EXECUTIVE SUMMARY 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 – NON-FOREST LAND

CLUSTER EXTENT = 16.22.0hectares

At

Karudayampalayam Village, Pugalur Taluk,
Karur District, Tamil Nadu

ToR Identification No. TO25B0108TN5601804N on 07.11.2025, File No.12759

NAME AND ADDRESS OF THE PROPOSED PROJECT PROPONENT

Name and Address	Extent & S.F. No.	Mineral Production
M/s. Ram Blue Metals, S.F.No's. 505 A1, B1, B2, Pavithram Village & Post, Pugalur Taluk, Karur District.	4.09.0Ha & 289/2	Rough Stone- 254375m^3 or 699531MT Gravel- 3393m^3 or 6786MT

ENVIRONMENTAL CONSULTANT

GEO TECHNICAL MINING SOLUTIONS

No: 1/213-B, Ground Floor, Natesan Complex
Oddapatti, Collectorate Post office,
Dharmapuri-636705. Tamil Nadu.
E-mail: info.gtmsdpi@gmail.com,
Website: www.gtmsind.com
NABET ACC. NO: NABET/EIA/23-26/RA 0319
Valid till: 31.12.2026

INTERSTELLAR TESTING CENTRE Pvt. Ltd

Plot.No.2, Site No.12/2A,

Industrial Estate, Perungudi, Chennai, Tamil Nadu

NABL Certificate Number:TC-6952,

Baseline study period- March through May 2025

November- 2025

EXECUTIVE SUMMARY

1 Introduction

ProposedSince the Karudhayampalayam Rough Stone and Gravel Mining Project (B1) falls within a 500m radius quarry group with a total area of 16.22.0 hectares, an EIA report is required to be submitted for granting Environmental Clearance (EC) after conducting a public hearing. Field No. 289/2, The proposed project, spread over an area of 4.09.0 hectares, is located at Karudhayampalayam village, Pugalur taluk, Karur district, Tamil Nadu. The quarries involved in the calculation of the size of the group are three proposed quarries and two existing quarries.

2 Project Description

The proposed project area is Karur It is located in Karuduyampalayam village, Bugalur taluk, district, between latitudes 10°56'41.46"N to 10°56'51.72"N and longitudes 77°58'7.38"E to 77°58'15.85"E. According to the approved mining plan, about 254375 cubic meters / 699531 in ten years Tons of Rough stone and 3393 cubic meters / 6786 tons of gravel will be mined to a depth of 50 meters below ground level. The quarrying operation is proposed to be carried out by open pit semi-mechanized mining method involving drilling and creation of benches of prescribed dimensions.

3 Description of the environment

Baseline data for assessing the existing environmental status in the core and buffer zones was collected from March to May 2025 as per CPCB guidelines. Data was collected by FAEs and NABL accredited and MoEF notified specialist laboratories for environmental attributes including soil, water, noise, air and for ecology and biodiversity, transport and socio-economics by FAEs.

3.1 Land environment

As shown in Figure 3.3, a Land Use and Land Cover (LULC) map was prepared using Sentinel II image for the 5 km radius study area to provide a baseline condition of the study area covering a 5 km radius around the proposed mining site. In total, 7 LULCs were mapped using ArcGIS software version-10.2. The area of each LULC is given in Table 3.5. Of the total ensemble area, the mining area covers only 309.50 ha, which is 3.72%, of which the lease area of 4.09.0 ha contributes only about 0.049%. Therefore, a very small percentage of mining activities will not have a significant impact on the land environment.

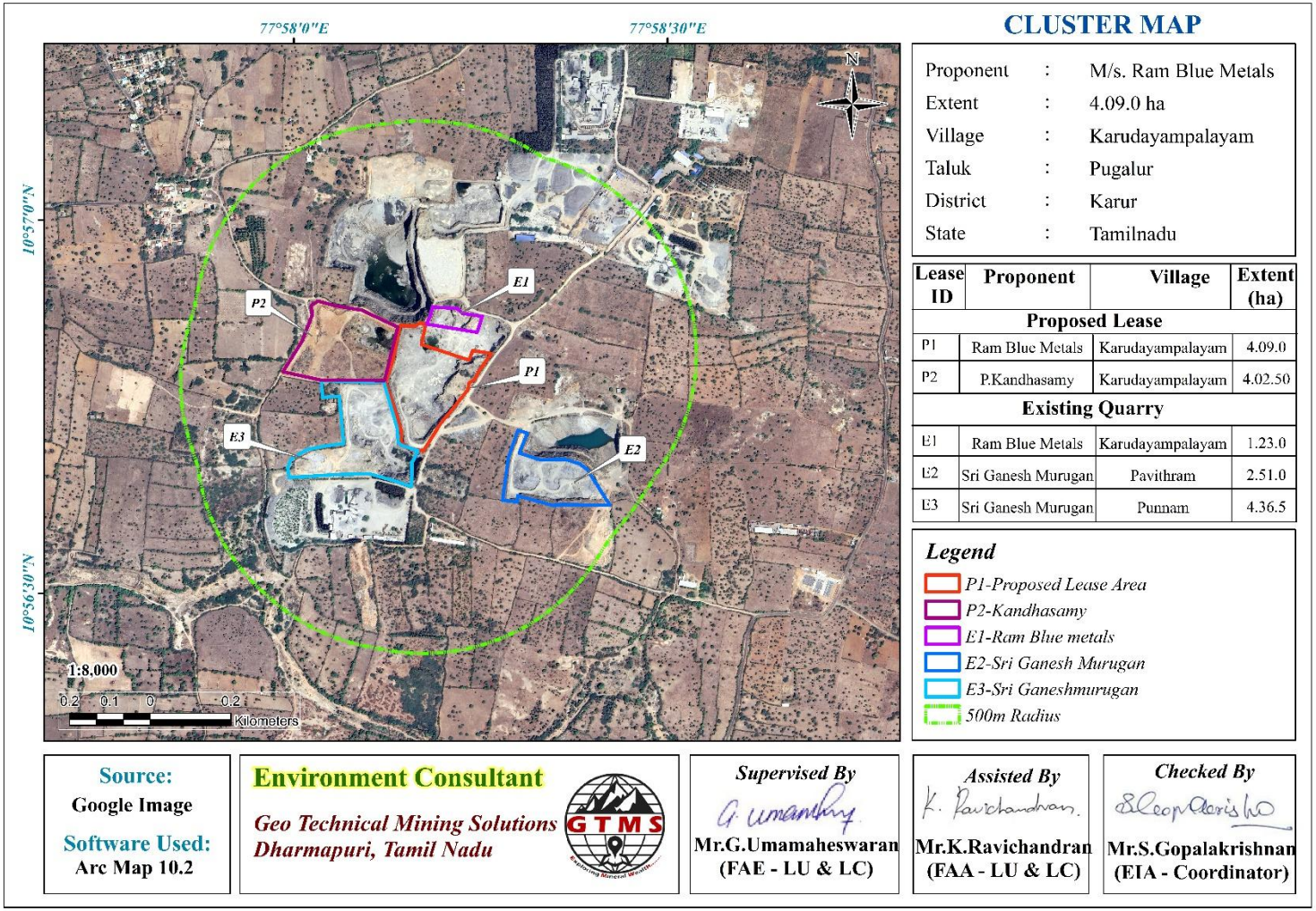

Image1. Google Earth image displayed on a group map.

A comparative study of land use land cover (LULC) within a 5 km radius was conducted (2020 vs 2025), and significant changes in land use and land area were observed (Table 3.5a). Cropland has decreased from 5598.72 ha (67.30%) to 4151.44 ha (49.91%), indicating a decrease in agricultural activities, this change is due to the land not being suitable for agriculture and the source of irrigation is uncertain. But the cultivated land is included in the bare land and fallow land, its area has increased. Mining activities have increased slightly from 302.12 ha (3.63%) to 309.50 ha (3.72%), indicating an increase in the demand for construction materials for various infrastructure developments. The increase in common vegetation in the last five years has increased by 2.12 ha (0.03%), due to afforestation activities carried out by past quarry supporters. The built-up areas have also increased from 1027.48 ha (12.35%) to 1289.69 ha (15.50%), indicating urban growth due to increased economic activities. In fact, the agricultural land has been reduced, but that too has been included in the reversible fallow land when irrigation factors become available.

3.2. Soil properties

The soil is nutrient-rich, well-balanced, and structurally suitable for agriculture. No immediate remedial measures are required, but continuous monitoring and sustainable land management practices are recommended to maintain soil health.

Physical Properties & Chemical Properties

1. Soil pH and Electrical Conductivity (EC):

•The pH ranged from 7.89 to 8.64, indicating that the soil was neutral to slightly alkaline, which is favorable for most crops.

• The EC value ranged from 0.19 to 0.45 ms/m, indicating low salt concentration and non-salinity soils throughout the sample area.

2. Physical properties

- Bulk density values ranged from 1.12 to 1.38 g/cc, which are within the typical range for clay soils and support good root penetration and aeration.

3. Soil fertility status

• Organic matter levels ranged from 0.16 to 0.28% by weight, which classifies the soil as low to moderately fertile in terms of organic matter.

• Nitrogen (N) content varies from 0.04 to 0.08% by mass indicating moderate nitrogen availability.

• Potassium (K) is present in the soil in a moderate fertility capacity ranging from 0.0018 to 0.0042% by mass in terms of potassium.

4. Basic elements and cation ratios

- Calcium (Ca) levels were at a maximum of 1086mg/kg and a minimum of 2248 mg/kg.
- Magnesium (Mg) ranged from 288 to 768 mg/kg.

Conclusion:

The soils in the study area are generally non-saline, neutral to slightly alkaline, and moderately fertile with low levels of contamination. They have good permeability, porosity, and texture types suitable for agriculture and greenbelt development. The absence of heavy metals ensures that the underlying soil conditions are uncontaminated and safe for recovery and plant growth.

3.3 Water environment

Groundwater

Analysis of surface water in the study area shows that the water quality is excellent and meets standards for drinking (after simple disinfection), irrigation, domestic use, and supporting aquatic life.

1. **Ammonia, phenolphthalein alkalinity, potassium, RFC, BOD, COD, chromium, zinc - all "Below the Limit of Quantification (BLQ)":**

•These are toxic heavy metals. Their presence in groundwater is usually due to industrial waste or natural geological sources (minerals in rocks).

• There is no indication of industrial or geologic contamination from these toxic metals, as all are below detection limits.

• This is positive from an environmental and health risk perspective.

• Description: No heavy metal contamination.

2. **Calcium (56.2 – 107.1 mg/l)**

•Calcium contributes to water hardness. Too much calcium makes water hard, but is not harmful.

• Acceptable limit is 75mg/l, up to 200mg/l is allowed.

• Slightly higher than acceptable but within limits.

• Description: Slightly hard water, no big concern.

3. **Magnesium (3.6 – 6.9mg/l)**

• Also contributes to water hardness.

• BIS acceptable limit: 30mg/l (up to 100mg/l is allowed).

• Some samples are higher than acceptable, but still within permissible limits.

• Description: The water is moderately hard, but usable.

4. **Chloride (107.2 – 204.2 mg/l)**

•Too much chloride affects taste and can cause corrosion in pipes.

• Acceptable limit: 250mg/l; up to 1000mg/l is allowed.

• Your values are slightly above the acceptable range but are safe.

• Description: Mild saltiness - may affect taste but does not affect health.

5. **Fluoride (0.18 – 0.44 mg/l)**

- Fluoride is beneficial in small amounts, but harmful in excess (>1.5mg/l causes fluorosis).
- All values are below the 1.0mg/l limit.
- Explanation: There is no risk of dental or skeletal fluorosis.

6. **Nitrate (7.63– 14.53 mg/l)**

- Nitrates come from agricultural wastewater or sewage.
- The safe limit is 45mg/l (to avoid blue baby syndrome in children).
- Your values are below the range.
- Description: No significant nitrate contamination.

7. **Iron (0.19 – 0.56 mg/l)**

- Iron above 0.3 mg/liter causes staining, bad taste, and bacterial growth.
- Your samples are below the limit.
- Explanation: There are no iron-related issues.

8. **pH (6.98 – 8.01)**

- The pH of drinking water is 6.5–8.5.
- All values within this range.
- Description: Neutral pH, no tendency to corrode or scale.

9. **Total dissolved solids (TDS) (401 – 765 mg/l)**

- TDS refers to the total minerals and salts in water.
- The acceptable limit is 500mg/l; up to 2000mg/l is permitted.
- BW01, BW03, and BW05 are higher than acceptable, but within the permissible range.
- Description: Slightly mineralized water; taste may be affected but safe to use.

10. **Electrical conductivity (EC) (692 – 1342 µS/cm)**

- Indicates the overall ion concentration in water.

- Higher EC = higher salinity.
- EC > 1000 µS/cm (in BW01 and BW05) indicates moderately saline water.
- Description: Suitable for irrigation, but may require softening for drinking.

11. Total alkalinity (116 – 242 mg/l)

- Indicates buffering capacity (resistance to pH change).
- Acceptable: 200mg/l; Permissible: 600mg/l.
- High alkalinity may indicate the presence of bicarbonates/carbonates.
- Explanation: Alkalinity is common in groundwater. It does not cause any health problems, but can affect taste.

12. Total hardness (TH) (157 – 352 mg/l)

- Acceptable: 200mg/l; Permissible: 600mg/l.
- TH > 200 (BW03, OW01) means moderately hard water.
- Description: Softening may be required for home use.

13. Turbulence (0.4 – 1.8)

- Very clear water, no suspended solids.
- Description: Very good water quality visually and physically.

14. Silica (6.02 – 11.47 mg/l)

- There is no BIS standard, but it is useful for understanding the scaling potential in boilers and pipes.
- Normal in groundwater.

Conclusion:

The groundwater quality assessment reveals that the water is generally safe and suitable for drinking, domestic and irrigation purposes. All tested heavy metals such as barium, boron, copper, lead, mercury, arsenic, chromium and zinc were found to be below detection limits, indicating no industrial or geo-pollution. Major health-related parameters including fluoride, nitrate, iron and pH levels are within acceptable standards, posing no health risk. Some physico-chemical parameters such as calcium, magnesium, total hardness, total dissolved solids (TDS), electrical conductivity (EC) and chloride showed slightly elevated levels in a few samples, but they are within the permissible limits prescribed by BIS standards.

3.4 Air environment

As per the monitoring data, PM2.5 ranged from 15.87 µg/m3 to 19.52 µg/m3; PM10 ranged from 41.50 µg/m3 to 50.74 µg/m3; SO2 ranged from 5.08 µg/m3 to 5.80 µg/m3; NOx

ranged from 10.15 µg/m3 to 11.95 µg/m3. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

Air quality index

The AQI shows that the air quality of the study area falls within the good category of 44, with minimal impact on human health.

3.5 Noise environment

The noise level in the core zone was 48.1 dB (A) Leq during the day and 39.8 dB (A) Leq during the night. The noise levels recorded in the buffer zone were 41.1 to 46.7 dB (A) Leq during the day and 36.8 to 40.6 dB (A) Leq during the night. Thus, the noise level for industrial and residential areas meets the requirements of CPCB.

3.6Biological environment

Among the flora and fauna in the study area Normal A biological study of the ecosystem is essential to understand the impact of the quarry. Studies on various aspects of the ecosystem play a vital role in identifying sensitive issues for taking appropriate measures to mitigate the impact, if any. A survey was conducted to study the flora and fauna within a radius of 10 km through direct and indirect observations/data. Some information was collected from the local people. All the data collected was categorized to explain the impact of the pollution on the flora and fauna of the region. A survey of wild plants and cultivated crop plants was done, and all available information was recorded.

Plants in the central zone

The core zone is found in trees, shrubs, herbs and grasses. Taxonomically a total of 11 species belonging to 6 families have been recorded from the core mining lease area. Based on the habitat classification of the plants counted, the majority of the species are herbs 3, followed by trees 2, shrubs 3 and climbers 1. The result of the core zone of plant surveys shows that Fabaceae and Solanaceae are the main dominant species in the study area as mentioned in Table 3.24 & 3. 25. No species was found as threatened species.

10 km radius Buffer Plants in the zone

144 different species have been identified in the buffer zone. The identified floral (144) species include 50 trees, 39 herbs, 31 shrubs, 11 climbers, 5 lianas and 8 grasses. According to the findings of the buffer zone vegetation surveys, the dominant species in the study area are Fabaceae, Asteraceae and Euphorbiaceae, which are shown in Table 3.26. Apart from the proposed project area, there is agricultural land. Horticultural and agricultural lands are untouched. There are no rare, endangered and threatened plant species in the mining area and

the surrounding study area. The details of the plants with scientific names are mentioned in Table 3.26. A list of floral species has been prepared based on primary survey (site observations) and discussions with the local people. The total number of different plant life forms under trees, shrubs, herbs and climbers is shown in Table 3.26.

Central In the zoneAnimals

A total of 14 species were found in the core zone (Table 3.28). Out of these, 7 are insects, 2 are reptiles, 2 are mammals and 3 are birds. A total of 14 species belonging to 12 families were recorded from the core zone. The study showed that the number of species decreases towards the mining area. This may be due to the scarcity of vegetation. None of these species in the core zone are threatened or endemic species. The survey was conducted to identify species listed in the IUCN Red List. According to the field data, no species is in Table I and nine species are in Table IV. No critically endangered, endangered, vulnerable and endemic species were found. The details of the fauna in the core zone with scientific name are given in Table 3.28.

Fauna in the buffer zone

A total of 49 species belonging to 36 families have been recorded from the buffer zone area (Table 3.29). Based on habitat classification, the majority of species are birds 15, followed by insects 13, reptiles 13, mammals 5 and amphibians 3. There are 7 species under Schedule II of the Indian Wildlife Act 1972 and 27 species are under Schedule IV. A total of fifteen species of birds were found in the study area. No endangered, threatened, vulnerable and endemic species were found.

3.7Socio-economic environment

The proposed project will provide direct and indirect employment and improve infrastructure facilities in the area.,It will lead to improving the quality of life of the people.

4 Expected environmental impacts and mitigation measures for the proposed project

4.1 Land environment

Expected impact

- Land use and land area and change in the topography of the mining lease area
- Problems to human habitats due to dust and noise caused by the movement of heavy vehicles
- Soil erosion and siltation in nearby water bodies during the rainy season
- Sedimentation in waterways due to washout from exposed work areas

- Deterioration of soil quality in the surrounding area due to sewage discharge from the project area
- Decrease in agricultural productivity of surrounding land due to soil quality degradation.

Mitigation measures

- Construction of stream drainage, drainage ditches and retaining dams to prevent stream drainage and sedimentation.
- Before the stream is discharged from the quarry site, the stream water will be discharged into settling tanks to reduce suspended sediment loads.
- Plants will be retained in place as much as possible.
- Weekly monitoring and daily maintenance of erosion control systems to ensure they function as specified, especially during the rainy season.

4.2 Soil environment

Expected impact

- Removing plants
- Exposure of underground materials unsuitable for plant establishment

MitigationActivities

- Surface within quarry working areasWaterDrains have been constructed around the project boundary to prevent runoff from entering.**,** will be discharged into vegetated natural drainage channels, or distributed throughout the area stabilized against erosion.
- Water flowing out of the working areas is directed to sedimentation ponds. These trap sediment and reduce suspended sediment loads before the flow is discharged from the quarry site. Sedimentation Ponds Runoff**,** should be designed based on retention time and soil properties. It may be necessary to provide a series of sedimentation ponds to achieve the desired result.
- Retaining Plants – Retain or replant existing plants on the site as much as possible.
- Monitoring and Maintenance - Weekly monitoring and daily maintenance will ensure that erosion control systems function optimally during the rainy season..

4.3Water environment

ExpectedImpact

- Pit drainage,OfficeSewage, vehicles and machineryTSurface and groundwater sources can be contaminated due to discharge of oil and grease-bearing wastewater from operations and surface exposure or washout from work areas.

- ❖ The proposed project is from water vendors.3.5 Since KLD receives water, it will not take water by constructing abstraction structures in the lease area. Therefore, this project will not affect the depletion of water bodies under the lease area.

CommonMitigation measures

- ❖ Rainwater from the mine shaftThe solution will be purified in tanks before being used for dust suppression and tree planting.
- ❖ Domestic sewage from the site office is discharged into a septic tank and then soaks the pits..
- ❖ Water from the tipper wash-down facility and machine maintenance yard will be routed through interceptor traps/oil separators before reuse..
- ❖ DrainageThe drain is connected to a settling tank, and sediments are trapped in the settling tanks, and only clear water is discharged to natural drainage.
- ❖ Periodically (every month) on the groundwater quality of the quarry pit water and the groundwater of the nearby villagesAnalysis will be conducted once every 6 months.
- ❖ Artificial rainwater harvesting structures will be installed at appropriate locations as part of the rainwater harvesting management plan..

4.4 Air environment

Expected impact

The expected increase in air pollutants due to quarrying activities has been predicted using AERMOD software. The values of the overall concentration, i.e., the background + incremental concentration of pollutants at all locations, are within the recommended NAAQ limits without effective mitigation measures. By implementing appropriate mitigation measures, the levels of pollutants in the atmosphere can be further controlled.

Mitigation measures

- ➢ To avoid dust formation during transportation, water will be sprayed on transportation roads twice a day.
- ➢ The goods will be transported during the day, and the goods will be covered with a tarpaulin.
- ➢ To avoid dust formation, the speed of tippers running on the transport road will be less than 20 km/h.
- ➢ Water will be sprayed twice a day on transport roads and loading points.
- ➢ Weekly maintenance of engines will improve the combustion process and reduce pollution.

- Unmetalled transport roads will be compacted weekly before being put into use.
- Overloading of tippers will be avoided to prevent leakage.
- It will be ensured that all transport vehicles have a valid PUC certificate.
- To eliminate the accumulation of loose materials, transportation roads and service roads will be graded.

Green area

- Tree planting on mining transport roads outside the lease and regular grading of freight transport roads will be implemented to prevent dust generation due to the movement of tractors/tippers.
- A green belt of sufficient width will be created around the project site.

Occupational health

- Workers will be provided with dust masks and their use will be strictly monitored.
- Annual medical check-ups, training and campaigns will be organized to ensure awareness among all miners and tipper drivers on the importance of wearing dust masks.
- Ambient air quality monitoring will be conducted every six months to assess the effectiveness of the proposed mitigation measures.

4.5 Noise environment

Expected impact

- Mining operations generate significant noise that affects both the health of workers and nearby communities.
- These impacts can range from irritation and sleep disturbance to structural damage and hearing loss. Effective noise management 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 deafness and other hearing problems.
- Heavy machinery: Excavators, loader trucks, and other equipment used in mining operations generate considerable noise.
- Loading and transportation: Moving and handling materials within the mine site contributes to noise pollution.

Mitigation measures

- Improving blast design to reduce ground noise.
- Creating noise barriers or covering noisy equipment can help reduce noise transmission.

- Proper maintenance and operation of mining equipment can help reduce noise generation.
- Using sharp drill bits when drilling will help reduce noise.
- Secondary blasting will be completely avoided and a hydraulic rock breaker will be used to break the rocks.
- A controlled explosion will be maintained with the correct spacing, load, cord, and optimal charge/delay.
- The explosion will be carried out under normal atmospheric conditions and at times when human activity is minimal, using a non-electric initiation system.
- Proper maintenance, oiling, and greasing of the machines will be done every week to reduce noise generation.
- Providing soundproof rooms for workers working on high-noise machines (HEMM).
- Silencers/mufflers will be installed on all machines.
- Green belts/gardens will be created around the project area and along the transport roads. This garden will reduce noise transmission.
- HEMM operators and persons working near HEMM will be provided with Personal Protective Equipment (PPE) such as ear muffs/ear plugs. Their use will be ensured through further training and awareness.
- Regular medical check-ups and proper training for employees to raise awareness about the adverse effects of noise levels.

Ground vibrations:

Noise and vibration:

- Mining operations generate significant noise and vibration that affect both the health of workers and nearby communities.
- These impacts can range from irritation and sleep disturbances 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: The primary source of both noise and ground vibrations, the intensity of which depends on the size of the explosives, atmospheric conditions, and proximity to the blast.
- Heavy machinery: Excavators, loader trucks, and other equipment used in mining operations generate considerable noise.

- Loading and transportation: Moving and handling materials within the mine site contributes to noise pollution.

Common mitigation measures

- Blasting operations in group quarries are carried out without blasting using deep hole drilling and delay detonators, which reduces ground vibrations.
- The correct amount of explosives, suitable stemming materials and a suitable delay system will be adopted to avoid overcharging and ensure safe detonation.
- Adequate safe distance from the blast will be maintained as per DGMS guidelines.
- Explosive shelter will be provided as per DGMS guidelines.
- Explosive activities will only be carried out during daylight hours.
- Delay charges will be reduced. Also, a larger number of delays will be applied to explosions.
- During an explosion, other nearby activities will be temporarily suspended.
- Drilling parameters such as depth, diameter and spacing will be precisely designed to provide the correct blast.
- A fully trained explosives detonator (Mining Assistant, Mine Foreman, 2nd Class Mine Manager/ 1st Class Mine Manager) will be appointed.
- Sufficient angled stemming material will be used to control the explosive force and minimize environmental disturbances caused by ventilation/misfire.
- The detonators will be connected in a predetermined order to ensure that only one charge is detonated at any time, and a NONEL or similar type of initiation system will be used.
- The burst delay sequence should be designed to ensure that the holes are in the direction of the free faces, thus minimizing vibration effects.
- Appropriate blasting techniques should be adopted such that the predicted peak particle velocity does not exceed 0.251 mm/s.
- Vibration monitoring will be carried out every 6 months to verify the effectiveness of the blasting procedures.

4.6Biological environment

Expected impact

- There are plants in the quarry lease area. Details of the plants. Plants are likely to be affected during quarrying operations.

- There should be minimal air emissions or waste from the project site. During truck loading, Dust is likely to be generated. This is a temporary effect and is expected to significantly affect surrounding vegetation.
- Most of the land in the quarry lease area is undulating terrain with patches of grass and small bushes. Therefore, The vegetation in the area will be affected. There are trees in the mining lease area. The trees will be affected during the quarrying operation.
- From quarry machines and tippers per day 96Kilo, per year10368Kilograms and in five years 103680Kilograms of carbon dioxide are also emitted, which can lead to an increase in atmospheric temperatures in the region.

Mitigation measures

- There are trees in the quarry lease area.**,** details of which are given in Table 3.25 in Chapter 3. Quarries will be carried out in a manner that does not affect these trees and the trees will be uprooted and planted in a 7.5 m buffer zone. If the trees are uprooted and planted, their survival rate is only 30%, hence 10 saplings per tree are purchased in the ratio of 1:10 and planted in a 7.5 m buffer zone.
- A 7.5-meter and 10-meter safety belt has been established around the quarry lease **area.**One-year-old saplings were purchased at the rate of 500 saplings per hectare, and 2045 saplings were purchased and planted as of 4.09.0.
- At the conceptual stage, the upper bench will be revegetated by planting local/native species and the lower benches will be converted into a rainwater harvesting system after the mining activities are completed, which will transform the habitat resources of the fauna in this area in the long term.
- Existing roads will be used**;** New roads will not be built to minimize damage to vegetation.

4.7Socioeconomic environment

Expected impact

- MiningDust generated from the operations will have a negative impact on the health of workers and people in the nearby area.
- TippersApproach roads will be damaged by traffic.
- DirectlyIt also indirectly improves the economic status of the people of the region by increasing employment opportunities.

Mitigation measures

- ❖ All Good maintenance practices will be followed for machinery and equipment. This will help avoid potential noise problems.
- ❖ Central Pollution Control Board(CPCB)Green space will be created in and around the project area as per the guidelines**.**
- ❖ Central Air pollution control measures will be taken to reduce environmental impact within the area.
- ❖ Workers For safety,Mining Gloves according to law and regulations, Helmet Safety shoes, Glasses, Personal protective equipment such as face masks and ear protection will be provided.
- ❖ This Direct and indirect royalty tax from the project,Taxes etc. to the state and central governments through financial revenue Available.

4.8 Occupational health

- ❖ All individuals will undergo pre-employment and periodic medical examinations.
- ❖ Employees will be monitored for occupational diseases by undergoing medical examinations: General physical examinations, Audiometric tests, Full chest, X-ray, Pulmonary function tests, Spirometric tests, Periodic medical examination - annually, Pulmonary function test - annually, Dust and eye examination will be provided.
- ❖ Essential medicines will be provided on site. Medicines and other testing facilities will be provided free of cost..
- ❖ A first aid kit will be placed in the mine for immediate treatment. Selected personnel will be provided with regular first aid training. Lists of members who have received first aid training will be displayed at strategic locations..

5.Environmental Monitoring Program

S. No.	Environmental characteristics	Location	Monitoring		Parameters
			Time frame	Vibration White	
1	Air quality	6 slots (1 central & 5 buffer)	24 hours	Every 6 months	Particulate matter, PM2.5, PM10, SO2 and NOx.

2	Meteorology	Air quality monitoring at the mine site & IMD secondary data before commencement	Hourly / Daily	Continuous online monitoring	Wind speed, wind direction, temperature, humidity and precipitation
3	Watery eye Land	7 locations (2SW and 5 GW)	-	One for 6 months Murai	Specified under IS:10500, 1993 & CPCB norms Degree parameters
4	Hydrology	Approximately 1 km of certain wells are open wells in the buffer zone.	-	Every 6 months	Depth below ground level
5	Noise	6 Locations (1 central & 5 buffer)	Hours - 1 day	Every 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	In a nearby apartment (in the report)	–	During the explosion operation	Peak particle speed
7	Soil	7 seats (1 central & 6 buffer)	–	Every six months	Physical and chemical properties
8	Green area	Within the project area	Daily	Monthly	Maintenance

Source: Mineral Mining Handbook Guidelines, February 2010.

6 Extra Studies

6.1Risk assessment

The DGMS Risk Assessment process aims to identify existing and potential hazards in the work environment and all operations and assess the risk level of those hazards in order to prioritize those that require immediate attention. The entire quarry operation will be carried out under the guidance of a qualified Mine Manager holding a Certificate of Competence to Manage a Metal Mine issued by DGMS for the proposed project.

6.2Disaster Management Plan

The purpose of the disaster management plan is to utilize the combined resources of the mine and external services to:

- Rescue and treat victims;
- Protecting others;
- Minimizing damage to property and the environment;
- Safe rehabilitation of the affected area; and
- Preserving relevant records and equipment for subsequent investigation into the cause and circumstances of the emergency

6.3 Overall studies

In the atmosphere of the group Two Results of the overall impact of the proposed projects, not exceeding the permissible limits set by the CPCB for air pollution.

- Overall results of noise for residential areas in the mine, should not exceed the limit set by CPCB for residential areas during daytime.
- As a result of the proposed projectsPPV peak particle velocity is below the permissible limit of 5 mm/s
- Proposed Projects SEAC As recommended CER Rs.25,00,000/-
- Proposed Projects directlyWill provide indirect employment opportunities to 104 local people
- Proposed The projects include approximately 8111Trees will be planted.
- Proposed projects per day on nearby roads 575 PCU Adding.

7 Project Benefits for the Proposed Project

Various benefits are expected due to the proposed mine and the overall expected benefits of the proposed project at the local, regional, and national levels are:

- 23 Direct employment opportunities for local people
- Creation of social assets (infrastructure) such as school buildings, village roads/connected roads, connected dispensary and health center, community center, market place, etc.

- ❖ Awareness program and social activities, health camps, medical assistance, sports and cultural activities, gardening, etc.,
- ❖ Skill development such as vocational training& Skill Development.
- ❖ Rs. 5,00,000 will be allocated for CER.

8 Environmental Management Plan

In order to implement environmental protection measures, considering the current market price for the proposed project, a capital cost of Rs. 27.99 Lakh and ongoing expenditure Rs. 20.01 Lakhs of recurring expenditure/year has been proposed. After adjusting for inflation at 5% per annum, the overall EMP expenditure for 10 years will be Rs. 279.48 lakhs.

Conclusion

Pugalur, Karur district, Tamil Nadu Circle, Carriage House Proposed in the village Rough Stone and Gravel the Environmental Impact Assessment (EIA) for the quarry project has comprehensively assessed the baseline environmental conditions and the predicted impacts associated with the quarry operations. The study concludes that the project is environmentally sustainable with appropriate mitigation and management practices in place.

Land use analysis using Sentinel II imagery indicates that agricultural land dominates the study area, with limited urbanization and industrial activity. Although minor land use changes are expected due to the quarry, these are localized and reversible.

The soil environment is assessed as healthy and agriculturally productive, with good moisture retention, neutral to slightly alkaline pH, and moderate nutrient levels.

Surface and groundwater quality is generally good. Surface water meets all drinking and irrigation standards with minimal treatment, and groundwater is safe for consumption after mild treatment for hardness and taste. No microbial contamination has been detected, and key parameters are within permissible limits.

The air quality and noise levels are within the norms of the Central Pollution Control Board (CPCB), and the air quality index has minimal impact on human health. Dust suppression, greening of quarry impacts on air and noiseAreaCan be effectively controlled through development and controlled explosive techniques.

The biological environment in the core zone shows limited flora and fauna due to the existing quarry activity, but the buffer zone provides a healthy diversity of species, free of endangered or migratory species. Greenery to enhance biodiversity and carbon sequestrationAreaDevelopment and post-mining reclamation plans have been proposed.

The socio-economic environment will benefit from direct and indirect employment, infrastructure development and improved livelihoods. The project also contributes to the local economy through taxes, royalty payments and community development initiatives under Corporate Environmental Responsibility (CER).

Potential environmental impacts such as dust, noise and runway are expected but can be managed through the proposed Environmental Management Plan (EMP). Adequate provisions have been made for water management, air pollution control, soil protection, occupational health and post-mining rehabilitation. A risk assessment and disaster management plan have been integrated to ensure safety and emergency preparedness.

Overall, the study concludes that the proposed quarry project is technically feasible, environmentally safe and socio-economically beneficial. With strict implementation of mitigation measures and monitoring plans, the project can proceed without significant adverse impacts on the environment or local communities.