53.10 ஹெக்டேர் பரப்பளவில் விண்ணப்பதாரர் M/s.Ramana Stone Crusher என்ற நிறுவனத்தினருக்கு கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு சாதாரண கற்குவாரி உரிமம் அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

நிபந்தனைகள்

- அனுமதி கோரும் புலத்திலிருந்து கிழக்கில் புல எண்.242 இல் தெற்கு-வடக்காக செல்லும் ஓடைக்கு 50 மீ பாதுகாப்பு இடைவெளி விட்டு எல்வித பாதிப்பின்றி குவாரிப் பணி செய்ய வேண்டும்.
- அனுமதி கோரும் புலத்திலிருந்து வடக்கில் புல எண்கள்.243/1 மற்றும் 244/1 இல் கிழக்க-மேற்காக செல்லும் ஓணிக்கு (அணுகு பாதை) 10 மீ பாதுகாப்பு இடைவெளி விட்டு குவாரிப் பணி மேற்கொள்ள வேண்டும்.
- விண்ணப்ப புலத்திலிருந்து தெற்குப் பகுதியில் புல எண்.248/1 இல் அமைந்துள்ள பறை புறம்போக்கு 10 மீ பாதுகாப்பு இடைவெளி விட்டு குவாரிப் பணி மேற்கொள்ள வேண்டும்.
- 1959ம் வருடத்திய தமிழ்நாடு சிறு கனிம சலுகை விதிகள், அட்டவணை-IIல் கண்டுள்ளபடி குவாரி செய்யப்படும் கனிமங்களுக்குரிய சீனியரேஜ் தொகையினை அய்வப்போது செலுத்தி கனிமம் கொண்டு செல்லப்பட வேண்டும்.
- அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளியும், புறம்போக்கு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப் பணி மேற்கொள்ள வேண்டும்.
- அங்கீகாரம் மற்றும் அனுபவம் வாய்ந்த வெடிபொருள் பயன்படுத்துவோர் மூலம் குறைந்த அளவு சக்தி கொண்ட வெடிபொருட்களை பயன்படுத்தி அருகிலுள்ள பட்டாதாரர்களுக்கு எல்வித இடையூறுமின்றி குவாரிப்பணி மேற்கொள்ள வேண்டும்.
- விதிகளின்படி ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தினை உரிய காலத்திற்குள் சமர்ப்பிக்க வேண்டும்.

B. Jaya Prakash



h. குவாரி உரிமம் வழங்க உள்ள பகுதிக்கு கற்றுச்சுழல் தாக்க மதிப்பீட்டு ஆணையத்தின் முன் அனுமதி பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும்.

4. எனவே, வட்டாட்சியர், குளகிரி, சார் ஆட்சியர், ஓசூர், வன உயிரின காப்பாளர், ஓசூர், உதவி இயக்குநர் (கனிமம்) மற்றும் உதவி புவியியலாளர் (கனிமம்) கிருஷ்ணகிரி ஆகியோரின் பரிந்துரை மற்றும் நிபந்தனைகளின் அடிப்படையில் குளகிரி வட்டம், பன்னப்பள்ளி கிராம புல எண்கள், 243/2(4.630), 243/4(0.99.0), 244/2(1.41.0), 244/4B (P) (0.15.00), 244/5 (P) (0.40.60), 244/6(0.15.50), 246/5(0.13.0) & 261/1B(0.66.0) லிஸ்தீரணம் 8.53.10ஹெக்டேர் பரப்பளவில் விண்ணப்பதாரர் M/s. Ramana Stone Crusher என்ற நிறுவனத்தினருக்கு 1959ம் வருட தமிழ்நாடு சிறுகனிம விதிகள், விதி எண்.19(1)ன்படியும் மற்றும் அரசு ஆணை (3D) எண்.37 இயற்கை வளங்கள் (எம்எம்இ-2) துறை நாள்: 22.04.2025-ன்படியும் மேற்கண்ட அலுவலர்களின் நிபந்தனைகளுக்குட்பட்டு 20 (இருபது) வருட காலத்திற்கு சாதாரண வகை கற்குவாரி உரிமம் வழங்குவதற்குரிய தகுதியான நிலப்பரப்பாக கருதப்படுகிறது.

5. மேலும், தமிழ்நாடு சிறு கனிம சலுகை விதிகள்-1959 விதி எண். 41-ன்படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வனரவு காங்க் திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறு மனுதாரரைக் கேட்டுக்கொள்ளப்படுகிறது. மேலும் ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தின் தொடர்ச்சியாக 1959ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், விதி எண்.42-ன்படி கற்றுச்சுழல் தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப் பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும் என இதன் மூலம் தெரிவிக்கப்படுகிறது.

துணை இயக்குநர் (கட.பொ),
புவியியல் மற்றும் சுரங்கத்துறை,
கிருஷ்ணகிரி.

பெறுநர்:

M/s. Ramana Stone Crushers,
எண்.113/22, ராஜூவ் காந்தி நகர்,
பாகலூர் கிராமம் & அஞ்சல்,
ஓசூர் வட்டம்,
கிருஷ்ணகிரி மாவட்டம் - 635 103.
நகல்:

1. ஆணையர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை.
2. மாவட்ட ஆட்சித் தலைவர், கிருஷ்ணகிரி - தகவலுக்காக.

B. Jaya Pradeesh

District : Krishnagiri

Taluk : Shoolagiri

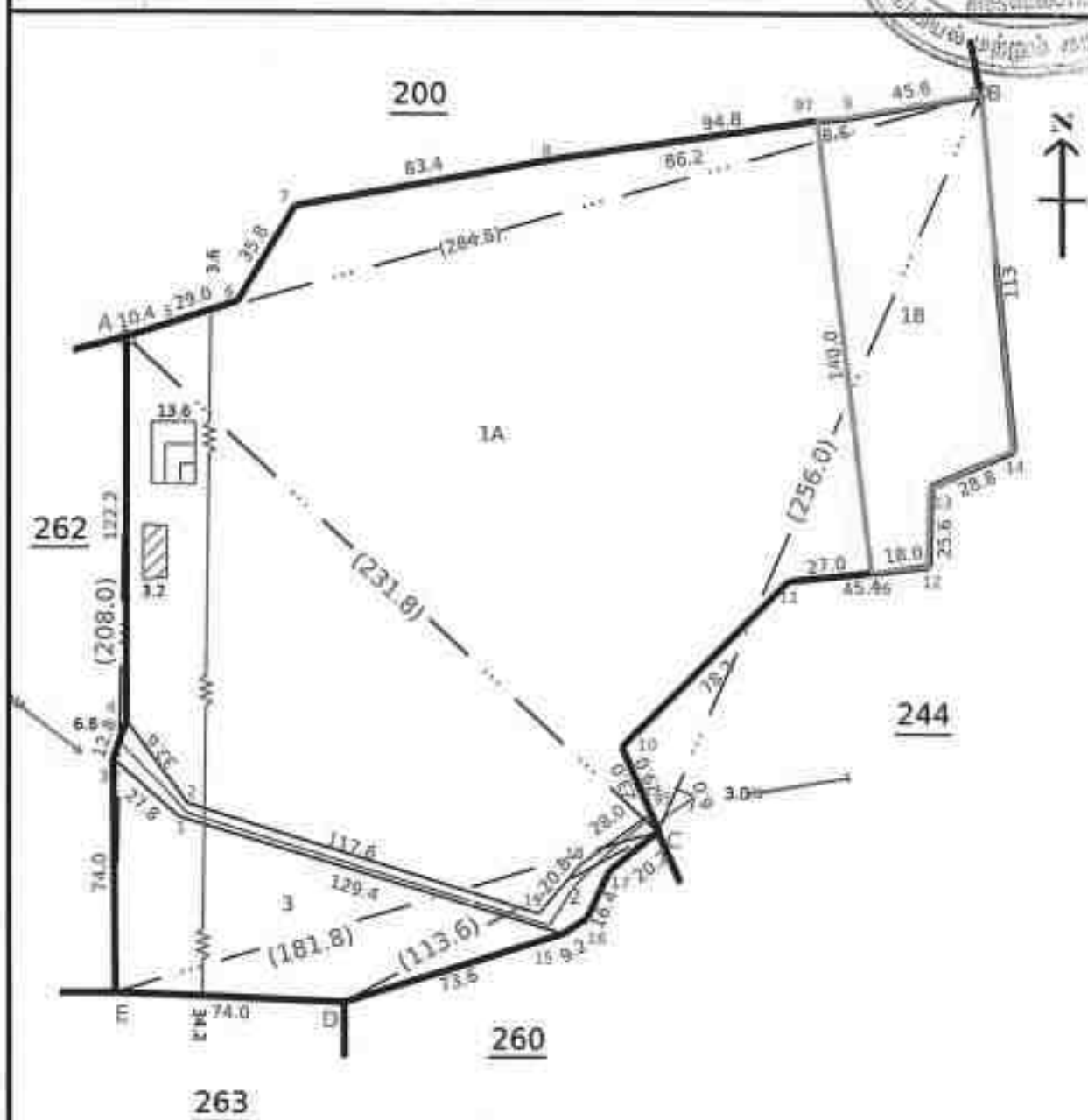
Village : Pannapalli [48]



Survey No : 261

Area : Hect 05 Ares 72.00

Scale : 1 : 2000



1A

244

260

263

LEASE APPLIED AREA

Signed By Tahsildar

Name of approver : peru

Date of Approval : 24-06-2017

Date of Issue: 13-02-2025 20:15:49

247

Survey and Settlement Department, Government of TamilNadu

B. Jaya Bakar

240 fv.1

District : Krishnagiri

Taluk : Shoolagiri

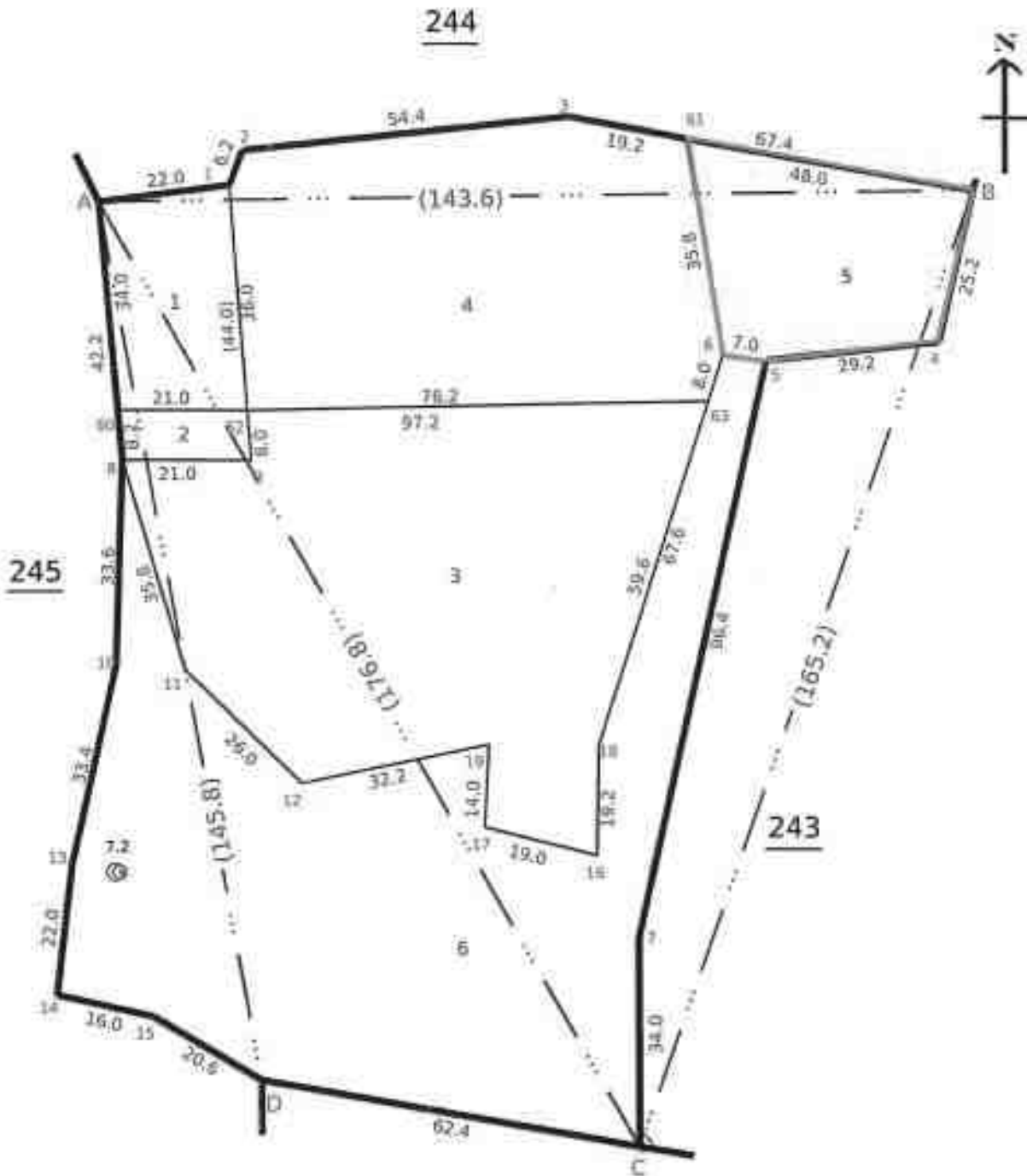
Village : Pannapalli [48]



Survey No : 246

Area : Hect 01 Ares 68.50

Scale : 1 : 1000



Date of issue: 13-02-2025 20:14:06

248

Signed By Tahsildar

Name of approver : per

Date of Approval : 24-06-2017



R. Jaya Prakash

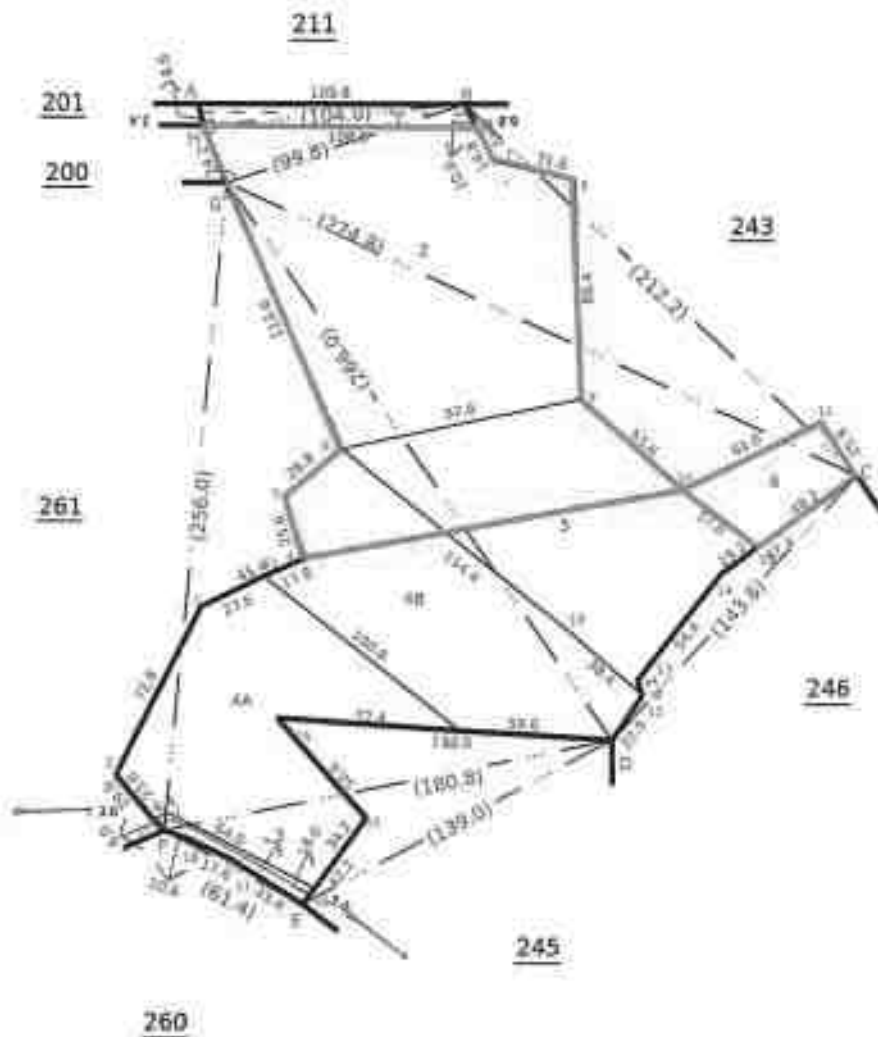
Village : Pannapalli [48]



Survey No : 244

Area : Hect 04 Acres 16,50

Scale = 1 : 2000



LEASE APPLIED AREA 

Date of issue: 13-02-2025 20:12:51

Survey and Settlement Department, Government of Tamil Nadu

Signed By Tahsilidar
Name of approver : perul
Date of Approval : 24-06-2017



24 Feb 2011

அபதிவேடு விவரங்கள் - ஊரகம்

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : குளகிரி

கிராமம் : பண்ணப்பள்ளி



1. புல எண்	261	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	1B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	261-1	11. தீர்வை (ரூ - ரென்)	2.15
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 66.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.42
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	2554
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இது போகமா	-	16. பெயர்	ஜெயபிரகாஷ் மற்றும் 30பர்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து
1. பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற
இணைய தளத்தில் 31/11/048/261/1B/110856 என்ற குறிப்பு எண்ணை உள்ளிடு
செய்து உறுதி செய்துகொள்ளவும்.

B. Jaya Prakash

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : சூளகிரி

கிராமம் : பண்ணப்பள்ளி

1. புல எண்	243	9. மண் வயலுமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	2	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-2	11. தீர்வை (ரூ - ரெற)	2.15
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	4 - 63.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - ரெற)	9.95
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	2554
7. பாசன ஆதாரம்	*	15. குறிப்பு	-
8. இறு போகமா	*	16. பெயர்	ஜெயபிரகாஷ் மற்றும் 3பெர்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து
1. பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற
இணைய தளத்தில் 31/11/048/243/2/110856 என்ற குறிப்பு எண்ணை உள்ளிடு
செய்து உறுதி செய்துகொள்ளவும்.

B. Jey Prakash

அ-பதிவேடு விவரங்கள் - ஊரகம்

மாவட்டம் : கிருஷ்ணகிரி
வட்டம் : குளகிரி
கிராமம் : பண்ணப்பள்ளி



1. புல எண்	243	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	4	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-4	11. தீர்வை (ரூ - ரெ) 2.15	
4. பதிவு	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 99.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - ரெ)	2.13
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	2554
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. திரு போகமா	-	16. பெயர்	ஜெயபிரகாஷ் மற்றும் 36பர்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து
1. பெறப்பட்டவை. இவற்றைத் தாங்கள் <https://eservices.tn.gov.in> என்ற
இணைய தளத்தில் 31/11/048/243/4/110856 என்ற குறிப்பு எண்ணை உள்ளிட்டு
செய்து உறுதி செய்துகொள்ளவும்.

B. Jaya Prakash

அ-பதிவேடு விவரங்கள் - ஊரகம்

மாவட்டம் : கிருஷ்ணகிரி
வட்டம் : குளகிரி
கிராமம் : பண்ணப்பள்ளி



1. புல எண்	244	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	2	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-2	11. கீர்வை (நா - ஹெ)	2.15
4. பதிவு	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 41.00
5. அரக / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த கீர்வை (நா - ஹெ)	3.03
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	2554
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	ஜெயபிரகாஷ் மற்றும் 30பர்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து
1. பெறப்பட்டவை, இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற
இணைய தளத்தில் 31/11/048/244/2/110856 என்ற குறிப்பு எண்ணை உள்ளிடு
செய்து உறுதி செய்துகொள்ளவும்.

B. Jaya Prakash

அ-பதிவேடு விவரங்கள் - ஊரகம்

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : சூளகிரி

கிராமம் : பண்ணப்பள்ளி



1. புல எண்	244	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	4B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	244-4	11. கீரவை (ர - ஹெ)	2.15
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 76.50
5. அரக / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த கீரவை (ர - ஹெ)	1.64
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	2554
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இந் போதுமா	-	16. பெயர்	ஜெயபிரகாஷ் மற்றும் 3பேர்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து
1. பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற
இணைய தளத்தில் 31/11/048/244/4B/110856 என்ற குறிப்பு எண்ணை உள்ளிடு
செய்து உறுதி செய்துகொள்ளவும்.

B. Jaya Prakash

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : சூளகிரி

கிராமம் : பண்ணப்பள்ளி

1. புல எண்	244	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	5	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-5	11. தீர்வை (ரு - செற)	2.15
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 87.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரு - டை)	1.88
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	2554
7. பாசன ஆதாரம்	*	15. குறிப்பு	*
8. இது போகமா	-	16. பெயர்	ஜெயபிரகாஷ் மற்றும் 30பர்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து
1. பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற
இணைய தளத்தில் 31/11/048/244/5/110856 என்ற குறிப்பு எண்ணை உள்வீடு
செய்து உறுதி செய்துகொள்ளவும்.

B. Joya Prakash

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : சூளகிரி

கிராமம் : பண்ணப்பள்ளி

1. புல எண்	244	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	6	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-6	11. தீர்வை (ரூ - ஹெ)	2.15
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 15.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.33
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	2554
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இது போகமா	-	16. பெயர்	ஜெயபிரகாஷ் மற்றும் 3 பேர்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து
1. பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற
இணைய தளத்தில் 31/11/048/244/6/110856 என்ற குறிப்பு எண்ணை உள்ளீடு
செய்து உறுதி செய்துகொள்ளவும்.

B. Jaya Prakash

அபிவேடு விவரங்கள் - ஊரகம்

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : குளகிரி

கிராமம் : பண்ணப்பள்ளி



1. புல எண்	246	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	5	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-5	11. தீர்வை (ரூ - ஹெ)	2.15
4. பகுதி	P	12. பரப்பு (ஹெக்டெர் - ஏர்)	0 - 13.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.28
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	2554
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இற போகமா	-	16. பெயர்	ஜெயபிரகாஷ் மற்றும் 30பர்

குறிப்பு:



மேற்கண்ட தகவல் / ஈன்ரிதழ் தகவ் விவரங்கள் மின் பதிவேட்டிலிருந்து
1. பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற
இணைய தளத்தில் 31/11/048/246/5/110856 என்ற குறிப்பு எண்ணை உள்ளிடு
செய்து உறுதி செய்துகொள்ளவும்.

B. Jay Prakash

அ-பதிவேடு விவரங்கள் - ஊரகம்

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : குளகிரி

கிராமம் : பண்ணப்பள்ளி



1. புல எண்	261	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	18	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	261-1	11. தீர்வை (ர - ஹெ)	2.15
4. பதிவு	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 66.00
5. அரக / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ர - னப)	1.42
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	2554
7. பாசன ஆகாரம்	-	15. குறிப்பு	-
8. இற போகமா	-	16. பெயர்	ஜெயபிரகாஷ் மற்றும் 3பேர்

குறிப்பு:



மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து
1. பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற
இணைய தளத்தில் 31/11/048/261/18/110856 என்ற குறிப்பு எண்ணை உள்ளிடு
செய்து உறுதி செய்துகொள்ளவும்.

B. Jaya Prakash



தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

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



மாவட்டம் : சிறுஞ்சனகிரி

வட்டம் : குளகிரி

வருவாய் கிராமம் : பண்ணப்பள்ளி

பட்டா எண் : 2554

உரிமையாளர்கள் பெயர்

1. பூபால நாயுடு	மகன்	ஜெயபிரகாஷ்
2. அங்கதையா ராவலபள்ளி	மகன்	பிரசாத் ராவலபள்ளி
3. ராஜப்பா	மகன்	மூனிராஜா
4. ..		ரமணா எட்டோன் கிரவுர



B. Joya Prakash

புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புக்கள்
		பரப்பு	கீர்வை	பரப்பு	கீர்வை	பரப்பு	கீர்வை	
		ஹெக்ட - ஏர்	த - னப	ஹெக்ட - ஏர்	த - னப	ஹெக்ட - ஏர்	த - னப	
243	2	4 - 63.00	9.95	--	--	--	--	2025/0103/31/381046- Digitally signed:Prakash B Head Quarters Deputy Tahsildar 27/03/2025 08:17:26:PM
243	4	0 - 99.00	2.13	--	--	--	--	2025/0103/31/381046- ----- Digitally signed:Prakash B Head Quarters Deputy Tahsildar 27/03/2025 08:17:26:PM
244	2	1 - 41.00	3.03	--	--	--	--	2025/0103/31/381046- ----- Digitally signed:Prakash B Head Quarters Deputy Tahsildar 27/03/2025 08:17:26:PM
244	4B	0 - 76.50	1.64	--	--	--	--	2025/0103/31/381046- -138-1420 ----- Digitally signed:Prakash B Head Quarters Deputy Tahsildar 27/03/2025 08:17:26:PM
244	5	0 - 87.50	1.88	--	--	--	--	2025/0103/31/381046- ----- Digitally signed:Prakash B Head Quarters Deputy Tahsildar 27/03/2025 08:17:26:PM
244	6	0 - 15.50	0.33	--	--	--	--	2025/0103/31/381046- ----- Digitally signed:Prakash B Head Quarters Deputy Tahsildar 27/03/2025 08:17:26:PM
246	1	0 - 8.00	0.17	--	--	--	--	2025/0103/31/381046- ----- Digitally signed:Prakash B Head Quarters Deputy Tahsildar 27/03/2025 08:17:26:PM

246	4	0 - 35.00	0.75	--	--	--	2025/0103/31/381046- 01 DEC-2025 Digitally signed:Prakash B Head Quarters Deputy Tahsildar 27/03/2025 08:17:26:PM
246	5	0 - 13.00	0.28	--	--	--	2025/0103/31/381046- ----- Digitally signed:Prakash B Head Quarters Deputy Tahsildar 27/03/2025 08:17:26:PM
261	18	0 - 66.00	1.42	--	--	--	2025/0103/31/381046- -138-1420 ----- Digitally signed:Prakash B Head Quarters Deputy Tahsildar 27/03/2025 08:17:26:PM
		10 - 4.50	21.58				

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை
- தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் P/31/11/048/02554/110856 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
 - இத் தகவல்கள் 27-05-2025 அன்று 11:37:49 AM நேரத்தில் அச்சடிக்கப்பட்டது.
 - கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

B. Jaya Prakash

676/2025

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தமிழ்நாடு தமிழ்நாடு TAMILNADU 11 MAR 2025

Ramana Stone Crusher
Bagalur.

BH 689507
K. SELVARANI
STAMP VENDOR
LICENCE No. 468/1994
HOSUR-635 109



ABSOLUTE SALE DEED

THIS DEED OF ABSOLUTE SALE IS MADE AND EXECUTED AT BAGALUR ON THIS THE 11th DAY OF MARCH 2025 BETWEEN

1. Mr. Jayaprakash.B. (PAN:AQAPJ6631J) aged about 48 years S/o. Boobala Naidu, residing at No.3/80-1, Kagganur village, Sevaganapalli Post, Hosur Taluk, Krishnagiri District. (Aadhar No.7230 7712 2231)

2. Mr. Prasad Ravulapalli (PAN:AEGPR1325F) aged about 60 years S/o. Ankaiah Ravulapalli, residing at Mohan Tranquil Plot No.401, 4th A Cross, East of NGEF Layout, Kasturinagar, Bangalore North, Bangalore -560 043 (Aadhar No.5004 2258 3998)

VINDORS

B. Jayaprakash

Partner

R. Muni Raju

Document No. 676 of 2025 of Book 1

Contains 33 Sheets

Registering Officer of

262

VENDEES

For RAMANA STONE CRUSHER

B. Jayaprakash

Partner

R. Muni Raju

R. Muni Raju

B. Jayaprakash

Scanned with CamScanner

3. Mr. Muniraju.R (PAN:BZJPM7889Q) aged about 31 years S/o. Rajappa, residing at No.3/81, Kagganur village, Sevaganapalli Post, Hosur Taluk, Krishnagiri District. (Aadhar No.9625 7400 8802)

(Hereinafter called the "VENDORS/SELLERS") which expression shall unless and otherwise requires the context includes, his legal heirs, successors, agents, representatives and assigns of the ONE PART.

TO AND INFAVOUR OF

M/s. RAMANA STONE CRUSHER, having its office at Survey No.113/22, Rajiv Gandhi Nagar, Bagalur to Sarjapura, Road, Bagalur Village and Post, Hosur Taluk, Krishnagiri District, Tamil Nadu (PAN No. ABKFR9219F) Represented by its Managing Partners:

1. Mr. Jayaprakash.B. (PAN:AQAPJ6631J) aged about 45 years S/o. Boobala Naidu, residing at No.3/80-1, Kagganur village, Sevaganapalli Post, Hosur Taluk, Krishnagiri District. (Aadhar No.7230 7712 2231)

2. Mr. Ravulapalli Mohan Kumar, (PAN:BKLPR8344A) aged about 34 years S/o. Ravulapalli Prasad, residing at Mohan Tranquil Plot No.401, 4th A Cross, East of NOEF Layout, Kasturinagar, Bangalore North, Bangalore -560 043. (Aadhar No. 8577 3261 9277)

3. Mr. Muniraju.R. (PAN:BZJPM7889Q) aged about 32 years S/o. Rajappa, residing at No.3/81, Kagganur village, Sevaganapalli Post, Hosur Taluk, Krishnagiri District. (Aadhar No.9625 7400 8802)

4. Mr. Ramana.J (PAN:GZVPR9982M) aged about 20 years S/o. Jayaprakash.B, residing at No.3/80-1, Kagganur village, Sevaganapalli Post, Hosur Taluk, Krishnagiri District. (Aadhar No.8854 1572 4489)

VENDORS

PURCHASERS

B. Jaya Prakash
Partner
R. Muniraju

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Contains 33 Sheets 2

Registering Officer



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For RAMANA STONE CRUSHER

B. Jaya Prakash
Partner

R. Muniraju
B. Jaya Prakash



(Hereinafter called "the VENDEES/PURCHASERS") which expression shall unless and otherwise requires the context include, their legal successors, agents, legal representatives and assigns of the OTHER PART.

whereas an extent of Ac.11.44 cents in Sy.No.243/2 (item No.1 of the schedule mentioned property), an extent of Ac.2.45 cents in Sy.No.243/4 (item No.2 of the schedule mentioned property), an extent of Ac.3.48 cents in Sy.No.244/2 (item No.3 of the schedule mentioned property), an extent of Ac.1.89 cents in Sy.No.244/4B, (item No.4 of Schedule mentioned Property) an extent of Ac.2.16 cents in Sy.No.244/5 (item No.5 of the schedule mentioned property), an extent of Ac.0.38 cents in Sy.No.244/6 (item No.6 of the schedule mentioned property), an extent of Ac.0.20 cents in Sy.No.246/1 (item No.7 of the schedule mentioned property), an extent of Ac.0.86 cents in Sy.No.246/4 (item No.8 of the schedule mentioned property) an extent of Ac.0.32 cents in Sy.No.246/5 (item No.9 of the schedule mentioned property), an extent of Ac.0.1.63 cents in Sy.No.261/1B (item No.10 of the schedule mentioned property), altogether making total extent of **Ac.24.81 cents** of Pannapalli village of Shoolagiri Taluk originally belongs Vendors under a registered sale deed dated 14.07.2022 (Regd. as Doc.No.15914/2022 of Book- 1, of SRO Hosur) from Ravichari and delivered possession thereof to him, and hence in order to perfect the title the vendors have jointly execute this deed of sale in favour of the vendees.

Thus, the vendors have got good, valid, and absolute, right and title over the schedule mentioned property and they are legally and lawfully entitled to sell the same to the vendees.

And Whereas, the vendors have agreed to sell absolutely to the vendees the under mentioned property for valid and proper sale consideration amount of **Rs.1,24,05,000/- (Rupees One Crore Twenty Four Lakhs Five Thousand only)** in order to discharge their sundry debts and also to purchase other properties and also to meet their business commitments and for their other legal necessities and benefits.

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 VENDORS Contains 33 Sheets 3 Sheet PURCHASERS

B. Jaya Prakash
 and
 R. Murugesu



For RAMANA STONE CRUSHER

B. Jaya Prakash

Partner

R. Murugesu

R. Murugesu

B. Jaya Prakash



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And whereas, vendees have also agreed to purchase the schedule mentioned property from the vendors. And in pursuance of the sale talk, the vendors and vendees entered into an oral talk of sale to sell the schedule mentioned property.

The vendors have agreed to receive the entire sale consideration amount of **Rs.1,24,05,000/- (Rupees One Crore Twenty Four Lakhs Five Thousand only)** at the time of the execution and registration of the sale deed by way of Online Transfer and now in pursuance of the above said sale agreement the vendors execute this deed of sale in the following manner:

Now this deed of sale witnesseth, that in pursuance of the sale talk the vendors have this day received the entire sale consideration amount of **Rs.1,24,05,000/- (Rupees One Crore Twenty Four Lakhs Five Thousand only)** from the vendees by way of online transfer in the following manner:-

- a) Rs.31,21,500/- (Rupees Thirty One Lakhs Twenty One Thousand Five Hundred only) by way of Online Transfer in favour of Vendors
- b) Rs.31,21,500/- (Rupees Thirty One Lakhs Twenty One Thousand Five Hundred only) by way of Online Transfer in favour of Vendors
- c) Rs.24,81,000/- (Rupees Twenty Four Lakhs Eighty One Thousand only) by way of Online Transfer in favour of Vendors
- d) Rs.24,81,000/- (Rupees Twenty Four Lakhs Eighty One Thousand only) by way of Online Transfer in favour of Vendors

and thus the vendors do hereby acknowledge that the entire sale consideration amount has been duly received from the vendees in the above said manner and in consideration thereof, the vendors do hereby convey, transfer, assign and sell absolutely the schedule mentioned property for the absolute use of the vendees together with all rights easements, privileges and appurtenances whatsoever belonging to or enjoyed there under and reputed so to be. All the rights, title, Document No. 674 of 2025 of Book 1

VENDOR contains 33 Sheets 4 Sheet

PURCHASERS

B. Jaya Prakash

Registering Officer

RAMANA STONE CRUSHER

R. Muni Raju

B. Jaya Prakash

Partner

R. Muni Raju

B. Jaya Prakash

R. Muni Raju

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easements, interest, property claim and demand whatsoever of the vendors or upon the under mentioned schedule mentioned property is hereby conveyed absolutely unto the vendees free from all encumbrances, charges, liens and demands whatsoever And whereas the vendees have paid the sale consideration amount as per the ratio of 30:30:20:20 i.e., Managing Partner No.1 paid 30%, Managing Partner No.2 paid 30% and Managing Partner No.3 had paid 20% and Managing Partner No.4 had paid 20% of sale consideration amount and in the schedule mentioned property, the vendee Nos.1 to 4 have entitled property as per the ratio of 30:30:20:20.

The vendors do hereby covenant and agree that the vendors and all persons claiming under them shall and will from time to time upon the request and at the cost of the vendees do and execute or cause to be done and execute all such acts, deeds and things whatsoever for further and more perfectly assuring the under mentioned schedule property and every part thereof according to the true intent and meaning of these presents, as shall or may be reasonably required.

It is hereby covenanted by the vendors that the under mentioned schedule property hereby conveyed is free from all encumbrances, charges, liens or demands or litigations of any sort and the vendors do hereby assure and covenant that they have not suppressed any material facts affecting the title to the property hereby conveyed and they covenant and undertake to clear any defect or encumbrance affecting the schedule mentioned property if come to light after the execution of the sale deed at their own cost and fully protect the vendees in all respects. The vendors do hereby assure and covenant that they have not entered into any earlier agreement of sale with respect to the under mentioned schedule property or any part thereof, with any other person or persons and the vendors have not done anything whereby the schedule

VENDORS**PURCHASERS**

B. Jaya Prakash
R. Prasad

R. Murali Reddy
Document No. 676 of 2025 of Book 1
Contains 23 Sheets



B. Jaya Prakash

For RAMANA STONE CRUSHER

B. Jaya Prakash
Partner

R. Murali Reddy
R. Murali Reddy

mentioned property may be subject to any attachment or lien of any court or person or any claim whatsoever in any manner detrimental to the vendees. The vendors also covenant that they have fully and correctly disclosed all the relevant information pertaining to the schedule mentioned property and the source of title and other details relevant for the sale of property without any omission or suppressing any details in any respect in this behalf.

The vendors do hereby covenant and assure that the schedule mentioned property is not notified or subject to any proceedings under the Land Acquisition Act, for any purpose and he does not hold land in excess of Tamil Nadu Land Reforms Act 1961, and that the sale will not be hit by any provisions of the above said Act.

The schedule mentioned property is not hit by any Provisions of the Tenancy Laws or other enactments in any manner and also not hit by any lispendens or any claim from any minors.

The vendors do hereby admit and covenant that the absolute full and actual physical possession of the schedule mentioned property is also delivered to the vendees on this day itself and the vendees are also absolutely entitled to apply to the Revenue Authorities for transfer of Patta in their names and the vendors do hereby give their full consent for the transfer of Patta or change of Patta or change of registry in the revenue accounts in the names of vendees with respect to the property sold hereunder. The vendors have also paid the revenue to the schedule mentioned property without any arrears and the vendee shall hereafter pay the Land Revenue, Cess, etc., to the Government in their own right. The vendors have also handed over the original title deeds to support their title of the schedule mentioned property.

VENDORS

B. Jaye Prakash

and

R. Muni Raju

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Contains 33 Sheets 6 Sheet

Registering Officer

B. Jaye Prakash

PURCHASERS

For RAMANA STONE CRUSHER

B. Jaye Prakash

Partner

R. Muni Raju

R. Muni Raju





The vendors do hereby covenant and assure that they agree and undertake to indemnify the vendee against all claims and demands or disputes of any sort with respect to the schedule mentioned property in all respects at all times.

SCHEDULE OF PROPERTIES

In Narasapuram village (Pannapalli Tract) of Shoolagiri Taluk, attached to Bagalur Sub Registration District, Krishnagiri Registration District of Krishnagiri District the lands bearing:-

1) Sy.No.243/2, Dry Ext. Hec.4.63.0 (or) Ac.11.44 cents, Asst Rs. 9.95 np., full land situated within the following boundaries:-

East : Land in Sy. Nos.243/1, 242, 243/4 and 243/3

West : Land in Sy. No.244/2, 244/6, 246/5 and 246/6

North : Land in Sy. No.243/1

South: Land in Sy. Nos.244/2, 244/5, 244/6, 243/3 and 243/4

Within these boundaries measuring the above said an Extent of Acre.11.44 Cents of Agricultural Dry land

2) Sy.No.243/4, Dry Ext. Hec.0.99.0 (or) Ac.2.45 cents, Asst Rs. 2.13np., full land situated within the following boundaries:-

East : Land in Sy. No.242

West : Land in Sy. Nos.243/2 and 243/3

North : Land in Sy. No.243/2

South: Land in Sy. Nos.248/1 and 248/3

Within these boundaries measuring the above said an Extent of Acre.2.45 Cents of Agricultural Dry land

VENDORS

B. Jaya Prakash
Rm

R. Muni Raju

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Contains 23 Sheets 7

Registering Officer



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PURCHASERS

For RAMANA STONE CRUSHER

B. Jaya Prakash
Partner

R. Muni Raju

R. Muni Raju

B. Jaya Prakash



3) Sy.No.244/2, Dry Ext. Hec.1.41.0 (or) Ac.3.48 cents, Asst Rs. 3.03 np., full land situated within the following boundaries:-

East : Land in Sy. No.243/2
West : Land in Sy. Nos.200 and 261/1B
North : Land in Sy. No.244/1
South: Land in Sy. No.244/5

Within these boundaries measuring the above said an Extent of Acre.3.48 Cents of Agricultural Dry land

4) Sy.No.244/4, Dry Ext. Hec.1.56.5, Asst Rs.3.36 np., and as per new subdivision Sy. No. 244/4B, Dry Ext. Hec. 0.76.5, Asst Rs. 1.64 np., in Ac.1.89 cents, situated within the following boundaries:-

East : Land in Sy. No.244/5
West : Land in Sy. Nos.244/4A, 245/1 and 261/1B
North : Land in Sy. No.261/1B
South: Land in Sy. Nos.245 and 245/1

Within these boundaries measuring the above said an Extent of Acre.1.89 Cents of Agricultural Dry land

5) Sy.No.244/5, Dry Ext. Hec.0.87.5 (or) Ac.2.16 cents, Asst Rs.1.88 np., situated within the following boundaries:-

East : Land in Sy. Nos.243/2 and 244/6
West : Land in Sy. No.244/4B
North : Land in Sy. No.244/2
South: Land in Sy. No.246/4

Within these boundaries measuring the above said an Extent of Acre.2.16 Cents of Agricultural Dry land

VENDORS

B. Jaya Prakash
1st

R. Muni Raju

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Registering Office



B. Jaya Prakash

PURCHASERS

For RAMANA STONE CRUSHER

B. Jaya Prakash
Partner

R. Muni Raju

R. Muni Raju



6) Sy.No.244/6, Dry Ext. Hec.0.15.5 (or) Ac.0.38 cents, Asst Rs. 0.33 np., full land situated within the following boundaries:-

East : Land in Sy. No.243/2

West : Land in Sy. No.244/5

North : Land in Sy. No.243/2

South: Land in Sy. No.246/5

Within these boundaries measuring the above said an Extent of Acre.0.38 Cents of Agricultural Dry land

7) Sy.No.246/1, Dry Ext. Hec.0.08.0 (or) Ac.0.20 cents, Asst Rs. 0.17 np., full land situated within the following boundaries:-

East : Land in Sy. No.246/4

West : Land in Sy. No.245

North: Land in Sy. No.244/4B

South: Land in Sy. No.246/2

Within these boundaries measuring the above said an Extent of Acre.0.20 Cents of Agricultural Dry land

8) Sy.No.246/4, Dry Ext. Hec.0.35.0 (or) Ac.0.86 cents, Asst Rs. 0.75 np., full land situated within the following boundaries:-

East : Land in Sy. Nos.246/5 and 246/6

West : Land in Sy. Nos.246/1 and 244/4B

North: Land in Sy. No.244/5

South: Land in Sy. No.246/3

Within these boundaries measuring the above said an Extent of Acre.0.86 Cents of Agricultural Dry land

VENDORS

B. Jaya Prakash
Raml

R. Muni Raju

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Registering Officer



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PURCHASERS

For RAMANA STONE CRUSHER

B. Jaya Prakash
Partner

R. Muni Raju

R. Muni Raju

B. Jaya Prakash



9) Sy.No.246/5, Dry Ext. Hec.0.13.0 (or) Ac.0.32 cents ~~Asst Rs. 0.28 np.~~ **full**
land situated within the following boundaries:-

East : Land in Sy. No.243/2
West : Land in Sy. No.246/4
North : Land in Sy. No.244/6
South: Land in Sy. Nos.246/6 and 243/2

Within these boundaries measuring the above said an Extent of **Acre.0.32 Cents** of Agricultural Dry land

10) Sy.No.261/1, Dry Ext. Hec.5.02.5 Asst Rs.10.80 np., and as per **new subdivision Sy. No. 261/1B**, Dry Ext. Hec. 0.66.0, Asst Rs. 1.42 np., in **Ac.1.63 cents**, full extent situated within the following boundaries:-

East : Land in Sy. Nos.244/2 and 244/4B
West : Land in Sy. No.261/1A
North: Land in Sy. No.200
South: Land in Sy. No.244/4B

Within these boundaries measuring the above said an Extent of **Acre.1.63 Cents** of Agricultural Dry land Altogether Making a Total Extent of **Hec.10.04.5, (or) Acre.24.81Cents** of Agricultural Dry Land

THE LAND COMES UNDER THE PANCHAYAT LIMITS OF PANNAPALLI AND UNION COUNCIL OF SHOOLAGIRI.

The present market value of the property is **Rs 1,24,05,000/-** ~~Rs 1,10,000/-~~

VENDORS

PURCHASERS

B. Jaya Prakash

And

R. Muni Raju

For RAMANA STONE CRUSHER

B. Jaya Prakash
Partner

R. Muni Raju

R. Muni Raju

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B. Jaya Prakash

- 11 -

IN WITNESSES WHEREOF THE VENDORS AND VENDERS HAVE SIGNED
THIS DEED OF SALE ON THIS THE 11th DAY OF MARCH 2025 AT
BAGALUR.



VENDORS

B. Jaya Prakash
R. Muni Prasa

PURCHASERS

For RAMANA STONE CRUSHER

B. Jaya Prakash
Partner
R. Muni Prasa

WITNESSES:

1. T. Rajid - Mr. Y. RAJAPPA, Son of Late. Yellappa, residing at No. 3/81, Kagganur Village, Sevaganapalli Post, Hosur Taluk, Krishnagiri District, Tamil Nadu. (Aadhaar Id No : 8829 5046 0211) (Cell No. 9442489946)
2. A. Aravindh - ARAVINDHA, Son of Mr. Venkatesh, residing at Kothapalli Village, Sevaganapalli Post, Hosur Taluk, Krishnagiri District, Tamil Nadu. (Aadhaar Id No. 8317 6274 2937)

DRAFTED BY:-



B. Lakshmaiah
[B. LAKSHMAIAH] Document Writer
License No. B/32/KSG/1987, No. 3/312,

Kannalatti

Village, Thorapalli Post, Shoologiri Taluk,

Typed By:-

ARAVINDHA.V.R

Cell No. 9894234249

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Contains 33 Sheets 11 Sheet

Registering Officer



B. Jaya Prakash



**PREVENTION OF UNDER VALUATION OF DOCUMENTS UNDER
SECTION 3(1) OF MADRAS STAMP ACT
NARASAPURAM VILLAGE (PANNAPALLI TRAFF), SHOOLAGIRI TALUK,
KRISHNAGIRI DISTRICT**

Sl.No.	Survey No.	Extent in acres	Nature of Land	Value Rs.
1	243/2	11.44	Dry	57,20,000/-
2	243/4	2.45	Dry	12,25,000/-
3	244/2	3.48	Dry	17,40,000/-
4	244/4B	1.89	Dry	9,45,000/-
5	244/5	2.16	Dry	10,80,000/-
6	244/6	0.38	Dry	1,90,000/-
7	246/1	0.20	Dry	1,00,000/-
8	246/4	0.86	Dry	4,30,000/-
9	246/5	0.32	Dry	1,60,000/-
10	261/1B	1.63	Dry	8,15,000/-
	TOTAL	Ac.24.81Cents	Dry	Rs.1,24,05,000/-

VENDORS

PURCHASERS

B. Jaya Prakash
Partner

R. Muni Raju

For RAMANA STONE CRUSHER

B. Jaya Prakash
Partner

R. Motikumar

R. Muni Raju

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Registering Officer



B. Jaya Prakash

P/ Bagalur/ 14 / 2025



CERTIFICATE UNDER SECTION 42 OF THE INDIAN STAMP ACT, 1899

S.No 606 of 2025

I hereby certify that a sum of ₹ 2,58,350/- (Rupees Eight Lakh Sixty Eight Thousand Three Hundred and Fifty only) on account of deficit stamp duty has been levied under section 41 of the Stamp Act in respect of this instrument from Mr. JAYAPRAKASH B residing at residing at his 3/80-1, Kagganur village, Sevilganapali Post, Hosur Taluk, Krishnagiri District, Krishnagiri, Tamil Nadu, India, 635109.

Sub Registrar, Bagalur
Date: 11/03/2025

Signature of Sub Registrar and Collector under Section:
41 of the Indian Stamp Act



Presented in the office of the Sub Registrar of Bagalur and fee of ₹ 2,50,510/- paid at 05:10 PM on the 11/03/2025 by

Left Thumb



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B. Jaya Prakash
Registering Officer

Additions as per recitals of documents



Execution admitted by
Left Thumb



B. Jaya Prakash
Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No. :
UKC:7528472b28fc4672d1542ae95609b08d45839e0
(Details from UIDAI : Jayaprakash B C/O Boobala Naidu, 12-06-1976 xxxxxxxx2231)



Execution admitted by
Left Thumb



Prasad
Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No. :
UKC:25610140bbd80baef504ced97750057b8e62d00
(Details from UIDAI : Prasad Ravulapalli C/O



B. Jaya Prakash

PI Bagalur/ 14 / 2025



Execution admitted by Left Thumb  		Abdulah Ravulapalli, 01-10-1983, xxxxxxxx3098) <i>R. Muni Raju</i> Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No. : UKC:37B1942a58ec701498447768a0e1b51f3539091 (Details from UIDAI : Muniraju Rajappa S/O: Rajappa, 24-05-1992, xxxxxxxx8802) 
Claim admitted by Left Thumb  		<i>[Signature]</i> Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No. : UKC:2930662b02672aee0794f6db3844d9586c9b94d (Details from UIDAI : J Ramana S/O: Jaysaprakash B, 01-11-2005, xxxxxxxx4489) 
Claim admitted by Left Thumb  		<i>R. Muni Raju</i> Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No. : UKC:64d482334ed47f1ae945689f04366006d89787 (Details from UIDAI : Muniraju Rajappa S/O: Rajappa, 24-05-1992, xxxxxxxx8802) 
Claims admitted by Left Thumb  		<i>R. MOGK 7</i> Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No. : UKC:9804245actb08b01c274a0a83e845dbd4051fe2 (Details from UIDAI : Ravulapalli Mohan Kumar S/O Ravulapalli Prasad, 04-05-1991, xxxxxxxx9277) 

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B. Jaya Prakash

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Jane
Registering Officer





P/ Bagalur/ 14 / 2025

Claim admitted by Left Thumb  	B. Jaya Prakash Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No. : UKC:05773650723743225ca4e09a6cd2020ea8b0a19 (Details from UIDAI) : Jayaprakash B. C/O Boobala Haldu, 12-06-1978, xxxxxxxx2231)	

11th day of March 2025


 Hosikala Kanakara
 Sub Registrar
 Bagalur

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 Contains 33 Sheets 15 Sheet


 Registering Officer



B. Jaya Prakash
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R/Bagalur/Book-1/676/2025

Registered as Number R/Bagalur/Book-1/676/2025

Date 12/03/2025

Bagalur



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Registering Officer



B. Jaya Prakash



தமிழ்நாடு அரசு
வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை
நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : திருச்சி

எட்டம் : தூளகிரி

வருவாய் திராமம் : பள்ளாப்பள்ளி

પૃ.સં. નંબર : 2039

உரிமையாளர்கள் பெயர்

1. பூங்கா நாயடு
2. அவினாசயா சுவாமிநாதன்
3. ராஜா

மகன்	செய்யபிரகாஷ்
மகன்	பிரகாஷ் ராஜ்யபாஸி
மகன்	முனிராஜ்

B. Jaga Pralaya
R. and
R. Muri R. Su

FOR RAMANA STONE CRUSHER

B. Jaya Prakash
Partner

R. M. O. K. 700
R. M. O. K. 700
R. M. O. K. 700

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Registering Officer



Sl. No.	S. No.	Particulars		Particulars		Particulars		Remarks
		Particulars	Particulars	Particulars	Particulars	Particulars	Particulars	
211	4	1 - 38.00	2.97	--	--	--	--	2022/0103/31/237059 Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
213	9A1	0 - 65.50	1.41	--	--	--	--	2022/0103/31/237059 Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
221	2	0 - 68.00	1.46	--	--	--	--	2022/0103/31/237059 Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
222	1A1	0 - 56.68	1.22	--	--	--	--	2022/0103/31/237059 2020/31/11/00017550 Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
243	2	0 - 63.00	0.95	--	--	--	--	2022/0103/31/237059 Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
243	3	0 - 67.50	1.45	--	--	--	--	2022/0103/31/237059 Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
243	4	0 - 99.00	2.13	--	--	--	--	2022/0103/31/237059 Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM

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32 sheets 18 Sheet

Document No. 676 of 2025 of Book 1

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B. Jager Pralaya

20

12 June 40

For RAMANA STONE CRUSHER

B. Jaya Prakash

Partner

R. MOZNIK 700

B. Zep. Brodca
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244	2	0-41.00	3.03	--	--	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
244	40	0-76.50	1.64	--	--	--	2022/0103/31/237059- 138-1420 Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
244	5	0-87.50	1.68	--	--	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
244	6	0-15.50	0.33	--	--	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
244	1	0-8.00	0.12	--	--	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
245	4	0-35.00	0.75	--	--	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
246	5	0-13.00	0.28	--	--	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
248	3	0-49.00	1.05	--	--	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
Document No. <u>676</u> of 2025 of Book <u>1</u> Contains <u>33</u> Sheets <u>19</u> Sheet				2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM			

Registering Officer

B. Jaya Prakash

Raml

R. Muni Prasa

R. Muni Prasa
RAMANA STONE CRUSHER

B. Jaya Prakash

R. Muni Prasa

250	2	0 - 19.50	0.42	--	--	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
252	1A	0 - 45.00	0.97	--	--	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
252	1B	0 - 39.00	0.84	--	--	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
261	1B	0 - 66.00	1.42	--	--	--	2022/0103/31/237059- -138-1420 Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
128	21	--	--	0 - 10.00	0.83	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
213	1	--	--	0 - 10.00	0.83	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
213	3A	--	--	0 - 12.00	1.00	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
213	4	--	--	0 - 6.00	0.50	--	2022/0103/31/237059- Digitally signed: Ammu S Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM

Document No. 676 of 2025 of Book 1
Contains 33 Sheets 20 Sheet

Registering Officer



B. Jaya Prakash

R. Muni Rasu

For RAMANA STONE CRUSHER

B. Jaya Prakash

R. Muni Rasu Partner

B. Jaya Prakash
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37025 107 PM

வா.ச.நா.சி.பி.சி. அலுவலக இலாபகாரி - இலாபகாரி விவரங்கள்

213	5	--	--	0 - 9.00	0.75	--	2022/0103/31/237059- Digitally signed: Ammu Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
213	6	--	--	0 - 4.00	0.33	--	2022/0103/31/237059- Digitally signed: Ammu 5 Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
213	7	--	--	0 - 4.00	0.33	--	2022/0103/31/237059- Digitally signed: Ammu 5 Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
219	3	--	--	0 - 20.00	1.66	--	2022/0103/31/237059- Digitally signed: Ammu 5 Zonal Deputy Tahsildar 20/09/2022 04:44:41 PM
		15 - 52.68	33.37	0 - 75.00	6.23		

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் இவர் பதிவேட்டில் இருந்து பெறப்பட்டன. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 31/11/048/02039/110804 என்ற குறியீடு எண்ணை உபயோகித்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 10-03-2025 அன்று 12:55:38 PM நேரத்தில் அச்சிடப்பட்டது.
- அவசரப்பிரிவு கோரிய 2D barcode டிஜிட்டல் முகப்பு படித்து 3G/GPRS வலி இணையதளத்தில் சரிபார்க்கவும்.

B. Jaya Prakash
Partner
R. Muni Raju

For RAMANA STONE CRUSHER
B. Jaya Prakash
Partner
R. Muni Raju

Document No. 676 of 2025 of Book 1
Contains 23 Sheets 21 Sheet

Registering Officer


https://eservices.tn.gov.in/eservicesnew/faces/direct/Extract_en.html?_af=an

5/5

B. Jaya Prakash
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434 - அகலக்கல் திருப்புகழ் மருகி



பெரிய கல் திருப்புகழ் மருகி					மருகி பெரிய கல்	மருகி பெரிய கல்				
மருகி பெரிய கல்	மருகி பெரிய கல்	மருகி பெரிய கல்	மருகி பெரிய கல்	மருகி பெரிய கல்		மருகி பெரிய கல்	மருகி பெரிய கல்	மருகி பெரிய கல்	மருகி பெரிய கல்	மருகி பெரிய கல்
243	2	4	10	2.96	2039	மருகி பெரிய கல்	8-12	மருகி பெரிய கல்	4.6	2mm
243	4	6	10	2.13	2039	-do-	8-12	மருகி பெரிய கல்	0.96	2mm
243	2	10	3	3.3	2039	-do-	8-12	மருகி பெரிய கல்	0.98	2mm
244	40	6	10	1.64	2031	-do-	8-12	மருகி பெரிய கல்	0.755	2mm
Full copy										

Office
48 PANNAPALI
Sholinghi (K), Krishnagiri (D)

Document No. 676
Contains 33 Sheets 22

Registering Officer



380/ 1-N.P. 111-A-10-20,000 Cps.-DRP.-Nov.-7-2023

B. Jaya Prakash
R. Muri Raju
For RAMANA STONE CRUSHER
B. Jaya Prakash
R. Muri Raju
283
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01 DEC 2025

01 DEC 2025

B. Joya Praloca



മു.പ.പി. ജി. വേലായുധപിള്ള

Dinur's Panchayat Panchayat Office					Dinur's Panchayat Panchayat Office	Dinur's Panchayat Panchayat Office	Dinur's Panchayat Panchayat Office				
(1)	(2)	(3)	(4)	(5)			(6)	(7)	(8)	(9)	(10)
246	4	0.35"	0.75	2.20	19.00.00		8-12	19.00.00	0.34"	0.75	
247	5	0.13"	0.70	2.00	-do-		8-12	19.00.00	0.13"	0.70	
248	10	0.14"	1.40	2.30	-do-		8-12	19.00.00	0.14"	1.40	
For Entry											
Village Administrator Office											
Shoolagiri (T), M. Nagaraj (S)											
Document No. 676 of 2025 of Book 1											
Contains 33 Sheets 24 Sheets											
5.11.2025											
THE REAL											

Document No. 676 of 2025 of Book 1
Contains 33 Sheets 24 ✓

200/ 1-R.P. III-A-10-20,00,000 Cpi.-GBP. 2017
Registering Office

For RAMANA STONE CRUSHER

B. Jaya Prakash
Amit

B. Jeyaraj
Partner.

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R. Munir Khan

285

285

B. Jaya Prakash
Scanned with CamScanner



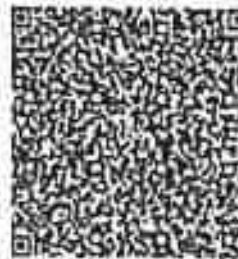
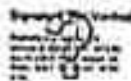
இந்திய சர்க்கார்
Government of India

01 DEC 2025

பெரும்புலியார் அடையாள அமைப்பு
Unique Identification Authority of India

பதிவு எண் / Enrolment No.: 2193/11117/33491

To
Oyyaigaru B
Jeyaprakash B
C/O Boobala Naidu
DHO 1/80-1
KAGGAUR
HOSUR TALUK
Sevaganapalli
Kishnugudi Tamil Nadu - 635103
9442671368



உங்கள் ஆதார் எண் / Your Aadhaar No. :

7230 7712 2231

VID : 9139 5233 9960 6656

எனது ஆதார், எனது அடையாளம்



இந்திய சர்க்கார்
Government of India



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Contains 33 Sheets 26 Sheet

Registering Officer



Oyyaigaru B
Jeyaprakash B
பெரும்புலியார்/DOB: 12/06/1976
ஆண்/ MALE

For RAMANA STONE CRUSHER

B. Jaya Prakash

Partner

R. Muni Prasu

7230 7712 2231

VID : 9139 5233 9960 6656

எனது ஆதார், எனது அடையாளம்

B. Jaya Prakash
R. Muni Prasu

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B. Jaya Prakash

Scanned with CamScanner



आधार 01 DEC 2025

ಭಾರತೀಯ ನಿಕಟ ಗುರುತು ಪ್ರಾಧಿಕಾರ

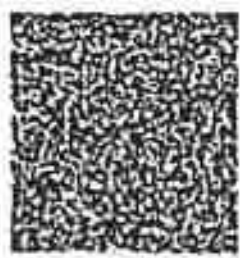
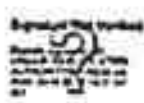
ಭಾರತ ಸರ್ಕಾರ
Unique Identification Authority of India
Government of India

ನೋಂದಣಿ ಸಂಖ್ಯೆ Enrolment No.: 0623/14322/02690

Download Date: 17/09/2018

To
ಪ್ರಸಾದ ರಾವುಲಪಲ್ಲಿ
Prasad Ravulapalli
C/O Ankalah Ravulapalli
Mohan Tranquil Plot No 401
4th A Cross
East Of NGEP Layout Kasturinagar
Bangalore North
Kalyanagar
Bangalore Karnataka - 560043
9980998599

Download Date: 17/09/2018



ನಿಮ್ಮ ಆಧಾರ್ ಸಂಖ್ಯೆ / Your Aadhaar No. :

5004 2258 3998

VID : 9106 2209 9289 5942

ನನ್ನ ಆಧಾರ್. ನನ್ನ ಗುರುತು



ಭಾರತ ಸರ್ಕಾರ
Government of India

Document No. 676 of 2025 of Book 1
Contains 33 Sheets 27 SM



Registering Officer

B. Jaya Prakash

Kand

R. Muni Raju

ಪ್ರಸಾದ ರಾವುಲಪಲ್ಲಿ
Prasad Ravulapalli
C/O Ankalah Ravulapalli
Mohan Tranquil Plot No 401
4th A Cross
East Of NGEP Layout Kasturinagar
Bangalore North
Kalyanagar
Bangalore Karnataka - 560043
9980998599



5004 2258 3998

ನನ್ನ ಆಧಾರ್. ನನ್ನ ಗುರುತು

For RAMANA STONE CRUSHER

B. Jaya Prakash

Partner

R. Muni Raju



Muni Raju

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B. Jaya Prakash

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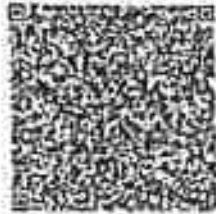
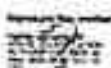


भारत सरकार
Government of India

భారత విశిష్ట గుర్తింపు ప్రాధికార సంస్థ
Unique Identification Authority of India

Rec'd Employment No.: 0000/00594/59724

To
 100000 Q. Jambur Kuching
 2nd Floor 8th Floor Corner
 5/0 Kuala Lumpur Road
 Plot No 412, Mohan Transport
 4th A Cross East (N NGST Layer)
 Kanton Burger
 Channasandra
 Bangalore Karnataka - (India)
 9881297777



మీ ఆధార్ సంఖ్య / Your Aadhaar No. :

8577 3261 9277
VID = 9159 8924 5034 3181

నా ఆధార్, నా గుర్తింపు



Government of India

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Document No. 676 of Book 2015

Contains 33 Sheets 29 Sheet

8577 3261 9277
TEL: 9150 0024 5029 318

నా ఆధారీ, నా గుర్తింపు



- ಹಾಗೆ ಹೆಸರಿನಲ್ಲಿರುವವರನ್ನು ಕರೆಸಿಕೊಳ್ಳುವುದು
- ಮಹಿಳೆಯರನ್ನು ಕರೆಸಿಕೊಳ್ಳುವಾಗ / ಹೆಸರಿನಲ್ಲಿರುವವರನ್ನು / ಹೆಸರಿನಲ್ಲಿರುವವರನ್ನು ಕರೆಸಿಕೊಳ್ಳುವಾಗ / ಹೆಸರಿನಲ್ಲಿರುವವರನ್ನು ಕರೆಸಿಕೊಳ್ಳುವಾಗ
- ಇದು ಎಲ್ಲರಿಗೂ ಸಮಾನವಾಗಿರುತ್ತದೆ

INFORMATION

- Aadhaar is a proof of identity, not of citizenship.
- Verify identity using Secure QR Code/ Offline XOL/ Online Authentication.
- This is electronically generated letter.

- [illegible]

- Aadhaar is valid throughout the country
- Aadhaar helps you avail various Government and non-Government services easily
- Keep your mobile number & email ID updated in Aadhaar.
- Carry Aadhaar in your smart phone – use mAadhaar App.



Public Information Authority of India



2019-2020
 2019-2020
 2019-2020
 2019-2020
 2019-2020

Address:
5/3 Kumbalangi Road, Flat No. 401 Mohan
Tranquil, 4th A Cross East of MG Road,
Kumbalangi, P.O. Changanassery, Bangalore.

8577 3261 9277
YTD: 9155 4524 5034 311

YED-9159-0529-5039-3183

Registering Office

B. Jaya Prakash

R. M.

T. Murugesu



12. Muri 254
FOR BAMANA STONE CRUSHER

B. Jaye Prakash

Partner

R. Moten for

B. Joya Prakas


 GOVERNMENT OF INDIA

 Name
 Date of Birth: 01/11/2005
 Gender: MALE
 Mobile No: 9854111666
 8854 1572 4489
 VTO : 9145 2335 9596 3507
 எனது அடகு, எனது அண்டியாளம்

[illegible]

B. Jaya Prada
K. Prada
R. Muris

For RAMANA STONE CRUSHER
B. Jaye Prakesh
Partner
R. M. M. K. K.
R. M. M. K. K.


Document No. 676 of 2025 of Book 1
Contains 33 Sheets 30 Sheet

Registering Officer

THE SEAL OF THE SUB REGISTRAR OF BIGALUR



आधार

இந்திய அரசாங்கம்
Unique Identification Authority of India
Government of India

பதிவு அட்டை எண் / Enrollment No : 2043/50511/10891

To
Rajappa Yellappa
சுரேஷ் மனியாசாமி
S/O Yellappa
D NO 381
KAGGANUR
Sevaganapalli
Sevaganapalli Krishnagiri
Tamil Nadu - 635103
9832002740

23052015



K01411559043FT
41155904



உங்கள் ஆதார் எண் / Your Aadhaar No. :

8829 5046 0211

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



இந்திய அரசாங்கம்

Government of India

சுரேஷ் மனியாசாமி
Rajappa Yellappa



பிறப்பு நாள் : DOB 01/01/1950
பாலினம் : Male

8829 5046 0211



For RAGANNA STONE CRUSHER

B. Jaya Prakash

Partner

R. Murugesan

Murugesan

[Signature]

B. Jaya Prakash

Partner

R. Murugesan

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

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Contains 33 Sheets 34 Sheet

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Registering Officer

B. Jaya Prakash

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GOVERNMENT OF INDIA

Unique Identification Authority of India

UIDAI (U) Enrolment No. 2/20112/9/14237

19
MCHOT 2
Aravinda V
S/O Venkatesh
K.V. 2
Kuppanthi Nagar
Kudat
Kannur
Kannur Family No. 12112
MCHOT 2

8317 6274 2937
VID: 8177 8051 226 1312

For RAMANA STONE CRUSHER

B. Jaye Prakash
Partner

R. Muni Raju

B. Jaye Prakash
R. Muni Raju

For RAMANA STONE CRUSHER
B. Jaye Prakash
Partner
R. Muni Raju

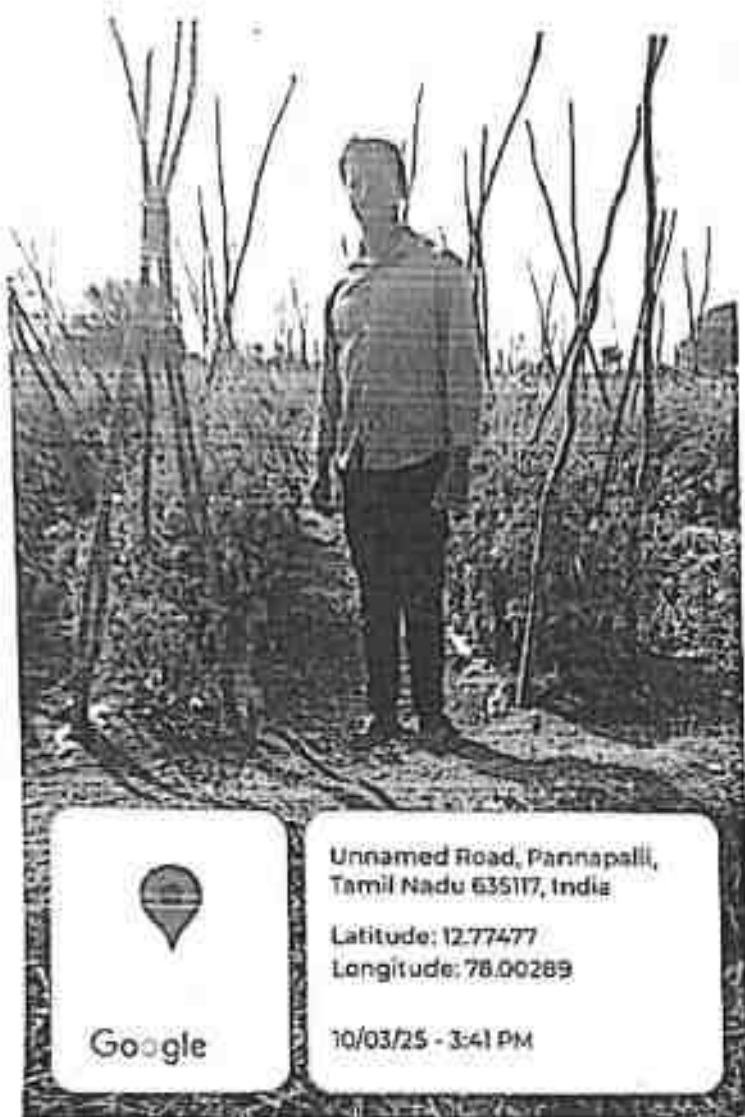
Document No. 676 of 2025 of Book 1
Contains 33 Sheets 32 Sheet

Registering Officer

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B. Jaye Prakash
Scanned with CamScanner



B. Jaya Prakash
and
R. Muni Raju

for RAMANA STONE CRUSHER
B. Jaya Prakash
R. Muni Raju
Partner

Document No. 676 of 2025 of Book 1
Contains 33 Sheets 23 Sheet

Registering Officer



B. Jaya Prakash
Scanned with CamScanner



Government of India

Form GST REG-06

[See Rule 10(1)]

Registration Certificate

Registration Number : 33ABKFR9219F1Z1

ANNEXURE



1.	Legal Name	RAMANA STONE CRUSHER			
2.	Trade Name, if any	RAMANA STONE CRUSHER			
3.	Additional trade names, if any				
4.	Constitution of Business	Partnership			
5.	Address of Principal Place of Business	Building No./Flat No.: NO.113/22 Road/Street: RAJIV GANDHI NAGAR , BAGALUR VILLAGE AND POST City/Town/Village: Hosur District: Krishnagiri State: Tamil Nadu PIN Code: 635103			
6.	Date of Liability				
7.	Period of Validity	From:	14/03/2025	To	Not Applicable
8.	Type of Registration	Regular			
9.	Particulars of Approving	Centre			
Signature					
Signature Not Verified Digitally signed by D.G. GOODS AND SERVICES TAX NETWORK 15 Date: 2025.03.14 12:30:20 IST					
Name		Bindu P.			
Designation		Superintendent			
Jurisdictional Office		CHENNAI			
Date of Issue of Certificate		14/03/2025			
Note: The registration certificate is required to be prominently displayed at all places of business in the State.					

This is a system generated digitally signed Registration Certificate issued based on the approval of application granted on 14/03/2025 by the jurisdictional authority.

B. Jaya Prakash



தமிழ்நாடு தமில்நாடு TAMILNADU 26 FEB 2025

Ramana Stone Crusher
Hosur

BH 689175

K. SELVARANI

STAMP VENDOR
LICENCE No. 808/1994
HOSUR-635 100



**RAMANA STONE CRUSHER
PARTNERSHIP DEED**

THIS DEED OF PARTNERSHIP MADE BETWEEN THE FOLLOWING
PARTIES ON THIS 26th DAY OF FEBRUARY 2025 BY AND BETWEEN:-

Mr. JAYAPRAKASH.B S/o. BOOBALA NAIDU (PAN AQAPJ6631J) (AADHAR NO.

7230 7712 2231) aged about 49 Years, residing at No.3/80-

Kaganur, Sevaganapalli, Krishnagiri District, Hosur Taluk Tamil Nadu.

Herein after referred to as the party of the First Part Partner.



B. Jaye Prakesh

2. R. M. G. K. J.

3. R. M. G. K. J.

S. THANIGAINATHAN, S. Com. I & II
ADVOCATE & NOTARY PUBLIC
No.154, Ground Floor, Govt. Court Complex
Hosur-635 100, Krishnagiri-635 100
Ph. 9443130027

A. J.

B. Jaye Prakesh
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2. Mr.RAVULAPALLI MOHAN KUMAR S/o RAVULAPALLI PRASAD (PAN:BKLPR8344A) (AADHAR No.8577 3261 9277) aged about 34 years residing at Flat No.401, Mohan Tranquil, 4th A Cross East of NGEF Layout, Kasturi Nagar, Channasandra, Bengaluru-560043. Herein after referred to as the party of the Second Part Partner.
3. Mr.MUNIRAJU R (PAN:BZJPM7889Q) (AADHAR No.9625 7400 8802) aged about 43 years residing at No.3/81, Kagganur Sevaganapalli, Krishnagiri District, Hosur Taluk Tamil Nadu-635103. Herein after referred to as the party of the Third Part Partner.
4. Mr.RAMANA J S/o JAYAPRAKASH (PAN:GZYPR9982M) (AADHAR No.8854 1572 4489) aged about 20 years residing at No.3/80-1, Kagganur, Sevaganapalli, Krishnagiri District, Hosur Taluk Tamil Nadu-635103. Herein after referred to as the party of the Fourth Part Partner.

Successors, assignees, administrators etc., unless repugnant to the context and meaning, on the terms and conditions set Second herein.)

NOW THIS DEED WITNESSETH FOLLOWING TERMS AND CONDITIONS: -

1. NAME OF THE FIRM:

The name and style of the partnership Firm shall be "RAMANA STONE CRUSHER"

2. COMMENCEMENT AND DURATION:

The partnership shall be deemed to commence from the 26th FEBRUARY 2025 and duration shall be "AT WILL."



S. THAMIGAINATHAN, O.Com. 1.1.2
ADVOCATE & NOTARY PUBLIC
No.154, Ground Floor, 297th Court Campus
Hosur-635103, Krishnagiri-(DI)
04-844788007

R. Muniraju
B. Jaya Prakash

3/15



3. PLACE OF BUSINESS:

The place of business of the Firm shall be situated at "RAMANA STONE CRUSHER" Survey No.113/22, Rajiv Gandhi Nagar, Bagalur Village and Post, Hosur Taluk -635103. and other places as the partners may decide from time to time.

4. OBJECT OF THE BUSINESS:

The object of the business of the firm shall be Manufacturing of Quarrying, Crushing and Selling of Stone Chips (all Size of Metal) and to Carry on all Type of Contract Works, Building, Developers and Civil Construction Works and also take up Contract Works of Central and state Governments and other Institutions, However, the Partnership may carry on any other Business, not prohibited, by the Law of Land Which the partners may be mutually decided from time to time." And such other lines as the partners may decide from time to time by mutual consent.

5. CAPITAL:

1. The Partnership shall contribute the capital of the firm as and when required by the firm. The partnerships have the right and freedom to increase or reduce the capital according to the necessity of business.

Capital Investment given below:-

Name of Partner	Share Capital
Mr. Jayaprakash. B	4,50,000/-
Mr. Ravulapalli Mohan Kumar	4,50,000/-
Mr. Muniraju R	3,00,000/-
Mr. Ramanna J	3,00,000/-
Total	15,00,00/-



Interest on capital 12% per annum or as may be prescribed U/s 40(b) (IV) of the income tax Act 1961 or any other applicable provisions as may be in force in the Income Tax assessment of the Partnership firm.

B. Jaye Prakash 2. R. Mohan Kumar 3. Muniraju R. 4. Ramanna J.

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ADVOCATE & NOTARY PUBLIC
No. 54, Ground Floor, Opp. Court Campus
Hosur-635103, Krishnagiri (DI)
Ph: 9443400507

B. Jaye Prakash

The relevant accounting period shall be payable to the partners on the amount standing to the credit of the account of the partners. Such interest shall be calculated and credited to the account of each partner at the close of the accounting year.



3. However, in case of loss or lower income rate of interest can be Nil or lower than 12% as may be agreed to by and between the partners from time to time.
4. Remuneration will be taken based on business.

MANAGING PARTNERS:-

The Mr. B. Jayaprakash and Ravulapalli Mohan Kumar shall act as the Managing Partners of the firm and shall consult remaining partners in the matters in the months of exceptional importance. They shall represent the firm before all the departments of state and central government, Bank and other institutions and business firm and to into agreement on behalf of the partner firm and the decisions taken by the Managing Partners are governed by all the partners of the firm.

PROFIT & LOSS SHARING RATIO:

The net Profit or Loss of the firm (including Capital gain or loss) arrived at after providing remuneration and interest to Partners on their Profit sharing ratio shall be details given below:-

Name of Partner	Share of Partners Remuneration
Mr. Jayaprakash. B	30%
Mr. Ravulapalli Mohan Kumar	30%
Mr. Maniraju R	20%
Mr. Ramana J	20%
	100%



B. Jaya Prakash

2. R. Mohan Kumar

3. S. Maniraju

4. Ramana J

S. THANIGAINATHAN, B.Com., L.L.B.
ADVOCATE & NOTARY PUBLIC
No: 154, Ground Floor, Opp. Court Campus
Hosur-575102, Krishnagiri-(01)
PH: 9441450597

B. Jaya Prakash

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6. MANAGEMENT:

The entire partners are the Managing partners of the firm. The partnerships have the right and freedom to look in to the entire business activities.

All the partners shall decide and appoint the necessary staff, fix their remuneration and take disciplinary action against them. The managing partner shall be individually competent to represent the firm in all proceeding the civil or criminal by the firm and also before revenue, taxation and other authorities. The managing partner may do all matters and thing bonafide in the interest of the partnership not expressly prohibited by other partners in writing.

8. BANK ACCOUNT OPERATION:

The firm may have one or more bank accounts according to the requirements of the business or the firm and such bank accounts including accommodation or loan facilities, if any granted by the bank or other financial institutions, shall be opened and operated by SIGN ANY ONE OF THE PARTNERS FIRST PARTNER SECOND PARTNER AND THIRD PARTNERS and they have the right and freedom to make deposits to draw, issue endorse discount or otherwise negotiate cheques, drafts, bills of exchange and other negotiable instruments, or documents of title to goods. The partners decided that, to have account with any nationalized bank or schedule bank at Hosur or any other branch as decided by partners from time to time.

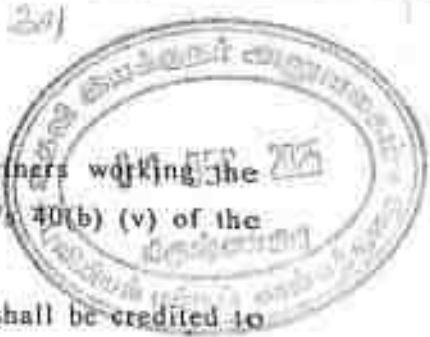
9. PARTNERS REMUNERATION:

- 1) The Partners shall jointly and actively engage themselves and manage the affairs of the firm. They are designated as the working partners and shall be jointly responsible for the overall control and management of the business dealing and all decisions whatsoever relating to the partnership business shall be made in jointly consultation with each other.

B. Jaya Prakash

S. THANIGAINATHAN, S. Com., L.L.B.
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Hosur-530001
300
Ph: 9443480657

B. Jaya Prakash
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- 
- 2) It is hereby agreed that in consideration of the partners working the partnership, they shall be entitled to remuneration U/s 40(b) (v) of the Income Tax Act.
 - 3) The remuneration payable to the above said partners shall be credited to their respective capital a/c or current of the partners
 - 4) The above remuneration shall be calculated only after the end of the relevant accounting period. However, nothing herein contained shall preclude any of the said partnership firm against the amount standing to the capital and or current or loan account or his share of profit for the relevant accounting year in such manner as may be decided by the partners by mutual consent.
 - 5) The partners shall be entitled to increase or reduce the above remuneration.

10. ACCOUNTS:

That the accounts of the firm shall be closed once in a year on the 31st day of March every year and financial statements shall be prepared and audited by a chartered accountant appointed by the firm. The partners shall sign such financial statements for having approval of the same.

11. LOANS AND ADVANCES:

Where it becomes necessary to borrow loans for the purpose of business of the firm from the Banks or Financial Institution and others for efficiently carrying on the business the same shall be borrowed with the mutual consent of both the partners of the firm.

12. INDEMNITY:

Each Partner shall at all times keep indemnified the other partner & their authorized representatives & the property of the firm against his separate

B. Jaya Prakash

2. K. MOHAN

S. TH. SAGANATHAN, B. Com., L.L.B.
ADVOCATE & NOTARY PUBLIC

No. 154, Ground Floor, Opp. Court Campus

Hosur-633109, Krishnagiri (Dist)

Ph: 9443480697

4. 
B. Jaya Prakash

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engagements & of all actions, proceedings, charges & demands in respect thereof.



13. ALTERATION:

That the partners may amend, alter or delete any of the above clauses or add new clauses to this deed of partnership by a Supplement Deed.

14. ARBITRATIONS:

All disputes which may arise during the continuance of the Partnership or afterwards among the Partners; shall be referred to arbitration & can be settled as per arbitration Act, 1940

15. DEATH:

In event of death of a Partner the firm shall continue the business & the legal heir of the deceased Partner shall be admitted with the same rights enjoyed by the deceased Partner automatically. If the legal heir does not continue to be a Partner his accounts shall be settled as per the books of accounts of the Firm.

17. RETIREMENT:

Thus, if any Partner wants to retire from the firm he may do so by giving three months' notice in writing & intention to do so to the other Partners. After expiry of three months of such notice the balance standing to the credit of the Capital & Current Accounts after adjusting the Profit & Loss, if any, to the date of notice shall be paid either fully or in three installments.

18. INCOMPETENCY OF PARTNERS:

Any sort of incompetency of Partner(s) (as Partnership Act, 1932) shall not dissolve the firm unless the minimum number is less than two.

19. ADMISSION OF NEW PARTNER:

The Partners by mutual consent in writing admit a new Partner/Partners to the firm.

B. Jaya Prakash

S. Thangaraj

S. THANGARAJ, B.Com., LL.B.
ADVOCATE & NOTARY PUBLIC
No. 155, Ground Floor, Opp. Court Campus
HSR-635100, Krishnagiri (DU)
Ph: 9442488697

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20. DISSOLUTION:

The Partnership may be dissolved at will if all the Partners mutually agree to such dissolution.



21. MINUTE BOOK:

A Minute Book of the Firm shall be maintained & the proceedings & decisions of the meetings shall be recorded therein and the same form part & parcel of this Deed.

22. PARTNERSHIP ACT:

That for the terms & conditions not specifically mentioned above, the terms & conditions as laid down in the "INDIAN PARTNERSHIP ACT 1932" shall apply.

In token of having agreed to the above we the Partners of "RAMANA STONE CRUSHER" execute this deed of Partnership on this 26th Day of February 2025 in the presence of witnesses as signed below WITNESSES:

WITNESS

1. C. Ravi Kumar

Ramash Reddy son of Chennappa Reddy

Y/12, Gajulu petta Bagalur, Hosur - 635103

2. A. Jayaram

JAYARAM SON OF ANNAYAR

NO. 1/49 C, BAGALUR, HOSUR

PIN CODE: 635103

B. Jaya Prakash

1. JAYAPRAKASH.B

First Part

R. Mohan Kumar

2. RAVULAPALLI MOHAN KUMAR

Second Part

R. Muniraju

3. MUNIRAJU.R

Third Part

Ramana J

4. RAMANA.J

Fourth Part



S. THANIGAINATHAN, B.Com., LL.B.
ADVOCATE & NOTARY PUBLIC
No: 154, Ground Floor, Opp. Court Campus
Hosur-635100, Krishnagiri-01
Ph: 9443480697

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FORM C

[See rule 9(a)]

Acknowledgement of Registration of Firms

The Registrar of Firms, TamilNadu, hereby acknowledges the receipt of the statement prescribed by Section 58(1) of the Indian Partnership Act, 1932. The statement has been filed and the name of the firm **RAMANA STONE CRUSHER** has been entered in the Register of Firms as No **FR/Krishnagiri/43/2025**.

Date : 04-Mar-2025

Station : Krishnagiri

Digitally Signed by Thiru/ Tmt/ Selvi

BALASUBRAMANIAN S

Registrar of Firms



PHOTOCOPY OF THE APPLIED LEASE AREA

01 DEC 2025

Site photos in respect of ordinary rough stone quarry lease in S.F.No's, 243/2, 243/4, 244/2, 244/4B(Part), 244/5(Part), 244/6, 246/5 and 261/1B Patta land - over an extent of 8.53.10 hectares - Pannapalli Village - Shoolagiri Taluk - Krishnagiri District - Tamil Nadu State and this photos belongs to M/s.Ramana Stone Crusher, Krishnagiri District.



Reg No: 03HHH1007
Cul Code: 013 / 106



அறிவியல் புலம்
FACULTY OF SCIENCE

பெரியார் பல்கலைக்கழக ஆட்சிக்குழு 2005 ஆம் ஆண்டு ஏப்ரல் மாதம் நடந்த பரப்பாட்டு புவியமைப்பியல் தேர்வில்

S கருப்பண்ணன்

என்பவர்

தனிச்சிறப்புடன் முதல் வகுப்பில்

தேர்ச்சி பெற்றார் என்று தக்க

தேர்வாளர்கள் சான்றிதழை

அறிவியல் நிறைஞர்

என்னும் பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சினைபுடன் வழங்குகிறது.

The Syndicate of the Periyar University hereby makes known that
KARUPPANNAN S
has been
admitted to the **DEGREE OF MASTER OF SCIENCE in**
APPLIED GEOLOGY

he/she having been certified by duly appointed Examiners to be qualified to receive the same and was placed in the **FIRST CLASS WITH DISTINCTION**
at the Examination held in **APR-2005**



Given under the seal of this university

LAC No. 142/TNOST No. 2703141
GST No. 7-4829/SLM/DC, 7-4-99



BALAJI MINES

Proprietor: E. SANTHARAMAN
PURITY LIME STONE SUPPLIERS
5/88, CHINNAGOLLAIPATTI, KANNANKURICHI P.O.
SALEM-636 008, Tamil Nadu.



Mines: Devar Malai Village, Kujithalai Tal., KARUR Dt. (Via) Katur to Palayam.

Date: 15-4-2010

EXPERIENCE CERTIFICATE

I, E. SANTHARAMAN being the Managing Director of BALAJI MINES do hereby certify that Thiru. S. KARUPPANNAN, son of T. SUNDARAM (Whose signature is appended) worked as a Geologist in Balaji Mine, Devar malai village, Kujithalai Taluk, Karur District, from 01.06.2005 to 10.10.2010. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved his continuous attendance at the mine, and have been efficiently performed by him.

I believe him to be of good character and a fit and proper person to be examined for Certificate of Competency.

(Signature with date and official Seal)

TIN No: 33852702141

CST No: 704829/7-4-99

BALAJI MINES

5/88, Chinnagollapatty,
Kannankurichi (P.O), SALEM-8.

(Signature of Candidate)

B. Jaya Prakash



94876 23358

**SRI RAMAJAYA
GRANITES**

721, Kothavathi Main Road, Opp. E.B. Office, MATHUR - 615 207
email: sriRamajayaGranites@gmail.com



Date: 11-11-2011

EXPERIENCE CERTIFICATE

This is to certify that **Mr. Karuppannan Sundaram** has been worked as a "Senior Geologist" in our company from 11th October 2010 to 11th October 2011. During this period, he has been involved in the Quality Control for Granite block extraction from quarry. Involvement of his work is highly appreciated and have been efficiently worked in our company. The duties connected with his work have been continuous attendance at the quarry.

I wish him all the best in all his future endeavors.

SRI RAMAJAYA GRANITES

[Signature]
Proprietor

[Signature]
10/11/2011

**DEPUTY DIRECTOR
DEPARTMENT OF GEOLOGY AND MINING
DHARMAPURI**

B. Jayaprakash

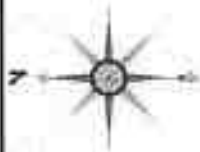


PLATE No-I

APPLICANT:

M/s. RAMANA STONE CRUSHERS,
No.113/22, RAJIV GANDHI NAGAR,
BAGALUR VILLAGE & POST,
HOSUR TALUK,
KRISHNAGIRI DISTRICT -635103.

LEASE APPLIED AREA:

S.F.No : 243/2, 243/4, 244/2, 244/4B(P)

244/5(P), 244/6, 246/5 & 261

EXTENT : 8.53.10Hect

VILLAGE : PANNAPALLI

TALUK : SHOOLAGIRI

DISTRICT : KRISHNAGIRI

INDEX

MINE LEASE AREA

APPROACH ROAD

CART ROAD

VILLAGE ROAD

MDR - 422 & 456 ROAD

HABITATION



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

[Signature]

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON

379



12°46'26.21"N

78°0'18.85"E



B. Jaya Prakash



PLATE No-1A

APPLICANT:

M/s.RAMANA STONE CRUSHERS,
No.113/22, RAJIV GANDHI NAGAR,
BAGALUR VILLAGE & POST,
HOSUR TALUK,
KRISHNAGIRI DISTRICT -635103.

LEASE APPLIED AREA:

S.F.No : 243/2, 243/4, 244/2, 244/4B(P),
244/5(P), 244/6, 246/5 & 261
EXTENT : 8.53.10Hect
VILLAGE : PANNAPALLI
TALUK : SHOOLAGIRI
DISTRICT : KRISHNAGIRI

INDEX

MINE LEASE AREA: ●
TOPO SHEET NO : 57-L/01
LATITUDE : 12°46'12.57"N to 12°46'26.21"N
LONGITUDE : 78°0'18.85"E to 78°0'33.17"E

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

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON



PLATE No-IC

APPLICANT:
M/s.RAMANA STONE CRUSHERS,
No.113/22, RAJIV GANDHI NAGAR,
BAGALUR VILLAGE & POST,
HOSUR TALUK,
KRISHNAGIRI DISTRICT -635103.

LEASE APPLIED AREA:
S.F.No : 243/2, 243/4, 244/2, 244/4B(P),
244/5(P), 244/6, 246/5 & 261
EXTENT : 8.53.10Hect
VILLAGE : PANNAPALLI
TALUK : SHOOLAGIRI
DISTRICT : KRISHNAGIRI

INDEX

MINE LEASE AREA	
APPROACH ROAD	
CART ROAD	
VILLAGE ROAD	
100m RADIUS	
200m RADIUS	
300m RADIUS	
400m RADIUS	
500m RADIUS	

TOPO SHEET NO : 57-L/01

LATITUDE : 12°46'12.57"N to 12°46'26.21"N

LONGITUDE : 78°0'18.85"E to 78°0'33.17"E

SATELLITE IMAGERY MAP

SCALE- 1:5000

Prepared By:

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TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON

OCTOBER TO DECEMBER



PLATE No-10

APPLICANT:

M/s.RAMANA STONE CRUSHERS,,
No.113/22, RAJIV GANDHI NAGAR,
BAGALUR VILLAGE & POST,
HOSUR TALUK,
KRISHNAGIRI DISTRICT -635103.

LEASE APPLIED AREA:

S.F.No : 243/2, 243/4, 244/2, 244/4B(P),
244/5(P), 244/6, 246/5 & 261
EXTENT : 8.53.10Hect
VILLAGE : PANNAPALLI
TALUK : SHOOLAGIRI
DISTRICT : KRISHNAGIRI

INDEX

MINE LEASE AREA	
APPROACH ROAD	
CART ROAD	
VILLAGE ROAD	
100m RADIUS	
200m RADIUS	
300m RADIUS	
400m RADIUS	
500m RADIUS	
SHRUBS & TREES	
WIND DIRECTION	
HABITATION	

TOPO SHEET NO : 57-L/01

LATITUDE : 12°46'12.57"N to 12°46'26.21"N

LONGITUDE : 78°0'18.85"E to 78°0'33.17"E

ENVIRONMENTAL PLAN

SCALE- 1:5000

Prepared By:

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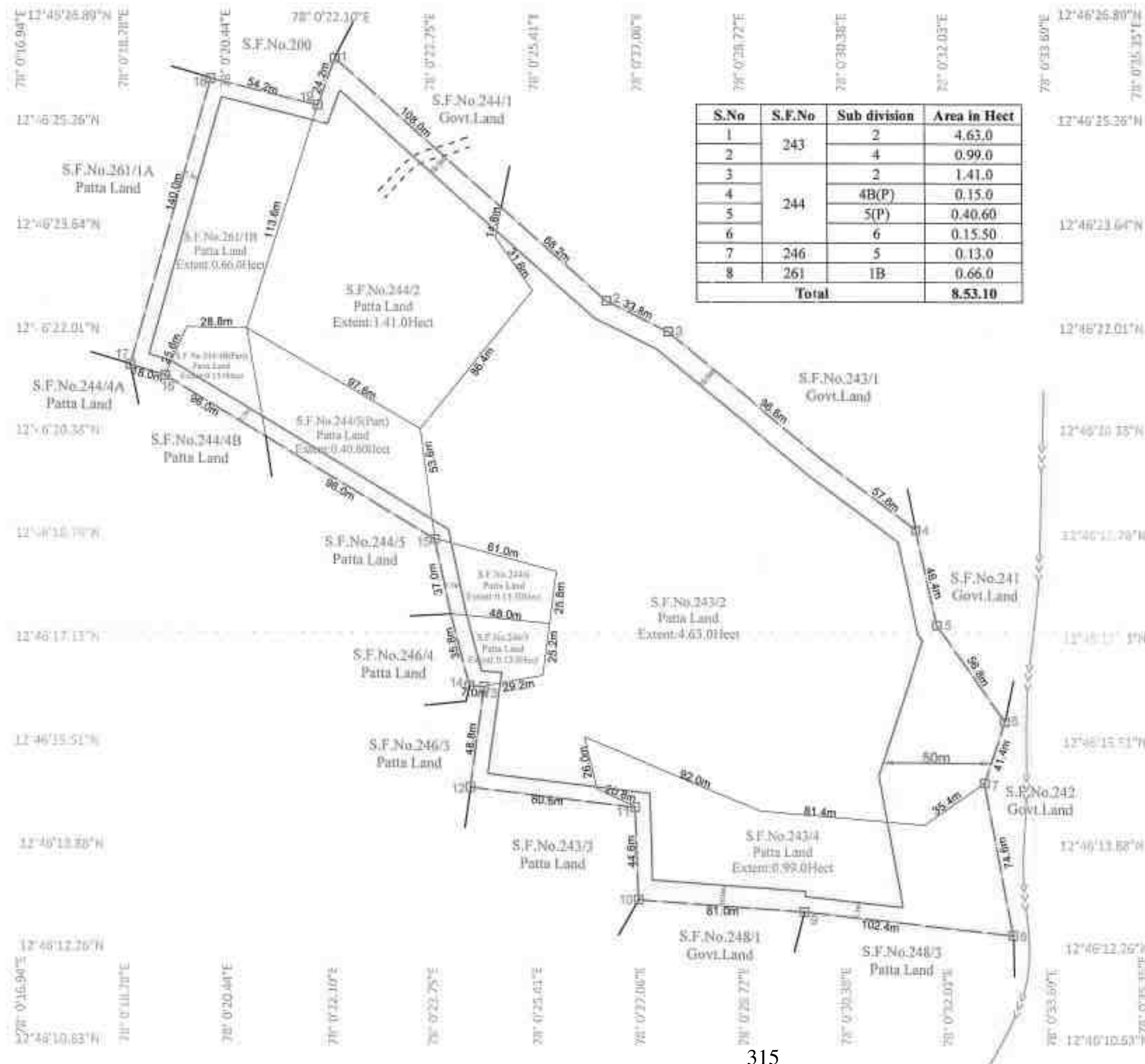
Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON

78°0'18.85"E

12°46'26.21"N

JULY TO SEPTEMBER

B. Jaya Prakash



APPLICANT:
M/s.RAMANA STONE CRUSHERS,
 No.113/22, RAJIV GANDHI NAGAR,
 BAGALUR VILLAGE & POST,
 HOSUR TALUK,
 KRISHNAGIRI DISTRICT -635103.

LEASE APPLIED AREA:
 S.F.No : 243/2, 243/4, 244/2, 244/4B(P),
 244/5(P), 244/6, 246/5 & 261

EXTENT : 8.53.10Hect
VILLAGE : PANNAPALLI
TALUK : SHOOLAGIRI
DISTRICT : KRISHNAGIRI

PILLAR ID	LATITUDE	LONGITUDE
1	12°46'26.21"N	78°0'22.10"E
2	12°46'22.46"N	78°0'26.53"E
3	12°46'21.99"N	78°0'27.54"E
4	12°46'18.92"N	78°0'31.57"E
5	12°46'17.42"N	78°0'31.93"E
6	12°46'15.92"N	78°0'33.02"E
7	12°46'14.95"N	78°0'32.70"E
8	12°46'12.37"N	78°0'33.17"E
9	12°46'12.90"N	78°0'29.80"E
10	12°46'13.06"N	78°0'27.12"E
11	12°46'14.51"N	78°0'27.06"E
12	12°46'14.83"N	78°0'24.41"E
13	12°46'16.37"N	78°0'24.61"E
14	12°46'16.38"N	78°0'24.38"E
15	12°46'18.68"N	78°0'23.80"E
16	12°46'21.20"N	78°0'19.43"E
17	12°46'21.35"N	78°0'18.85"E
18	12°46'25.87"N	78°0'20.11"E
19	12°46'25.47"N	78°0'21.84"E

INDEX	
MINE LEASE BOUNDARY	
SAFETY BOUNDARY	
APPROACH ROAD	
BOUNDARY PILLAR STONES	

MINE LEASE PLAN
SCALE 1 : 2000

Prepared By:

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 BEEN CHECKED BY ME AND IS CORRECT
 TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
 QUALIFIED PERSON

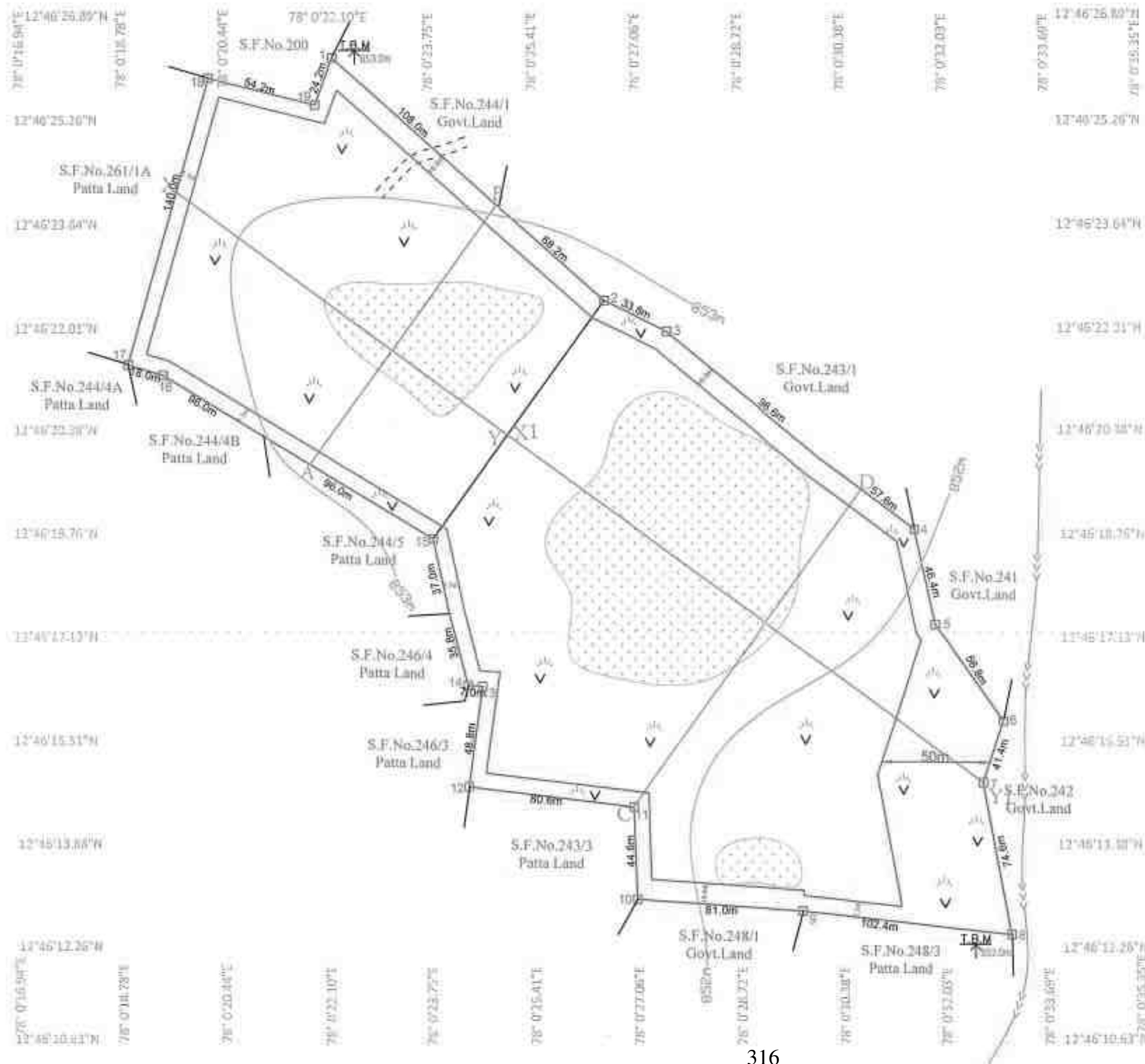


PLATE No- III

APPLICANT:

M/s.RAMANA STONE CRUSHERS,
No.113/22, RAJIV GANDHI NAGAR,
BAGALUR VILLAGE & POST,
HOSUR TALUK,
KRISHNAGIRI DISTRICT -635 103.

LEASE APPLIED AREA:

S.F.No : 243/2, 243/4, 244/2, 244/4B(P),
244/5(P), 244/6, 246/5 & 261
EXTENT : 8.53.10Hect
VILLAGE : PANNAPALLE
TALUK : SHOOLAGIRI
DISTRICT : KRISHNAGIRI

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MINE LEASE BOUNDARY	
SAFETY BOUNDARY	
APPROACH ROAD	
BOUNDARY PILLAR STONES	
TEMPORARY BENCH MARK	
CONTOUR LINES	
SHRUBS	
GRAVEL	
OUT CROP	
ODAI	

SURFACE & GEOLOGICAL PLAN

PLAN SCALE 1: 2000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS
BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON

B. Jaya Prakash

SECTION ALONG X1-Y1

MLB	SECTION ALONG X1-Y1		MLB
Y1			Y1
853.0m	0	100m	100m
848.0m	0	200m	200m
843.0m	0	300m	300m
838.0m	0	400m	400m
833.0m	0	500m	500m
828.0m	0	600m	600m
823.0m	0	700m	700m
818.0m	0	800m	800m
813.0m	0	900m	900m
808.0m	0	1000m	1000m
803.0m	0	1100m	1100m
798.0m	0	1200m	1200m
793.0m	0	1300m	1300m
788.0m	0	1400m	1400m
783.0m	0	1500m	1500m
778.0m	0	1600m	1600m
773.0m	0	1700m	1700m
768.0m	0	1800m	1800m
763.0m	0	1900m	1900m
758.0m	0	2000m	2000m
753.0m	0	2100m	2100m
748.0m	0	2200m	2200m
743.0m	0	2300m	2300m
738.0m	0	2400m	2400m
733.0m	0	2500m	2500m
728.0m	0	2600m	2600m
723.0m	0	2700m	2700m
718.0m	0	2800m	2800m
713.0m	0	2900m	2900m
708.0m	0	3000m	3000m
703.0m	0	3100m	3100m
698.0m	0	3200m	3200m
693.0m	0	3300m	3300m
688.0m	0	3400m	3400m
683.0m	0	3500m	3500m
678.0m	0	3600m	3600m
673.0m	0	3700m	3700m
668.0m	0	3800m	3800m
663.0m	0	3900m	3900m
658.0m	0	4000m	4000m
653.0m	0	4100m	4100m
648.0m	0	4200m	4200m
643.0m	0	4300m	4300m
638.0m	0	4400m	4400m
633.0m	0	4500m	4500m
628.0m	0	4600m	4600m
623.0m	0	4700m	4700m
618.0m	0	4800m	4800m
613.0m	0	4900m	4900m
608.0m	0	5000m	5000m
603.0m	0	5100m	5100m
598.0m	0	5200m	5200m
593.0m	0	5300m	5300m
588.0m	0	5400m	5400m
583.0m	0	5500m	5500m
578.0m	0	5600m	5600m
573.0m	0	5700m	5700m
568.0m	0	5800m	5800m
563.0m	0	5900m	5900m
558.0m	0	6000m	6000m
553.0m	0	6100m	6100m
548.0m	0	6200m	6200m
543.0m	0	6300m	6300m
538.0m	0	6400m	6400m
533.0m	0	6500m	6500m
528.0m	0	6600m	6600m
523.0m	0	6700m	6700m
518.0m	0	6800m	6800m
513.0m	0	6900m	6900m
508.0m	0	7000m	7000m
503.0m	0	7100m	7100m
498.0m	0	7200m	7200m
493.0m	0	7300m	7300m
488.0m	0	7400m	7400m
483.0m	0	7500m	7500m
478.0m	0	7600m	7600m
473.0m	0	7700m	7700m
468.0m	0	7800m	7800m
463.0m	0	7900m	7900m
458.0m	0	8000m	8000m
453.0m	0	8100m	8100m
448.0m	0	8200m	8200m
443.0m	0	8300m	8300m
438.0m	0	8400m	8400m
433.0m	0	8500m	8500m
428.0m	0	8600m	8600m
423.0m	0	8700m	8700m
418.0m	0	8800m	8800m
413.0m	0	8900m	8900m
408.0m	0	9000m	9000m
403.0m	0	9100m	9100m
398.0m	0	9200m	9200m
393.0m	0	9300m	9300m
388.0m	0	9400m	9400m
383.0m	0	9500m	9500m
378.0m	0	9600m	9600m
373.0m	0	9700m	9700m
368.0m	0	9800m	9800m
363.0m	0	9900m	9900m
358.0m	0	10000m	10000m
353.0m	0	10100m	10100m
348.0m	0	10200m	10200m
343.0m	0	10300m	10300m
338.0m	0	10400m	10400m
333.0m	0	10500m	10500m
328.0m	0	10600m	10600m
323.0m	0	10700m	10700m
318.0m	0	10800m	10800m
313.0m	0	10900m	10900m
308.0m	0	11000m	11000m
303.0m	0	11100m	11100m
298.0m	0	11200m	11200m
293.0m	0	11300m	11300m
288.0m	0	11400m	11400m
283.0m	0	11500m	11500m
278.0m	0	11600m	11600m
273.0m	0	11700m	11700m
268.0m	0	11800m	11800m
263.0m	0	11900m	11900m
258.0m	0	12000m	12000m
253.0m	0	12100m	12100m
248.0m	0	12200m	12200m
243.0m	0	12300m	12300m
238.0m	0	12400m	12400m
233.0m	0	12500m	12500m
228.0m	0	12600m	12600m
223.0m	0	12700m	12700m
218.0m	0	12800m	12800m
213.0m	0	12900m	12900m
208.0m	0	13000m	13000m
203.0m	0	13100m	13100m
198.0m	0	13200m	13200m
193.0m	0	13300m	13300m
188.0m	0	13400m	13400m
183.0m	0	13500m	13500m
178.0m	0	13600m	13600m
173.0m	0	13700m	13700m
168.0m	0	13800m	13800m
163.0m	0	13900m	13900m
158.0m	0	14000m	14000m
153.0m	0	14100m	14100m
148.0m	0	14200m	14200m
143.0m	0	14300m	14300m
138.0m	0	14400m	14400m
133.0m	0	14500m	14500m
128.0m	0	14600m	14600m
123.0m	0	14700m	14700m
118.0m	0	14800m	14800m
113.0m	0	14900m	14900m
108.0m	0	15000m	15000m
103.0m	0	15100m	15100m
98.0m	0	15200m	15200m
93.0m	0	15300m	15300m
88.0m	0	15400m	15400m
83.0m	0	15500m	15500m
78.0m	0	15600m	15600m
73.0m	0	15700m	15700m
68.0m	0	15800m	15800m
63.0m	0	15900m	15900m
58.0m	0	16000m	16000m
53.0m	0	16100m	16100m
48.0m	0	16200m	16200m
43.0m	0	16300m	16300m
38.0m	0	16400m	16400m
33.0m	0	16500m	16500m
28.0m	0	16600m	16600m
23.0m	0	16700m	16700m
18.0m	0	16800m	16800m
13.0m	0	16900m	16900m
8.0m	0	17000m	17000m
3.0m	0	17100m	17100m
0.0m	0	17200m	17200m
0.0m	0	17300m	17300m
0.0m	0	17400m	17400m
0.0m	0	17500m	17500m
0.0m	0	17600m	17600m
0.0m	0	17700m	17700m
0.0m	0	17800m	17800m
0.0m	0	17900m	17900m
0.0m	0	18000m	18000m
0.0m	0	18100m	18100m
0.0m	0	18200m	18200m
0.0m	0	18300m	18300m
0.0m	0	18400m	18400m
0.0m	0	18500m	18500m
0.0m	0	18600m	18600m
0.0m	0	18700m	18700m
0.0m	0	18800m	18800m
0.0m	0	18900m	18900m
0.0m	0	19000m	19000m
0.0m	0	19100m	19100m
0.0m	0	19200m	19200m
0.0m	0	19300m	19300m
0.0m	0	19400m	19400m
0.0m	0	19500m	19500m
0.0m	0	19600m	19600m
0.0m	0	19700m	19700m
0.0m	0	19800m	19800m
0.0m	0	19900m	19900m
0.0m	0	20000m	20000m
0.0m	0	20100m	20100m
0.0m	0	20200m	20200m
0.0m	0	20300m	20300m
0.0m	0	20400m	20400m
0.0m	0	20500m	20500m
0.0m	0	20600m	20600m
0.0m	0	20700m	20700m
0.0m	0	20800m	20800m
0.0m	0	20900m	20900m
0.0m	0	21000m	21000m
0.0m	0	21100m	21100m
0.0m	0	21200m	21200m
0.0m	0	21300m	21300m
0.0m	0	21400m	21400m
0.0m	0	21500m	21500m
0.0m	0	21600m	21600m
0.0m	0	21700m	21700m
0.0m	0	21800m	21800m
0.0m	0	21900m	21900m
0.0m	0	22000m	22000m
0.0m	0	22100m	22100m
0.0m	0	22200m	22200m
0.0m	0	22300m	22300m
0.0m	0	22400m	22400m
0.0m	0	22500m	22500m
0.0m	0	22600m	22600m
0.0m	0	22700m	22700m
0.0m	0	22800m	22800m
0.0m	0	22900m	22900m
0.0m	0	23000m	23000m
0.0m	0	23100m	23100m
0.0m	0	23200m	23200m
0.0m	0	23300m	23300m
0.0m	0	23400m	23400m
0.0m	0	23500m	23500m
0.0m	0	23600m	23600m
0.0m	0	23700m	23700m
0.0m	0	23800m	23800m
0.0m	0	23900m	23900m
0.0m	0	24000m	24000m
0.0m	0	24100m	24100m
0.0m	0	24200m	24200m
0.0m	0	24300m	24300m
0.0m	0	24400m	24400m
0.0m	0	24500m	24500m
0.0m	0	24600m	24600m
0.0m	0	24700m	24700m
0.0m	0	24800m	24800m
0.0m	0	24900m	24900m
0.0m	0	25000m	25000m
0.0m	0	25100m	25100m
0.0m	0	25200m	25200m
0.0m	0	25300m	25300m
0.0m	0	25400m	25400m
0.0m	0	25500m	25500m
0.0m	0	25600m	25600m
0.0m	0	25700m	25700m
0.0m	0	25800m	25800m
0.0m	0	25900m	25900m
0.0m	0	26000m	26000m
0.0m	0	26100m	26100m
0.0m	0	26200m	26200m
0.0m	0	26300m	26300m
0.0m	0	26400m	26400m
0.0m	0	26500m	26500m
0.0m	0	26600m	26600m
0.0m	0	26700m	26700m
0.0m	0	26800m	26800m
0.0m	0	26900m	26900m
0.0m	0	27000m	27000m
0.0m	0	27100m	27100m
0.0m	0	27200m	27200m
0.0m	0	27300m	27300m
0.0m	0	27400m	27400m
0.0m	0	27500m	27500m
0.0m	0	27600m	27600m
0.0m	0	27700m	27700m
0.0m	0	27800m	27800m
0.0m	0	27900m	27900m
0.0m	0	28000m	28000m
0.0m	0	28100m	28100m
0.0m	0	28200m	28200m
0.0m	0	28300m	28300m
0.0m	0	28400m	28400m
0.0m	0	28500m	28500m
0.0m	0	28600m	28600m
0.0m	0	28700m	28700m
0.0m	0	28800m	28800m
0.0m	0	28900m	28900m
0.0m	0	29000m	29000m
0.0m	0	29100m	29100m
0.0m	0	29200m	29200m
0.0m	0	29300m	29300m
0.0m	0	29400m	29400m
0.0m	0	29500m	29500m
0.0m	0	29600m	29600m
0.0m	0	29700m	29700m
0.0m	0	29800m	29800m

GEOGRAPHICAL MANIPALCRA										
Section	Reach	Length (km)	Width (km)	Depth (km)	Volume (M ³)	Length (km)	Width (km)	Depth (km)	Volume (M ³)	Gravel (M ³)
XCVI-AD	1	148	112	3	44700	148	112	3	44700	3574
	2	111	112	3	36910	111	112	3	36910	2675.30
	3	172	112	3	57720	172	112	3	57720	4747.15
	4	171	112	4	76520	171	112	4	76520	6300.78
	5	122	112	4	54280	122	112	4	54280	4504.64
	6	119	112	4	51880	119	112	4	51880	4280.75
	7	144	112	5	79200	144	112	5	79200	6513.62
	8	119	112	5	66520	119	112	5	66520	5490.69
	9	119	112	5	66520	119	112	5	66520	5490.69
	10	119	112	5	66520	119	112	5	66520	5490.69
	11	119	112	5	66520	119	112	5	66520	5490.69
	12	119	112	5	66520	119	112	5	66520	5490.69
XCVI-CH	1	147	112	3	44700	147	112	3	44700	3574
	2	111	112	3	36910	111	112	3	36910	2675.30
	3	172	112	3	57720	172	112	3	57720	4747.15
	4	171	112	4	76520	171	112	4	76520	6300.78
	5	122	112	4	54280	122	112	4	54280	4504.64
	6	119	112	4	51880	119	112	4	51880	4280.75
	7	144	112	5	79200	144	112	5	79200	6513.62
	8	119	112	5	66520	119	112	5	66520	5490.69
	9	119	112	5	66520	119	112	5	66520	5490.69
	10	119	112	5	66520	119	112	5	66520	5490.69
	11	119	112	5	66520	119	112	5	66520	5490.69
	12	119	112	5	66520	119	112	5	66520	5490.69
TOTAL					200000				200000	16000
XCVI-CH	1	147	112	3	44700	147	112	3	44700	3574
	2	111	112	3	36910	111	112	3	36910	2675.30
	3	172	112	3	57720	172	112	3	57720	4747.15
	4	171	112	4	76520	171	112	4	76520	6300.78
	5	122	112	4	54280	122	112	4	54280	4504.64
	6	119	112	4	51880	119	112	4	51880	4280.75
	7	144	112	5	79200	144	112	5	79200	6513.62
	8	119	112	5	66520	119	112	5	66520	5490.69
	9	119	112	5	66520	119	112	5	66520	5490.69
	10	119	112	5	66520	119	112	5	66520	5490.69
	11	119	112	5	66520	119	112	5	66520	5490.69
	12	119	112	5	66520	119	112	5	66520	5490.69
TOTAL					200000				200000	16000
GRAND TOTAL					400000				400000	32000

SECTION ALONG X-Y

SECTION ALONG X-Y

SECTION ALONG A-B

MLB		SECTION ALONG A-B		MLB B	
853.0m	853.0m		155m		853.0m
848.0m	848.0m		150m		848.0m
843.0m	843.0m		150m		843.0m
838.0m	838.0m		150m		838.0m
833.0m	833.0m		150m		833.0m
828.0m	828.0m		150m		828.0m
823.0m	823.0m		150m		823.0m
818.0m	818.0m		150m		818.0m
813.0m	813.0m		150m		813.0m
808.0m	808.0m		150m		808.0m
803.0m	803.0m		150m		803.0m
798.0m	798.0m		150m		798.0m
793.0m	793.0m		150m		793.0m
788.0m	788.0m		150m		788.0m
783.0m	783.0m		150m		783.0m
778.0m	778.0m		150m		778.0m

SECTION ALONG C-D

C-MLB		SECTION ALONG C-D		MLB-D	
853.0m			0.00m		853.0m
849.0m			0.00m		849.0m
845.0m			0.00m		845.0m
841.0m			0.00m		841.0m
837.0m			0.00m		837.0m
833.0m			0.00m		833.0m
829.0m			0.00m		829.0m
825.0m			0.00m		825.0m
821.0m			0.00m		821.0m
817.0m			0.00m		817.0m
813.0m			0.00m		813.0m
809.0m			0.00m		809.0m
805.0m			0.00m		805.0m
801.0m			0.00m		801.0m
797.0m			0.00m		797.0m
793.0m			0.00m		793.0m
789.0m			0.00m		789.0m
785.0m			0.00m		785.0m
781.0m			0.00m		781.0m
777.0m			0.00m		777.0m
773.0m			0.00m		773.0m
769.0m			0.00m		769.0m
765.0m			0.00m		765.0m
761.0m			0.00m		761.0m
757.0m			0.00m		757.0m
753.0m			0.00m		753.0m
749.0m			0.00m		749.0m
745.0m			0.00m		745.0m
741.0m			0.00m		741.0m
737.0m			0.00m		737.0m
733.0m			0.00m		733.0m
729.0m			0.00m		729.0m
725.0m			0.00m		725.0m
721.0m			0.00m		721.0m
717.0m			0.00m		717.0m
713.0m			0.00m		713.0m
709.0m			0.00m		709.0m
705.0m			0.00m		705.0m
701.0m			0.00m		701.0m
697.0m			0.00m		697.0m
693.0m			0.00m		693.0m
689.0m			0.00m		689.0m
685.0m			0.00m		685.0m
681.0m			0.00m		681.0m
677.0m			0.00m		677.0m
673.0m			0.00m		673.0m
669.0m			0.00m		669.0m
665.0m			0.00m		665.0m
661.0m			0.00m		661.0m
657.0m			0.00m		657.0m
653.0m			0.00m		653.0m
649.0m			0.00m		649.0m
645.0m			0.00m		645.0m
641.0m			0.00m		641.0m
637.0m			0.00m		637.0m
633.0m			0.00m		633.0m
629.0m			0.00m		629.0m
625.0m			0.00m		625.0m
621.0m			0.00m		621.0m
617.0m			0.00m		617.0m
613.0m			0.00m		613.0m
609.0m			0.00m		609.0m
605.0m			0.00m		605.0m
601.0m			0.00m		601.0m
597.0m			0.00m		597.0m
593.0m			0.00m		593.0m
589.0m			0.00m		589.0m
585.0m			0.00m		585.0m
581.0m			0.00m		581.0m
577.0m			0.00m		577.0m
573.0m			0.00m		573.0m
569.0m			0.00m		569.0m
565.0m			0.00m		565.0m
561.0m			0.00m		561.0m
557.0m			0.00m		557.0m
553.0m			0.00m		553.0m
549.0m			0.00m		549.0m
545.0m			0.00m		545.0m
541.0m			0.00m		541.0m
537.0m			0.00m		537.0m
533.0m			0.00m		533.0m
529.0m			0.00m		529.0m
525.0m			0.00m		525.0m
521.0m			0.00m		521.0m
517.0m			0.00m		517.0m
513.0m			0.00m		513.0m
509.0m			0.00m		509.0m
505.0m			0.00m		505.0m
501.0m			0.00m		501.0m
497.0m			0.00m		497.0m
493.0m			0.00m		493.0m
489.0m			0.00m		489.0m
485.0m			0.00m		485.0m
481.0m			0.00m		481.0m
477.0m			0.00m		477.0m
473.0m			0.00m		473.0m
469.0m			0.00m		469.0m
465.0m			0.00m		465.0m
461.0m			0.00m		461.0m
457.0m			0.00m		457.0m
453.0m			0.00m		453.0m
449.0m			0.00m		449.0m
445.0m			0.00m		445.0m
441.0m			0.00m		441.0m
437.0m			0.00m		437.0m
433.0m			0.00m		433.0m
429.0m			0.00m		429.0m
425.0m			0.00m		425.0m
421.0m			0.00m		421.0m
417.0m			0.00m		417.0m
413.0m			0.00m		413.0m
409.0m			0.00m		409.0m
405.0m			0.00m		405.0m
401.0m			0.00m		401.0m
397.0m			0.00m		397.0m
393.0m			0.00m		393.0m
389.0m			0.00m		389.0m
385.0m			0.00m		385.0m
381.0m			0.00m		381.0m
377.0m			0.00m		377.0m
373.0m			0.00m		373.0m
369.0m			0.00m		369.0m
365.0m			0.00m		365.0m
361.0m			0.00m		361.0m
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0.0m			0.00m		0.0m

B. Jaye Pralcan

GEOLOGICAL SECTIONS
SECTION HDR 1 - 300 & VER 1 - 300

APPLICANT:
M/s.RAMANA STONE CRUSHERS,
No.113/22, RAJIV GANDHI NAGAR,
BAGALUR VILLAGE & POST,
HOSUR TALUK,
KRISHNAGIRI DISTRICT -635103.

LEASE APPLIED AREA:

S.F.No	: 243/2, 243/4, 244/2, 244/4B(P), 244/5(P), 244/6, 246/5 & 261
EXTENT	: 8.53.10Hect
VILLAGE	: PANNAPALLI
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

PLATE No- IIIA

INDEX

MINE LEASE BOUNDARY	
SAFETY BOUNDARY	
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

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON

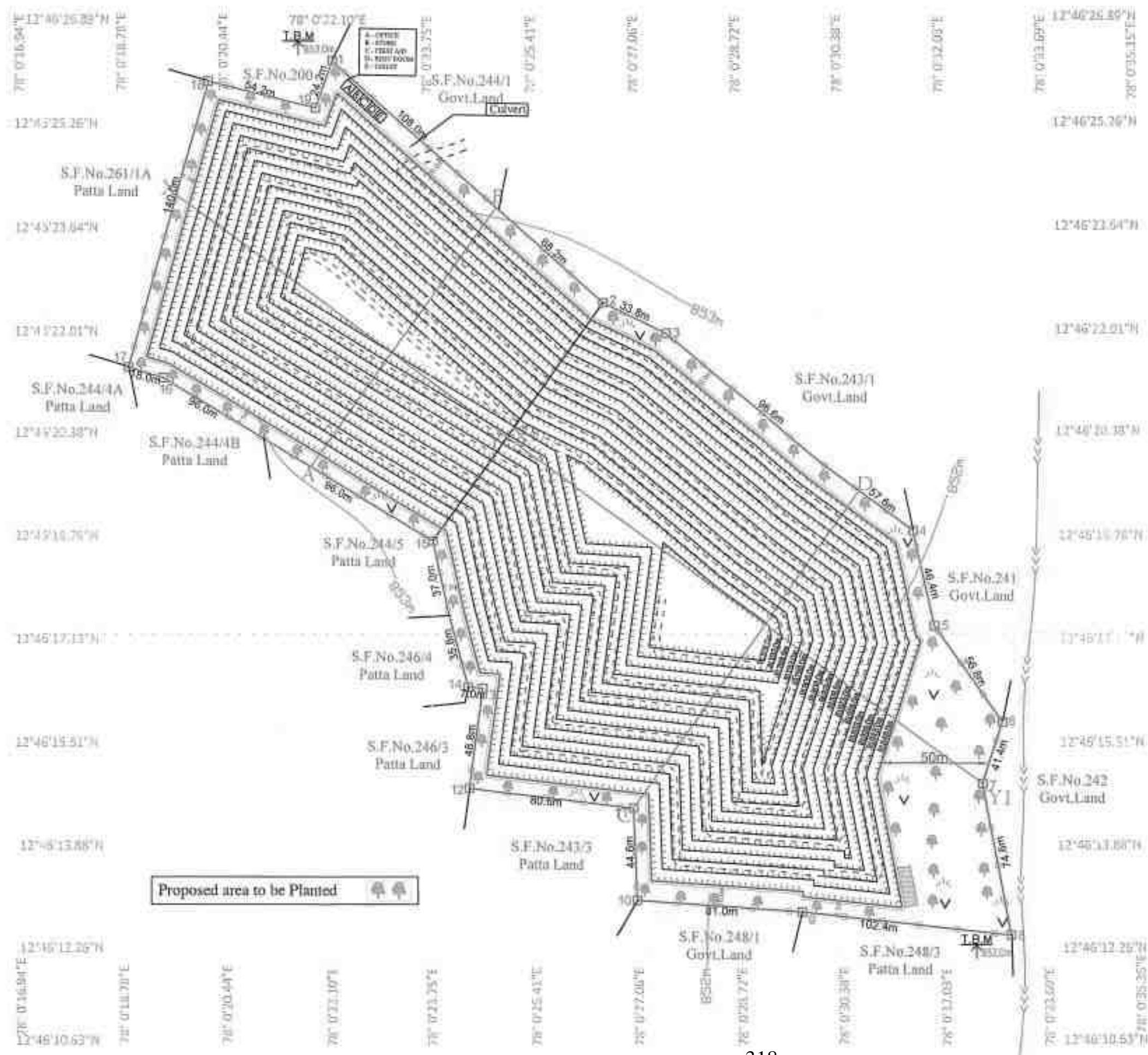


PLATE No. IV

APPLICANT:

M/s.RAMANA STONE CRUSHERS.,
No.113/22, RAJIV GANDHI NAGAR,
BAGALUR VILLAGE & POST,
HOSUR TALUK,
KRISHNAGIRI DISTRICT -635103.

LEASE APPLIED AREA:

S.F.No : 243/2, 243/4, 244/2, 244/4B(P),
244/5(P), 244/6, 246/5 & 261
EXTENT : 8.53.10Hect
VILLAGE : PANNAPALLI
TALUK : SHOOLAGIRI
DISTRICT : KRISHNAGIRI

INDEX

MINE LEASE BOUNDARY	
SAFETY BOUNDARY	
APPROACH + CART ROAD	
BOUNDARY PILLAR STONES	
TEMPORARY BENCH MARK	
CONTOUR LINES	
SHRUBS	
GRAVEL	
DRAINAGE & SETTLING TANK	
ULTIMATE BENCH	
ODAI	
FENCING	

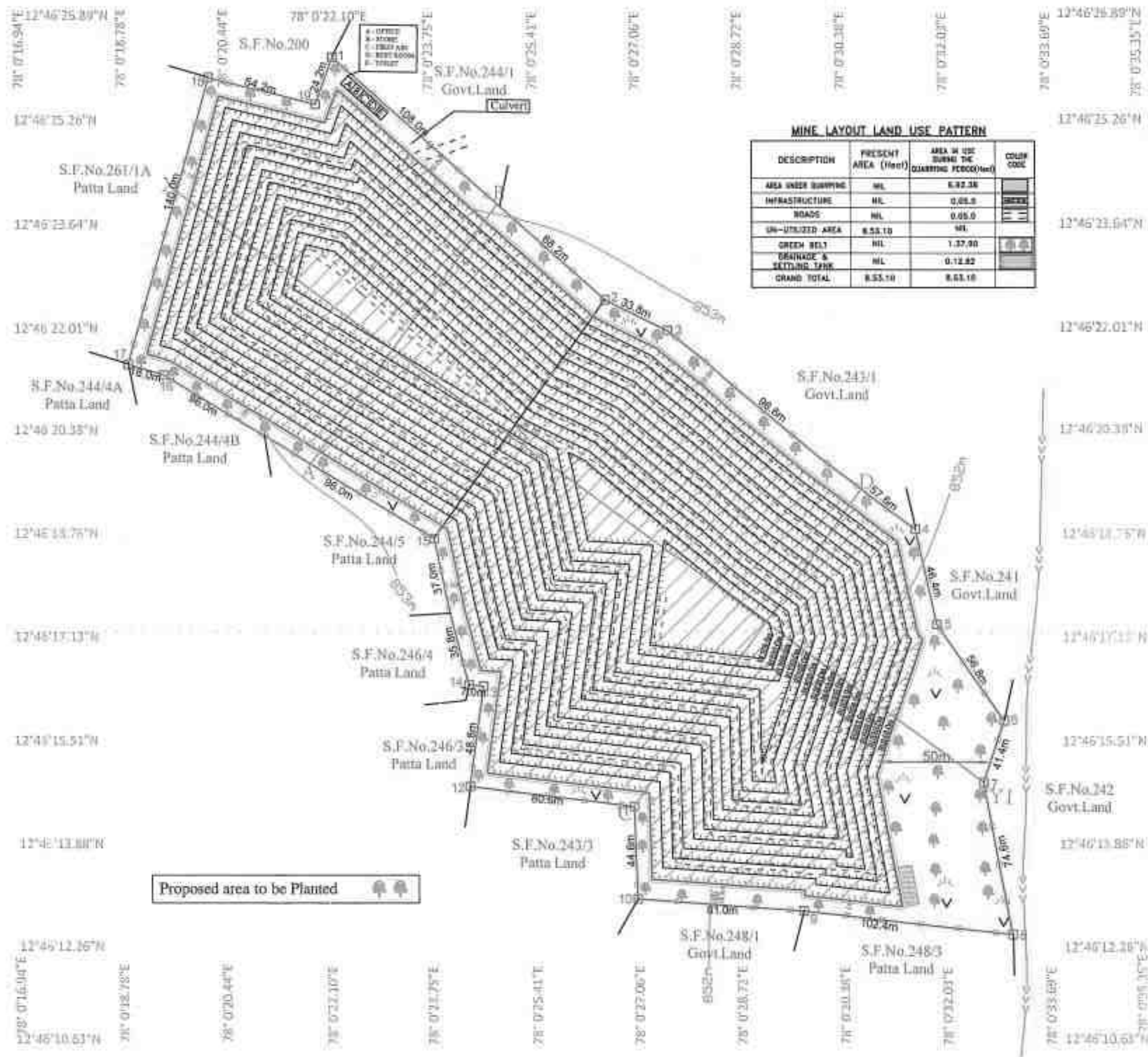
CONCEPTUAL PLAN

PLAN SCALE 1: 2000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS
BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON



MINE LAYOUT LAND USE PATTERN

DESCRIPTION	PRESNT AREA (Hect)	AREA IN USE DURING THE QUARRING PERIOD(Hect)	COLOR CODE
AREA UNDER QUARRYING	NIL	8.82.38	
INFRASTRUCTURE	NIL	0.05.0	
ROADS	NIL	0.05.0	
UN-UTILIZED AREA	8.53.10	NIL	
GREEN BELT	NIL	1.37.00	
DRAINAGE & SETTLING TANK	NIL	0.12.82	
GRAND TOTAL	8.53.10	8.63.18	



PLATE No. V

APPLICANT:

M/s.RAMANA STONE CRUSHERS,
No.113/22, RAJIV GANDHI NAGAR,
BAGALUR VILLAGE & POST,
HOSUR TALUK,
KRISHNAGIRI DISTRICT -635103.

LEASE APPLIED AREA:

S.F.No. : 243/2, 243/4, 244/2, 244/4B(P),
244/5(P), 244/6, 246/5 & 261

EXTENT : 8.53.10Hect
VILLAGE : PANNAPALLI
TALUK : SHOOLAGIRI
DISTRICT : KRISHNAGIRI

INDEX

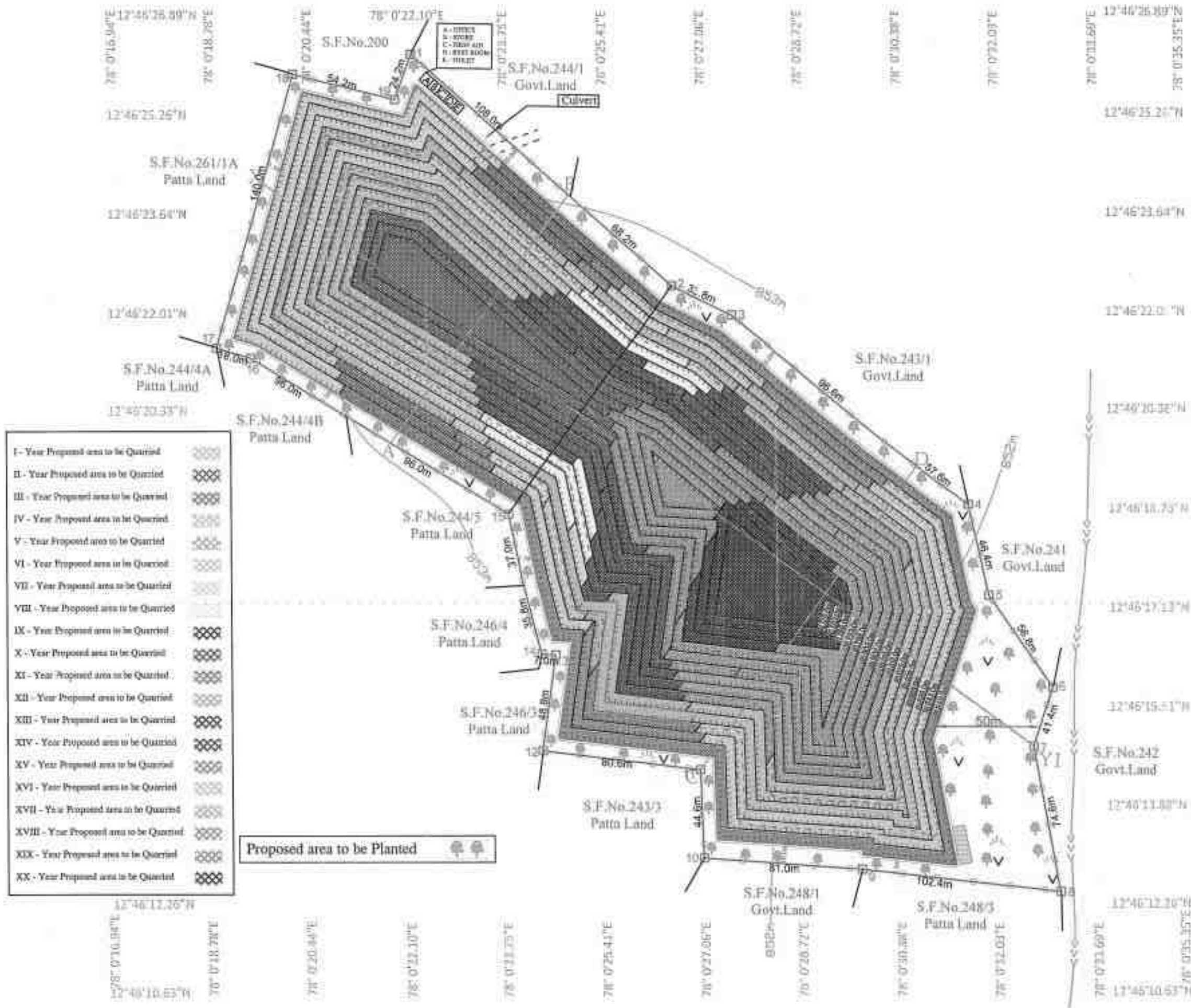
MINE LEASE BOUNDARY	
SAFETY BOUNDARY	
APPROACH & MINE HAUL ROAD	
BOUNDARY PILLAR STONES	
TEMPORARY BENCH MARK	
CONTOUR LINES	
SHRUBS	
GRAVEL	
DRAINAGE & SETTLING TANK	
PROPOSED BENCH	
ODAI	
FENCING	

MINE LAYOUT PLAN & LAND USE PATTERN
PLAN SCALE 1:2000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS
BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON



APPLICANT:
M/s.RAMANA STONE CRUSHERS,
 No.113/22, RAJIV GANDHI NAGAR,
 BAGALUR VILLAGE & POST,
 HOSUR TALUK,
 KRISHNAGIRI DISTRICT -635103.

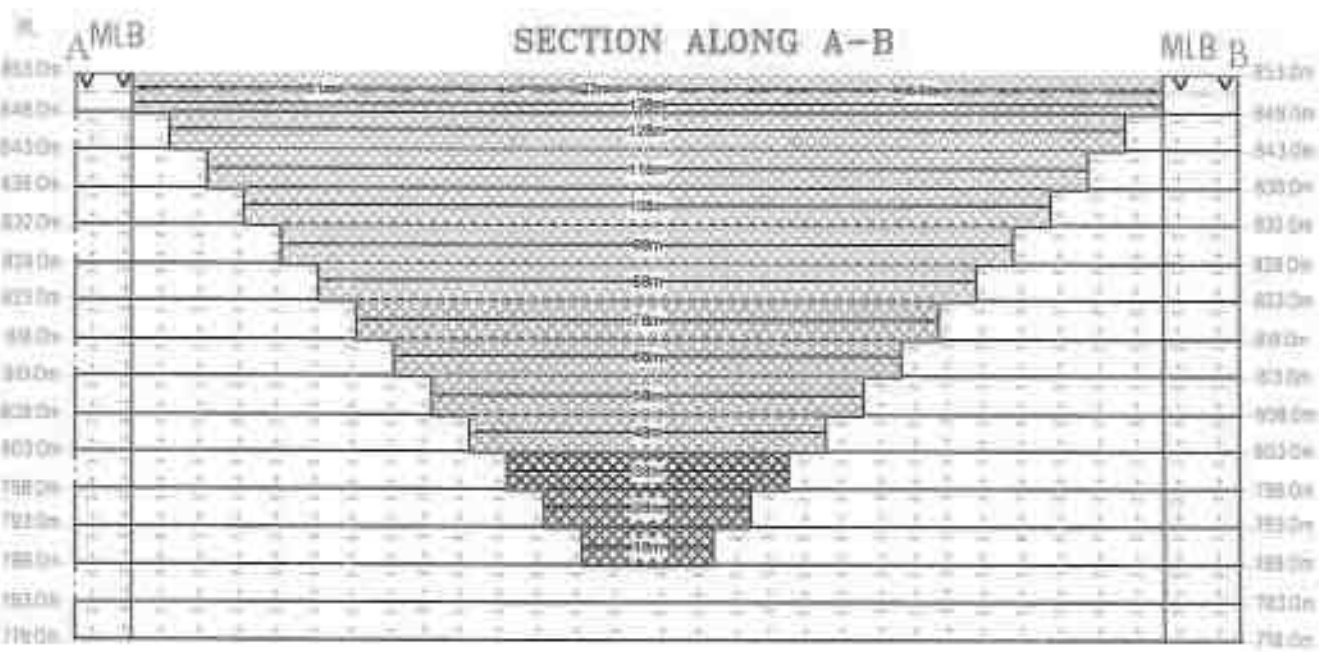
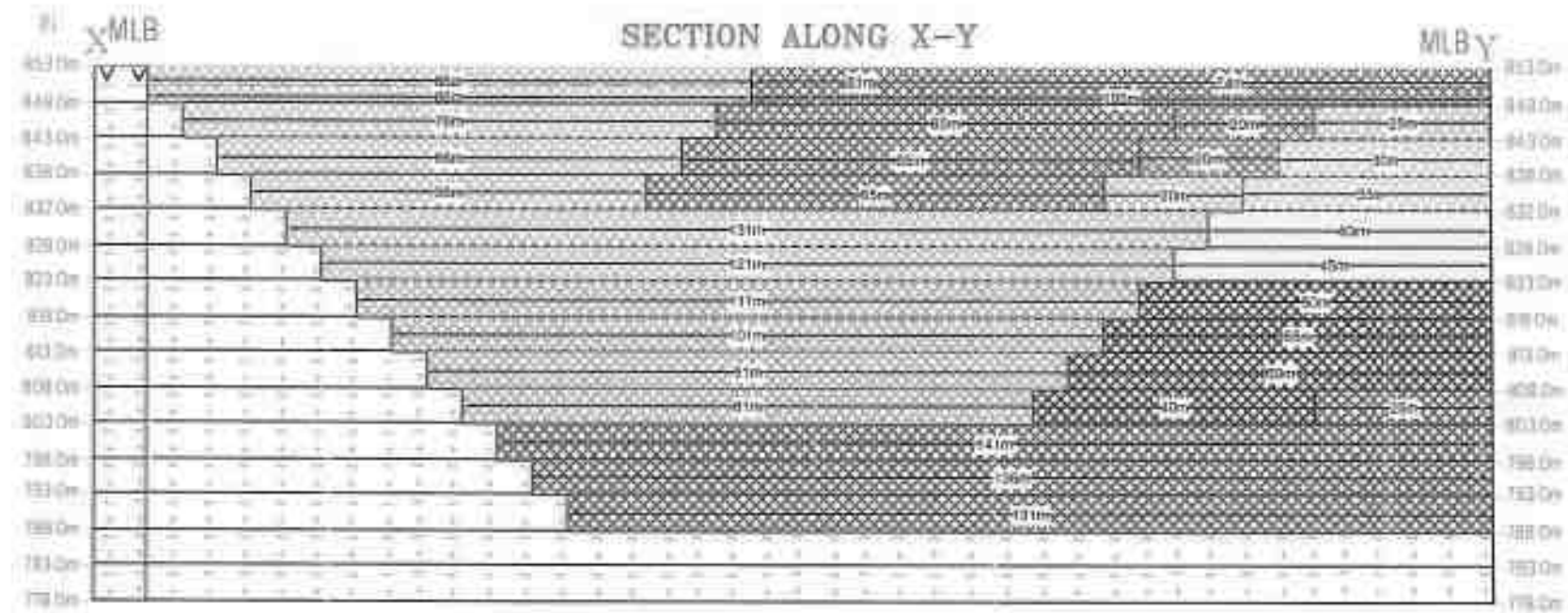
LEASE APPLIED AREA:
S.F.No : 243/2, 243/4, 244/2, 244/4B(P),
 244/5(P), 244/6, 246/5 & 261
EXTENT : 8.53.10Hect
VILLAGE : PANNAPALLI
TALUK : SHOOLAGIRI
DISTRICT : KRISHNAGIRI

INDEX	
MINE LEASE BOUNDARY	
SAFETY BOUNDARY	
APPROACH & MINE HAUL ROAD	
BOUNDARY PILLAR STONES	
TEMPORARY BENCH MARK	
CONTOUR LINES	
SHRUBS	
GRAVEL	
DRAINAGE & SETTLING TANK	
PROPOSED BENCH	
ODAI	
FENCING	

**YEARWISE DEVELOPMENT
 & PRODUCTION PLAN**
 PLAN SCALE 1 : 2000

Prepared By:
 I DO HEREBY CERTIFY THAT THE PLATE HAS
 BEEN CHECKED BY ME AND IS CORRECT
 TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
 QUALIFIED PERSON



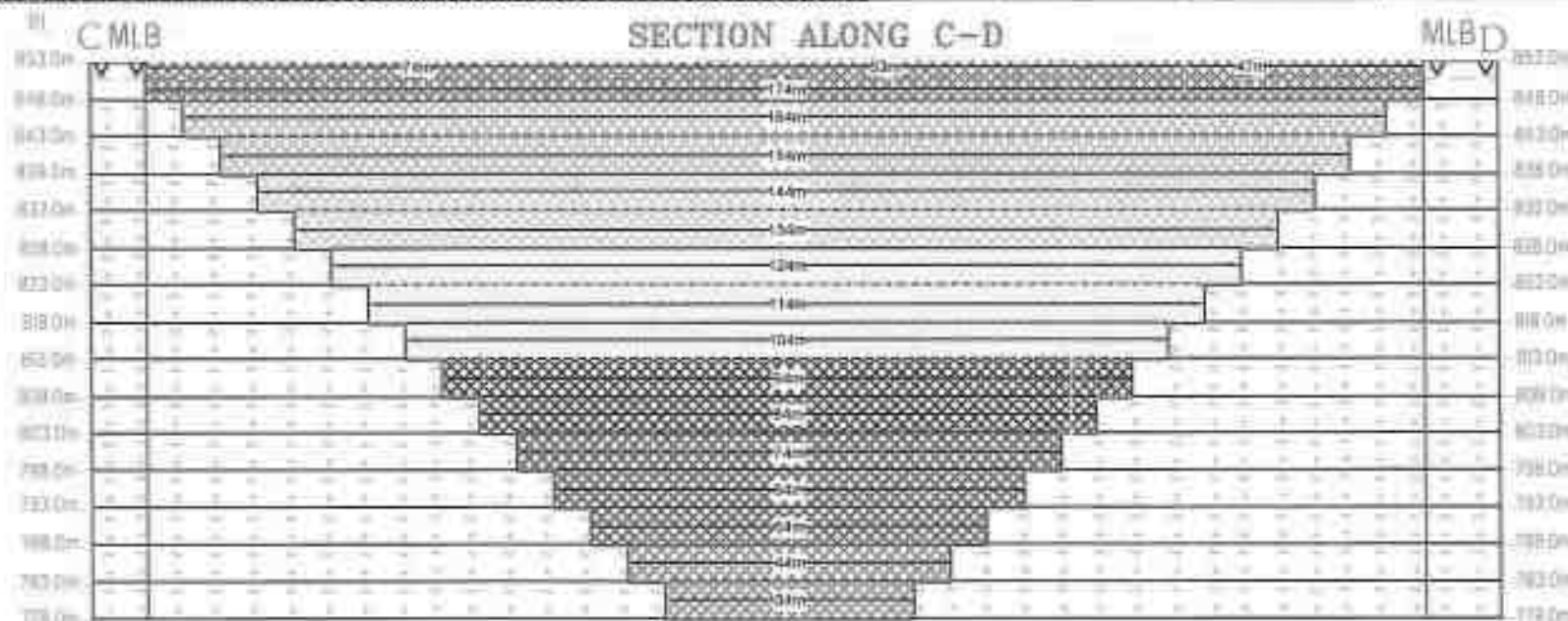
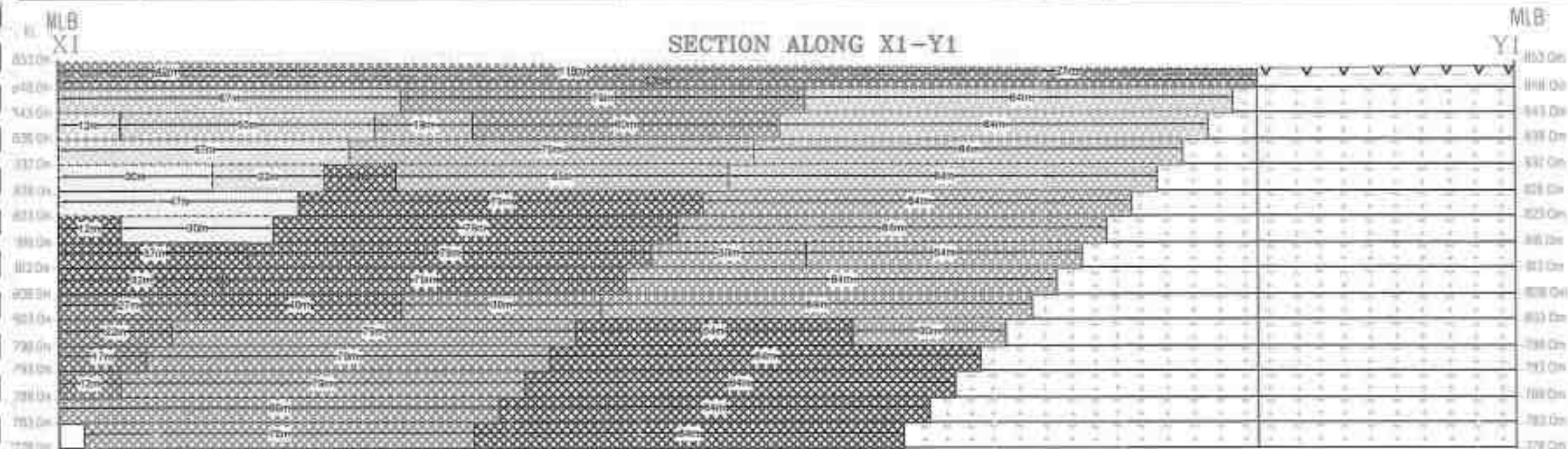
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- II - Year Proposed area to be Quarried
- III - Year Proposed area to be Quarried
- IV - Year Proposed area to be Quarried
- V - Year Proposed area to be Quarried
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- XVIII - Year Proposed area to be Quarried
- XIX - Year Proposed area to be Quarried
- XX - Year Proposed area to be Quarried

FIRST YEAR QUARRY PRODUCTION RESERVES											
Sl. No.	Section	Block	Length in feet	Width in feet	Area in Sq. ft.	Volume in cu. yd.	Gravel in cu. yd.	Gravel in cu. yd.	Gravel in cu. yd.	Gravel in cu. yd.	Gravel in cu. yd.
1	XX-AB	A	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
2	XX-AB	B	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
3	XX-AB	C	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
4	XX-AB	D	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
5	XX-AB	E	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
GRAND TOTAL											

SECOND YEAR QUARRY PRODUCTION RESERVES											
Sl. No.	Section	Block	Length in feet	Width in feet	Area in Sq. ft.	Volume in cu. yd.	Gravel in cu. yd.	Gravel in cu. yd.	Gravel in cu. yd.	Gravel in cu. yd.	Gravel in cu. yd.
6	XX-AB	A	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
7	XX-AB	B	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
8	XX-AB	C	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
9	XX-AB	D	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
10	XX-AB	E	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
11	XX-AB	F	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
12	XX-AB	G	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
13	XX-AB	H	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
14	XX-AB	I	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
15	XX-AB	J	1	10	10	100	100	100	100	100	100
			2	10	20	200	200	200	200	200	200
			3	10	30	300	300	300	300	300	300
			4	10	40	400	400	400	400	400	400
			5	10	50	500	500	500	500	500	500
TOTAL											
GRAND TOTAL											

PLATE No- VIA	INDEX
YEARWISE DEVELOPMENT & PRODUCTION RESERVES SECTION NO. 1 : 500 & 501 : 100	MINE LEASE BOUNDARY
APPLICANT: M/s.RAMANA STONE CRUSHERS, No.113/22, RAJIV GANDHI NAGAR, BAGALUR VILLAGE & POST, HOSUR TALUK, KRISHNAGIRI DISTRICT - 635103.	SAFETY BOUNDARY
LEASE APPLIED AREA: S.F.No : 243/2, 243/4, 244/2, 244/4B(P), 244/5(P), 244/6, 246/5 & 261	GRAVEL
EXTENT : 8.53.10Hect	ROUGH STONE
VILLAGE : PANNAPALLI	PROPOSED BENCH
TALUK : SHOOLAGIRI	
DISTRICT : KRISHNAGIRI	
	Prepared By: I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE
	 Dr.S.KARUPPANNAN,M.Sc.,Ph.D. QUALIFIED PERSON

B. Jaye Brakesh



GRAND FIVE YEARWISE PRODUCTION RESERVES										
Year	Section	Block	Length of Bench in m	Depth in m	Volume in cu m	Weight in kg	Value in Rs	Weight in kg	Value in Rs	Grand Total
2016	2016-17	1	75	100	7500	75000	75000	75000	75000	75000
2017	2017-18	2	75	100	7500	75000	75000	75000	75000	150000
2018	2018-19	3	75	100	7500	75000	75000	75000	75000	225000
2019	2019-20	4	75	100	7500	75000	75000	75000	75000	300000
2020	2020-21	5	75	100	7500	75000	75000	75000	75000	375000
GRAND TOTAL										
2016	2016-17	1	75	100	7500	75000	75000	75000	75000	75000
2017	2017-18	2	75	100	7500	75000	75000	75000	75000	150000
2018	2018-19	3	75	100	7500	75000	75000	75000	75000	225000
2019	2019-20	4	75	100	7500	75000	75000	75000	75000	300000
2020	2020-21	5	75	100	7500	75000	75000	75000	75000	375000
GRAND TOTAL										
2016	2016-17	1	75	100	7500	75000	75000	75000	75000	75000
2017	2017-18	2	75	100	7500	75000	75000	75000	75000	150000
2018	2018-19	3	75	100	7500	75000	75000	75000	75000	225000
2019	2019-20	4	75	100	7500	75000	75000	75000	75000	300000
2020	2020-21	5	75	100	7500	75000	75000	75000	75000	375000
GRAND TOTAL										
2016	2016-17	1	75	100	7500	75000	75000	75000	75000	75000
2017	2017-18	2	75	100	7500	75000	75000	75000	75000	150000
2018	2018-19	3	75	100	7500	75000	75000	75000	75000	225000
2019	2019-20	4	75	100	7500	75000	75000	75000	75000	300000
2020	2020-21	5	75	100	7500	75000	75000	75000	75000	375000
GRAND TOTAL										
2016	2016-17	1	75	100	7500	75000	75000	75000	75000	75000
2017	2017-18	2	75	100	7500	75000	75000	75000	75000	150000
2018	2018-19	3	75	100	7500	75000	75000	75000	75000	225000
2019	2019-20	4	75	100	7500	75000	75000	75000	75000	300000
2020	2020-21	5	75	100	7500	75000	75000	75000	75000	375000
GRAND TOTAL										



- I - Year Proposed area to be Quarried
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- XIX - Year Proposed area to be Quarried
- XX - Year Proposed area to be Quarried

PLATE No- VIB

YEARWISE DEVELOPMENT
& PRODUCTION SECTIONS
SECTION NO. 1 - 500 & VIB 1-500

APPLICANT:
M/s.RAMANA STONE CRUSHERS,
No.113/22, RAJIV GANDHI NAGAR,
BAGALUR VILLAGE & POST,
HOSUR TALUK,
KRISHNAGIRI DISTRICT - 635103.

LEASE APPLIED AREA:

S.F.No : 243/2, 243/4, 244/2, 244/4B(P),
244/5(P), 244/6, 246/5 & 261
EXTENT : 8.53.10Hect
VILLAGE : PANNAPALLI
TALUK : SHOOLAGIRI
DISTRICT : KRISHNAGIRI

INDEX

MINE LEASE BOUNDARY
SAFETY BOUNDARY
GRAVEL
ROUGH STONE
PROPOSED BENCH

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS
BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

[Signature]

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
QUALIFIED PERSON

B. Jaya Prakash

Village Administrative Officer
19, Pennapalli (Vill),
Shoolagiri (Tk), Krishnagiri (Dt).



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)

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