

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENT MANAGEMENT PLAN

FOR OBTAINING

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

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

PATTA LAND- EXISTING QUARRY

THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY

Cluster Extent – 12.45.0Ha

Project Proponent

Thiru. S. A. Ramachandran

S/o. Arumugam,
Earanthottam, Chengadurai,
Sulur Taluk,
Coimbatore District – 641 401

PROJECT LOCATION	PROPOSED PRODUCTION
S.F.Nos. 220/1A, 220/1C & 223/2F Ichipatti Village, Palladam Taluk, Tiruppur District Extent: 3.21.5Ha	Reserves: 2,57,985m ³ of Rough Stone, 4,611m ³ of Weathered Rock & 3,584m ³ of Gravel Peak Production = 53,850m ³ of Rough Stone Proposed Depth = 45m bgl
ToR obtained vide Lr No. SEIAA-TN/F.No.9652/SEAC/1(a)ToR-1648/2023 Dated:09.01.2024	
<p style="text-align: center;">Environmental Consultant</p> <p style="text-align: center;">GEO EXPLORATION AND MINING SOLUTIONS</p> <p style="text-align: center;">Old No. 260-B, New No. 17, Advaitha Ashram Road, Alagapuram, Salem – 636 004, Tamil Nadu, India</p> <p style="text-align: center;">Accredited for sector 1 Cat ‘A’, sector 31 & 38 Cat ‘B’</p> <p style="text-align: center;">Certificate No : NABET/EIA/2225/RA 0276</p> <p style="text-align: center;">Phone: 0427-2431989, Email: infogeoexploration@gmail.com Web: www.gemssalem.com</p>	<p style="text-align: center;">Laboratory</p> <p style="text-align: center;">EHS 360 LABS PRIVATE LIMITED, 10/2 Ground floor, 50th street, 7th Avenue, Ashok Nagar, Chennai – 600 083.</p>
<p style="text-align: center;"><u>Baseline Monitoring Period</u></p> <p style="text-align: center;">MARCH – MAY 2024</p>	
<p style="text-align: center;">JUNE 2024</p>	

UNDERTAKING

I Thiru. S. A. Ramachandran given undertaking that this EIA & EMP report prepared for our Rough stone and Gravel quarry situated in S.F.No. 220/1A, 220/1C & 223/2F over an extent of 3.21.5 Ha in Ichipatti Village, Palladam Taluk, Tiruppur District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide Lr.No. SEIAA-TN/F.No.9652/SEAC/1(a)ToR-1648/2023 Dated:09.01.2024

I hereby assured that the Data's submitted and information given by me is true and correct to the best of my knowledge.

Signature of the Project Proponent



S. A. Ramachandran

Place: Tiruppur

Dated:

DECLARATION

I Dr. M.Ifthikhar Ahmed – EIA Coordinator declare that the EIA & EMP report prepared for our Rough stone and Gravel quarry situated in S S.F.No. 220/1A, 220/1C & 223/2F over an extent of 3.21.5 Ha in Ichipatti Village, Palladam Taluk, Tiruppur District has been prepared by Geo Exploration and Mining Solutions, Salem, Tamil Nadu.

The Data's provided in the EIA report are true and correct to the best of my knowledge.

Signature of the EIA Coordinator



Dr. M. Ifthikhar Ahmed

Managing Partner

M/s. Geo Exploration and Mining Solutions

Place : Salem

Dated:

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

PROPOSED QUARRIES					
Code	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru.S. A. Ramachandran	Ichipatti	220/1A, 220/1C& 223/2F	3.21.5	Lr No. SEIAA-T. N/F.No.9652/SEAC/1(a)/ToR-1648/2023 Dated:09.01.2024
P2	Thiru.S. A. Ramachandran	Ichipatti	223/2C, 223/2A& 223/1B	1.64.0	Nearby Applied Area
TOTAL EXTENT				4.85.5	
EXISTING QUARRIES					
Code	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	Thiru.M. Thangavel	Ichipatti	208/1,2,3	1.52.0	EC granted Lr.No.SEIAA-TN/F.No.6913/l(a)/EC.No: 4957/2021 dated: 02.02.2022
E-2	Thiru.S.P. Palanisamy	Ichipatti	221/1B, 223/2E2	1.87.5	EC granted Lr.No.SEIAA-TN/F.No.6923/EC.No: 4911/2020 dated: 03.11.2021
E-3	Tmt.R. Gowri @ Baby	Ichipatti	206/1	157.5	EC granted Lr.No.SEIAA-TN/F.No.6924/EC.No: 4958/2020 dated: 28.01.2022
E-4	Thiru.M. Muthurathinam	Ichipatti	215/4A, 3A	1.81.5	EC granted Lr.No.SEIAA-TN/F.No.7981/EC.No: 4956/2020 dated: 28.01.2022
E-5	Thiru.C. Rakkiappan	Ichipatti	216/2B2	0.81.0	EC granted Lr.No.SEIAA-TN/F.No.7215/EC.No: 4912/2020 dated: 03.11.2021
TOTAL EXTENT				7.59.5	
ABANDONED / EXPIRED QUARRIES					
Code	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
A-1	C. Thangaraj	Ichipatti	207/1A(P)	1.92.0	13.10.2017-12.10.2022
TOTAL EXTENT				1.92.0	
TOTAL CLUSTER EXTENT				12.45.0Ha	

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

TERMS OF REFERENCE (ToR) COMPLIANCE**Lr No. SEIAA-TN/F.No.9652/SEAC/1(a)ToR-1648/2023 Dated:09.01.2024**

TOR ADDITIONAL CONDITIONS		
1	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.,	Noted and agreed Details in Chapter-3 socioeconomic environment
2	Since the existing depth of quarry has already reached 30 m, for the safety of the persons employed in the quarry, The PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall for the preparation slope stability action plan. 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. copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance without any deviation.	Noted and agreed
3	The project proponent shall furnish Certified Compliance Report (CCR) obtained from IRO(SZ), MoEF&CC and with mitigation measures along with the budgetary allocation for the non-compliance stated therein.	The Certified Compliance Report (CCR) Obtained vide EP/12.1/2023- 24/SEIAA/59/TN/962 Dated:08.08.2023
TOR ANNEXURE-1		
1	In the case of existing/operating mines. a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (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.	Existing Pit Dimension Pit I: 202m(L) x 158m(W) x 30m(D) Bgl Pit II: 65m(L) x 42m(W) x 21m(D) Bgl Year wise Production for 5years 2,57,985 m ³ 45m Bgl EC: SEIAA-TN /F.No.5480 /1(a) /EC.No: 3543 /2016, Dated: 10.08.2016 Non-Violation during the past working this quarry.
2	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	VAO letter stating the details of habitations, temples etc., is enclosed as Annexure
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of	The structure details in chapter -3

	(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 tank, etc are located within 1 km of the proposed quarry.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 4
5	The Proponent shall carry out Bio diversity study through reputed institution and the same shall be included in EIA Report.	Biodiversity study has been carried out by Functional Area Expert by the NABET accredited consultant. The detailed study is given in the Chapter No.3
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	Thadagam Block IV R.F – 32.0 km - West
7	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad. NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	It is a fresh lease application but, the applied area has been considered quarrying operation earlier. The quarry lease was previously granted in the favour of Thiru.S.A. Ramachandran, Coimbatore District, over an extent of 2.02.5hectares of Patta lands in S.F.Nos.220/1A & 223/2F of Ichipatti Village, Palladam Taluk, Tiruppur District vide Rc.No.430/Mines/2015, Dated: 23.09.2016 for the period of five years from 23.09.2016 to 22.09.2021 and the applicant has obtained Environmental Clearance from the SEIAA, Tamil Nadu vide Lr. No. SEIAA-TN/F.No.5480/1(a)/EC. No:3543/2016, Dated: 10.08.2016 and the same applicant has previously granted another quarry, over an extent of 1.19.0hectares of Patta land in S.F.No.220/1C of Ichipatti Village, Palladam Taluk, Tiruppur District vide Rc.No.41/Mines/2016, Dated: 23.09.2016 for the period of five years from 23.09.2016 to 22.09.2021 and the applicant has obtained Environmental Clearance from the SEIAA, Tamil Nadu vide Lr. No. SEIAA-TN/F.No.5481/1(a)/EC. No :3541/2016, Dated: 10.08.2016 for quarrying of Rough stone and Gravel (Please refer Annexure No. IA). As the lease granted vide Rc.No.430/Mines/2015, Dated: 23.09.2016 and Rc.No.41/Mines/2016, Dated: 23.09.2016 was expired, the applicant has once again applied a quarry lease on 09.12.2020 for over an extent of 3.21.5ha of Patta lands in S.F.Nos.220/1A, 1C & 223/2F of Ichipatti Village, Palladam Taluk, Tiruppur District for the period of five years.

8	However, in case of the fresh/virgin quarries, the PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	For the first five years plan period the mining operation is proposed to carry out up to the depth of 45m bgl. The proponent obtained the slope stability report from Anna University . The cost for the controlled blasting is allotted in the EMP, Chapter No.10 Table No. 10.10 Page No.133
9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	Proponent given Affidavit stating that the blasting operation will be carried out by the competent person as per the MMR 1961.
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	Noted and agreed
11	The EIA Coordinates shall obtain and furnish the details of quarry /quarries operated by the PP in the past, either in the same location or elsewhere in the state with video and Photographic evidences.	Noted and agreed. There are three quarries including this proposal in the Cluster belongs to the Proponent S. A. Ramachandran and Thiru.M. Thangavel, Thiru.S.P. Palanisamy, Tmt.R. Gowri @ Baby, Thiru.M. Muthurathinam and Thiru.C.Rakkiappan
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	Letter No EC: SEIAA-TN/F.No.5480/1(a)/EC. No:3543/2016, Dated: 10.08.2016 EC: SEIAA-TN/F.No.5481/1(a)/EC. No:3541/2016, Dated: 10.08.2016
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Existing Proposal Lease
14	Quantify of minerals mined out A. Highest production achieved in any one year B. Detail of approved depth of mining. C. Actual depth of the mining achieved earlier. D. Name of the person already mined in that leases area. E. If EC and CTO already obtained, the copy of the same shall be submitted. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	Peak Production per year 53,850m ³ Proposed Depth of Mining 45m Bgl Existing: Pit I: 202m(L) x 158m(W) x 45m(D) Bgl Pit II: 65m(L) x 42m(W) x 30m(D) Bgl Letter No EC: SEIAA-TN/F.No.5480/1(a)/EC. No:3543/2016, Dated: 10.08.2016 EC: SEIAA-TN/F.No.5481/1(a)/EC. No:3541/2016, Dated: 10.08.2016
15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2, Figure No.2.2, Page No.11. Geomorphology of the area is given in Chapter No 2, Figure No.2.9, Page No.21 Land use pattern of the project area is tabulated in the Chapter No.2. Table no 2.3, Pg.No.18 Land use pattern of the Study area is tabulated in the Chapter No.2, Table no 2.3, Pg.No.17.

16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing etc.,	Drone video survey covering the Cluster, Greenbelt and fencing will be submitted during appraisal.
17	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	The area has been fenced and the photographs are given in the Chapter No.2, Figure No.2.1 Page No.11 No trees within the proposed excavation area, no transplantation is required. Water bodies near to the project site is given in the Chapter No.2 Table No.2.13 Page No.26
18	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	The Total Mineable Reserves of Rough stone is 2,57,985m ³ The Production for the five-year plan period is 2,57,985m ³ of Rough stone Peak production capacity is 53,850m ³ of Rough stone Details of Reserves and methodology of mining is given in the Chapter No.2
19	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Noted and agreed. Detailed under Chapter 6.
20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details of open wells and borewells within 1km radius along with water level is given in the Chapter No.3
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	Baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality, & flora/fauna including traffic/vehicular movement study to assess the cumulative impact of the proposed project on the environment is prepared. The details of Baseline study are given in the Chapter No. 3.
22	The Proponent shall carry out the Cumulative impact study due to mining operations: carried out in the quarry specifically with reference to the specific environment in terms of air pollution, water pollution. & Health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in Chapter No.7,

23	Rain water harvesting management with recharging details along with water balance (both) monsoon & non-monsoon) be submitted.	The rain water will be collected in the mine pit at the lower point later it will be utilized for the haul road maintenance, Greenbelt development etc.,
24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use Land cover study within the radius of 10km is detailed in the Chapter No. 3 Page No.30 to 33.
25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use. R&R issues, if any. should be provided.	Not applicable, There are no wastages anticipated, the entire quarried out rough stone material will be utilized.
26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required. clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	The area is not declared as Critically polluted area, no court case pending against the project. Proponent obtained Precise area communication letter, Approval for the Mining plan. The Details are enclosed as Annexure.
27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
28	Impact on local transport infrastructure due to the Project should be indicated.	There is no group of Houses, Schools in the proposed transportation route. Proposed Transportation route with mitigation measures is given in the Chapter No.2
29	A tree survey study shall be carried out (nos., name of the species, age, diameter etc..) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	The Flora study in the core zone has been carried out and the details are given in the Chapter No.3
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	The mine closure plan is detailed in the Chapter No.4 Page No.49 The budget for the mine closure is included in the Environmental Management plan in Chapter No.10, Table:10.10
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	The Flora and Fauna study around the vicinity of the site is carried out by the Functional area experts along with Local School Students.
32	The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO. State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4. Table No.4.10

33	Taller/one year old Saplings raised in appropriate size of bags; preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	Noted and agreed. The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4 Table No.4.10
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan is detailed in the Chapter No.7
35	A Risk Assessment and management Plan shall be prepared and included in the ELA/EMP Report.	A Risk Assessment and management Plan detailed in the Chapter No.7
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts of the project with mitigation measures are detailed in the Chapter No.7 Details of Periodical Medical Examination given in the Chapter No.10
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	The details of the population in the impact zone (within 500m Radius) are detailed in the Chapter No.3, Page No.76
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Socio Economic study covering 10km radius is detailed in the Chapter No-3
39	Details of litigation pending against the project, if any, with direction. /Order passed by any Court of Law against the Project should be given.	No court case and litigation pending against the project.
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc	It is explained in Chapter -3- Socio economic study
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF & CC. Regional Office, Chennai (or) the concerned DEE/TNPCB.	Not applicable, the project is Existing proposal.
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP has been prepared for the entire life of the mine. Proponent given affidavit stating the EMP will be submitted during the appraisal after completion of public hearing.
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted & agreed.

ADDITIONAL CONDITIONS-Annexure-B		
<i>Cluster Management committee</i>		
1.	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Cluster management committee has been formed with mutual agreement with the proponents including Existing and Proposed quarry at present are framed.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc..	As per the committee agreement proponents will coordinates for the Greenbelt development, Water sprinkling and tree plantation activities combinedly.
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	The formation of committee with list of members has been submitted to the AD mines office, Tiruppur and the same will be update in every year
4	Detailed operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	As per the committee agreement the blasting frequency will be discussed and carryout by the Mines Manager appointed by the proponents and the same will be updated in the committee minutes. Transport details in chapter-2
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan	Details discussed in chapter 7 of Draft EIA report
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Details discussed in chapter 6 of Draft EIA report
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Noted & agreed
8	The committee shall furnish the Emergency Management within the cluster.	Details discussed in chapter 7.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Details discussed in chapter 10.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted & agreed
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Detailed discussed in chapter 7.
<i>Impact study of mining</i>		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood	Details of Soil health is given in Chapter No 3 and biodiversity is given in Chapter No 3. The project will not cause any significant changes in the climate Climatic changes and GHG are described in Chapter No 4. Details of water contamination and impact on aquatic ecosystem is given in Chapter No 4.

	of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health' e) Agriculture, Forestry & Traditional practices. 1) Hydrothermal/Geothermal effect due to destruction in the Environment' g) Bio-geochemical processes and its foot prints including environmental stress' h) Sediment geochemistry in the surface steams.	Hydrothermal/ Geothermal effects due to destruction in the environment, Bio geochemical process and sediment geo chemistry given in the Chapter No 7.
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	Detailed discussed in chapter 4.
14	Impact on soil flora & vegetation around the project site.	Detailed discussed in chapter 4.
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	The area is Existing proposed Lease & Few trees present with in lease.
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora. fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Details in Chapter 3
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands. Horticulture, Agriculture and livestock.	The project area is bounded by Existing quarries on the East and west side. Proponent proposed to erect green mesh along with fencing on the South side besides, Budgetary allocation given in the Chapter No. 10.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Thadagam Block IV R.F – 32.0 km - West there is no impact.
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Ecology and Biodiversity environment deals in Chapter-3
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Ecology and Biodiversity environment deals in Chapter-3
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Anticipated Environment Impact and Mitigation measures are detailed in Chapter No.4
Water Environment		
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks. canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect Groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	Hydro-geological study considering the contour map of the water table detailing Chapter-3
24	Erosion Control measures.	Noted & agreed
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease	Details in Chapter 2

	area on the nearby villages, water-bodies/ Rivers. & any ecological fragile areas.	
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Details in Chapter 2 and 4 impact of bio diversity
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural Environment by the activities.	Noted & agreed
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site and archaeological sites possible land form changes visual and aesthetic impacts.	Noted & agreed. Detailed under Chapter 3.
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil, physical, chemical components and microbial components.	Details in Chapter 3 Soil environment.
30	The Environmental impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Odai 320m_NW Samalapuram Lake 1.6Km_N Noyyal River 2.5Km_NW Sulur Lake 7.6Km_SW Kowshika River 9.2Km_NE Impact assessment details in chapter-4
Energy		
31	The measures taken to control Noise. Air, Water. Dust Control and steps adopted too efficiently utilize the Energy shall be furnished.	Details in Chapter 3 environmental monitoring details.
Climate Change		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given int the Chapter No.4
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Details in Chapter-3 for meteorological and climate/weather data representation of graphs.
Mine Closure Plan		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Details in Chapter 2 mine closure plan
EMP		
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed under Chapter 10
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	Project Cost = Rs. 74,01,000/- CER Cost = Rs 5,00,000/ Disaster Management plan & mine closure plan is discussed in chapter no.4 & 7
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Detailed under Chapter 7
Disaster Management Plan		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope	Details in Study 7.3 Disaster Management Plan in Chapter -7

	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.	
Others		
39	The project proponent shall furnish VAO Certificate with reference to 300m radius regard to approved habitations. schools. Archaeological sites. Structures. railway lines, roads. Water bodies such as streams, odai, vaari, canal, channel. river, lake pond, tank etc.,	Noted & agreed. Detailed under Chapter 4
40	As per the MoEF& CC office memorandum tr.No.22-65/2017-1A.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and agreed
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Details of carbon emission and mitigation activities are given in the Chapter No.4
STANDARD TERMS OF REFERENCE		
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came in to force, w.r.t. the highest production achieved prior to 1994.	Not applicable. This is not a violation category project. This proposal falls under B1 Category
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The applied land for quarrying is a Patta Land. Document is enclosed along with Approved Mining Plan as Annexure Volume 1.
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	All documents will be furnished after public hearing and enclosed Final EIA/EMP report.
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Map showing – Project area is with adjacent quarries details is enclosed in Figure No1.1 Project area boundary coordinates superimposed on Toposheet – Figure No. 1.1A Toposheet of the project area covering 10km radius – Figure No. 1.2 Geology map of the project area covering 10km radius - Figure No. 2.11
5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Map showing – Geology map of the project area covering 10km radius - Figure No. 2.11 Geomorphological features are incorporated in the Toposheet map covering 10km radius around the project area Figure No. 2.12
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The applied area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.

7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	The proponent has framed their Environmental Policy and the same is discussed in the Chapter No 10.1.
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an opencast quarrying operation proposed to operate in Mechanized method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90 ⁰ bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is for the Life of the Mine / lease period.
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given	There is no waste anticipated during this quarry operation. The entire quarried out rough stone will be transported to the needy customers. No Dumps is proposed outside the lease area.
12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	Thadagam Block IV R.F – 32.0 km – West The proposed project area is a Patta land. Approved Mining Plan is enclosed as Annexure Volume 1.
13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable. The proposed project area does not involve any Forest Land.

14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006.
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	Thadagam Block IV R.F – 32.0 km - West
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.	Not Applicable. Thadagam Block IV R.F – 32.0 km - West.
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 KM of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished	Not Applicable. Around 46km – NW (Sathyamangalam Tiger Reserve Sanctuary)
18	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] was carried out and discussed under Chapter No. 3. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range'.
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable. The project doesn't attract The C. R. Z. Notification, 2018.
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the	Not Applicable. There are no approved habitations within a radius of 300 meters.

	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.	Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.
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.	Baseline Data were collected for Summer Season (Mar2024-May2024) as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD Model. Details in Chapter No. 4,
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Water for dust suppression, greenbelt development and domestic use will be obtained from accumulated rainwater/seepage water in mine pits. Drinking water will be sourced from the approved water vendors, No 2, Table No 2.15.
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Drinking water will be sourced from the approved water vendors, No 2, Table No 2.15.
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact Studies and Mitigation Measures of Water Quality discussed in Chapter No. 4.
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	The ground water table is at 58-62m below ground level.

	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 ultimate depth of this projects is 45m from the general ground profile. Maximum depth is proposed in this EIA project is 45m.
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.	Odai 320m_NW Samalapuram Lake 1.6Km_N Noyyal River 2.5Km_NW Sulur Lake 7.6Km_SW Kowshika River 9.2Km_NE
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.	Highest elevation of the project area is 355m AMSL Ultimate depth of the mine is 45m AMSL Water level in the area is 58m to 62m BGL
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.	Progressive greenbelt development plan has been prepared and discussed along with Recommended Species details are given in the Chapter 4, Table No.4.9
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 analyse the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no much significant impact due to the proposed transportation from the project area. Details in Chapter 2.
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 the Chapter No.2.
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Details in Chapter 10.
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 with mitigation measures are detailed in the Chapter No.7 Details of Periodical Medical Examination given in the Chapter No.10

36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	The details of the population in the impact zone (within 500m radius) are detailed in the Chapter No.3 and Chapter-4
37	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Socio Economic study covering 10 km radius is detailed in the Chapter No.3
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.	Detailed in chapter-10
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 updated in the final EIA/EMP 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 towards implementation of EMP should be clearly spelt out.	The proposed capital cost for Environmental Monitoring Programme is Rs 3,80,000/- and the recurring cost is Rs 76,000/- per annum. Details in Chapter 6
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Details in Chapter 7.
43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Details in Chapter.8.
44	Besides the above, the below mentioned general points are also to be followed: -	
A	Executive Summary of the EIA/EMP Report	Encloses as separate volume
B	All documents to be properly referenced with index and continuous page numbering.	All the documents are properly referenced with index and continuous page numbering.
C	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of Tables and source of the data collected are given properly.
D	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC / NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project	Baseline monitoring reports are enclosed with mining plan
E	Where the documents provided are in a language other than English, an English translation should be provided.	Not Applicable.
F	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Will be enclosed along with Final EIA /EMP Report.
G	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA. II(I) Dated: 4th August, 2009, which are available on the website of this Ministry, should be followed.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009 are followed.

H	Changes, if any made in the basic scope and project parameters (as submitted in Form-1 and the PFR for securing the TOR) should be brought to the attention of MoEF & CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	Noted & agreed.
I	As per the circular no. J-11011/618/2010-IA. II(I) Dated: 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	Not applicable.
J	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Surface Plan – Figure No. 2.8. Geological Plan – Figure No 2.9. Working Plan – Figure No 2.9. Closure Plan – Figure No.2.11.

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1.INTRODUCTION

1.0 PREAMBLE

Project History: -

The project proponent Thiru.S.A. Ramachandran applied for Rough stone and Gravel quarry over an extent of 3.21.5Ha in S S.F.Nos.220/1A, 1C & 223/2F of Ichipatti Village, Palladam Taluk, Tiruppur District

- Proponent applied for Rough stone and Gravel quarry lease on 09.12.2020.
- Precise area communication letter was issued by the Assistant Director vide Rc.No.1595/Mines/2020, Dated: 26.09.2022.
- The Mining plan has been prepared by the Qualified person and got approval vide Letter Rc.No. 1595/Mines/2020 Dated: 14.10.2022.
- The Mining plan has been approved for the quantity of 2,57,985m³ of Rough stone, 4,611m³ of Weathered Rock & 3,584m³ of Gravel up to the depth of 45m bgl for the period of five years.

As per the EIA Notification, 2006 and subsequent amendments and OM The proposal falls in the B1 Category (Cluster quarries – 2 proposal and 5 Existing quarries forming Cluster Category {Total Extent of the Cluster is 12.45.0Ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016).

- Proponent applied for Terms of Reference vide Proposal No. SIA/TN/MIN/410467/2023 dated 15.12.2022 and the ToR Was Granted vide **Lr No. SEIAA-TN/F.No.9652/SEAC/1(a)ToR-1648/2023 Dated:09.01.2024**
- Based on the ToR Baseline Monitoring study has been carried out for one season i.e., **March - May 2024** and this EIA and EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) to minimize those adverse impacts.

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

1.1 PURPOSE OF THE REPORT

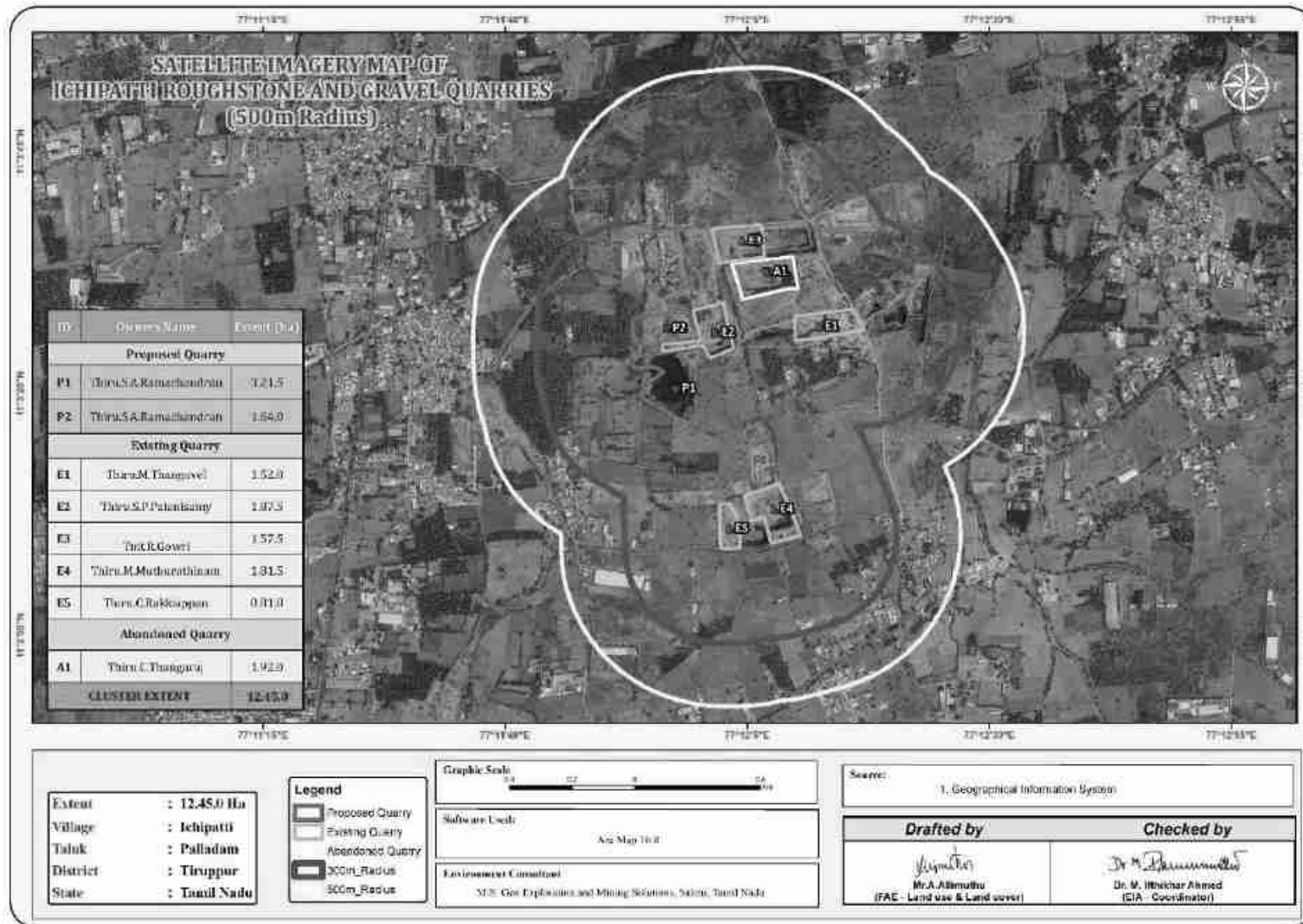
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 1889 of 20th April 2022, Mining Projects are classified under two categories i.e. A (> 250 Ha) and B (≤ 250 Ha), and Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix–XI.

Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B1 and appraised by SEAC/ SEIAA as well as for cluster situation.

The proposed projects are categorized under category “B1” Activity 1(a) (mining lease area in cluster situation) and will be considered at SEIAA – TN after conducting Public Hearing and Submission of EIA/EMP Report for Grant of Environmental Clearance.

“Draft EIA report prepared on the basis of ToR Issued for carrying out public hearing for the grant of Environmental Clearance from SEIAA, Tamil Nadu”

FIGURE 1.1 SATELLITE IMAGERY CLUSTER QUARRIES



1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENTS

1.2.1 Identification of Project Proponent

TABLE 1.1: DETAILS OF PROJECT PROPONENT

Name of the Project Proponent	Thiru.S.A.Ramachandran
Address	S/o. Arumugam, Earanthottam, Chengadurai, Sulur Taluk, Coimbatore District – 641 401
Mobile	+91 98658 99551
Email	prathiencrusher@gmail.com
Status	Individual

1.2.2 Identification of Project

TABLE 1.2: SALIENT FEATURES OF THE PROPOSED PROJECT

Name of the Project	Thiru. S.A. Ramachandran Rough stone and Gravel quarry		
S.F. No.	220/1A, 220/1C & 223/2F		
Extent	3.21.5 ha		
Village Taluk and District	Ichipatti Village, Palladam Taluk, Tiruppur District.		
Land Type	Proponent own patta land		
Land Ownership	It is a Patta lands. Registered in the name of the applicant (Thiru. S.A. Ramachandran), vide Patta Nos. 1611 & 1365.		
Existing quarry operation	<p>Lessee Name – Thiru. S. A. Ramachandran Lease Period: 23.09.2016 to 22.09.2021 <u>S.F.Nos: 220/1A & 223/2F</u> Extent: 2.02.5 Ha Rc.No. 430/Mines/2015, Dated: 23.09.2016 Lease Period: 23.09.2016 to 22.09.2021 EC: SEIAA-TN/F.No.5480/1(a)/EC. No:3543/2016, Dated: 10.08.2016 <u>S.F.No: 220/1C</u> Extent: 1.19.0Ha Rc.No. 41/Mines/2016, Dated: 23.09.2016 EC: SEIAA-TN/F.No.5481/1(a)/EC. No:3541/2016, Dated: 10.08.2016</p>		
Explosive certificate	Selva Nandhini Explosives and Chemicals Licence No-E/SC/TN/22/654(E85920)		
Toposheet No	58 - E/04		
Latitude between	11° 03' 16.64"N to 11° 03' 24.76"N		
Longitude between	77° 11' 53.17"E to 77° 12' 00.98"E		
Elevation of the area	355m(Max) AMSL		
Lease period	5 Years		
Mining Plan period	5 years		
Proposed Depth of Mining	45m Bgl		
	Rough Stone in m ³	Weathered Rock in m ³	Gravel m ³
Geological Resources	6,62,765	9,162	6,108
Mineable Reserves	2,57,985	4,611	3,584
Year wise Production	2,57,985	4,611	3,584
Peak Production	53,850	4,611	3,584
Ultimate Pit Dimension	Pit I: 202m(L) x 158m(W) x 45m(D) Bgl Pit II: 65m(L) x 42m(W) x 30m(D) Bgl		
Existing Pit Dimension	Pit I: 202m(L) x 158m(W) x 30m(D) Bgl Pit II: 65m(L) x 42m(W) x 21m(D) Bgl		
Water Level in the region	58-62 m bgl		

Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area exhibits plain topography. The area has gentle sloping towards Northeastern side. The altitude of the area is 355m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation and 3m of Weathered Rock. Massive Charnockite is found after 5m (2m Gravel + 3m Weathered Rock) which is clearly inferred from the existing quarry pits.	
Machinery proposed	Jack Hammer	6 Nos
	Compressor	2 Nos
	Excavator with Bucket and Rock Breaker	1 No
	Tippers	3 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	28 Nos	
Project Cost	Rs.70,21,000/-	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs. 74,01,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Odai	320m_NW
	Samalapuram Lake	1.6Km_N
	Noyyal River	2.5Km_NW
	Sulur Lake	7.6Km_SW
	Kowshika River	9.2Km_NE
Greenbelt Development Plan	Proposed to plant 1600Nos of trees considering 500 Nos of trees/ Ha criteria. The plantation will be developed around the project site and nearby village roads.	
Proposed Water Requirement	1.4 KLD	
Nearest Habitation	350m – South West	
Nearest Reserve Forest	Thadagam Block IV R.F – 32.0 km - West	
Nearest Wild Life Sanctuary	Sathiyamangalam Tiger Reserve – 46.0km - NW	

Source: Approved Mining & Land Documents.

1.3 BRIEF DESCRIPTION OF THE PROJECT

1.3.1 Nature and Size of the Project

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

The peak production of Rough stone is 53,850m³, 4,611m³ of Weathered Rock and 3,584m³ of Gravel maximum in a year for rough stone is 180m³ per day/ 30 Tippers per day considering 6m³ per load. The depth of the mining is 45bgl.

1.3.2 Location of the Project

- The project site is located in Ichipatti Village, Palladam Taluk, Tiruppur District.
- The lease applied area is located about 17.0 km Southwest side of Tiruppur, 12.0 km Northwest side of Palladam town and 2km Southeast side of Ichipatti Village.

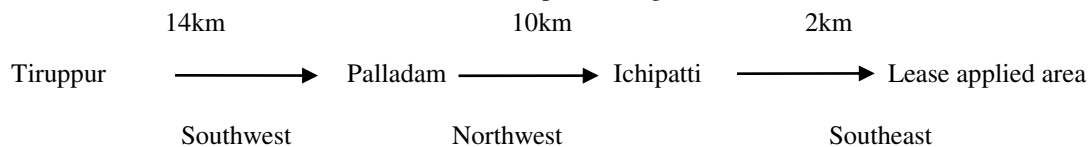
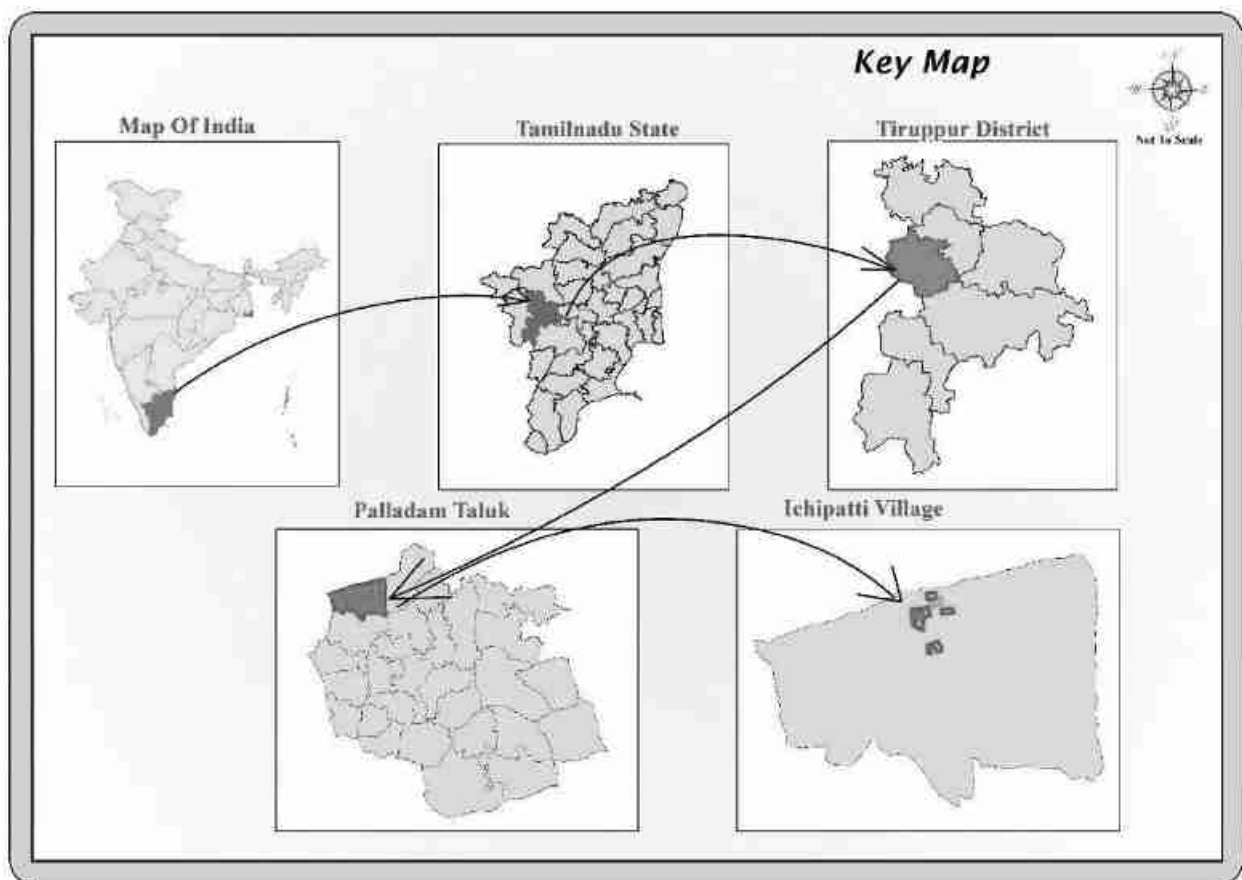


FIGURE 1.2 LOCATION MAP OF THE PROJECT SITE



Source: Survey of India Toposheet 58-E/04,

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

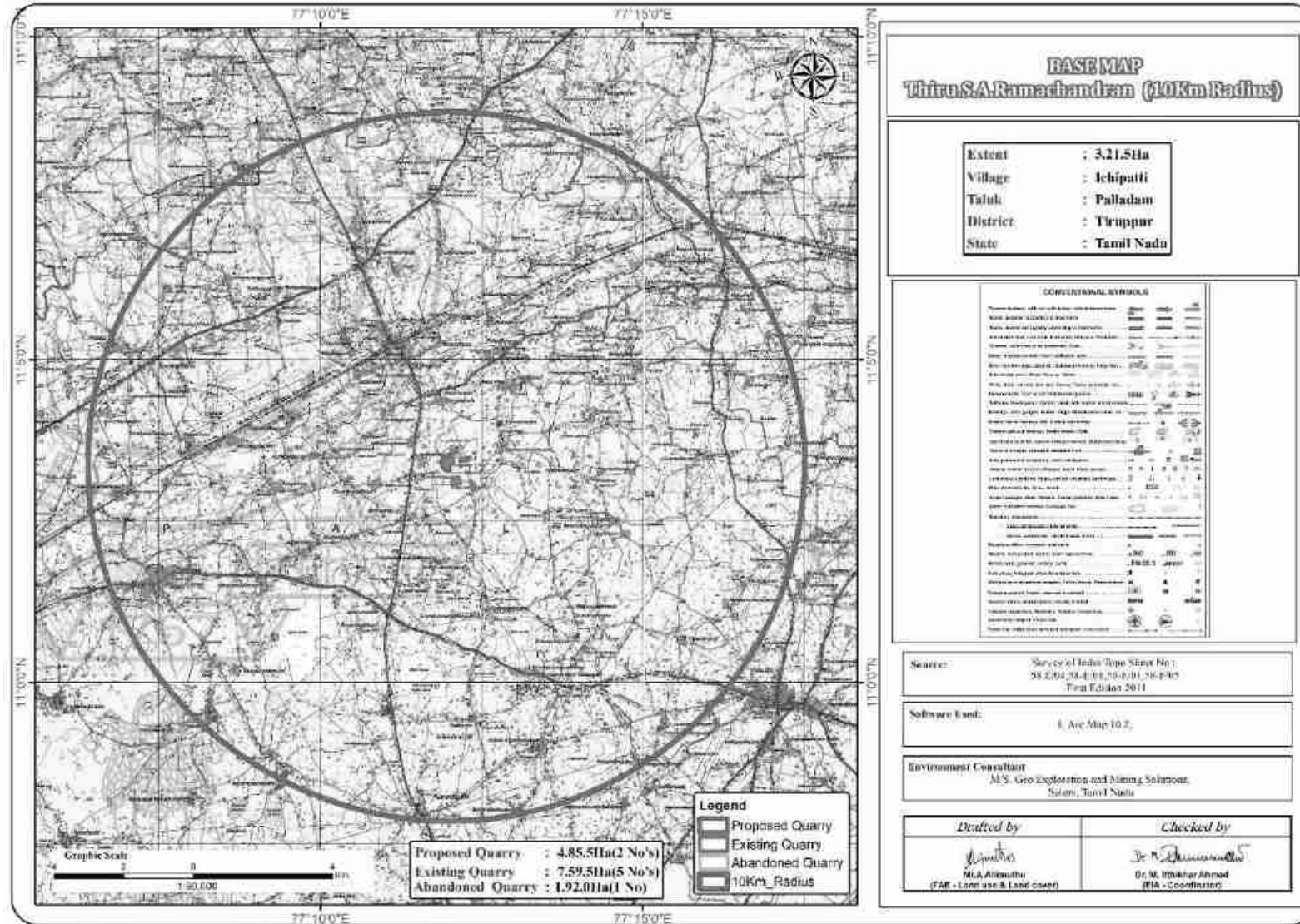
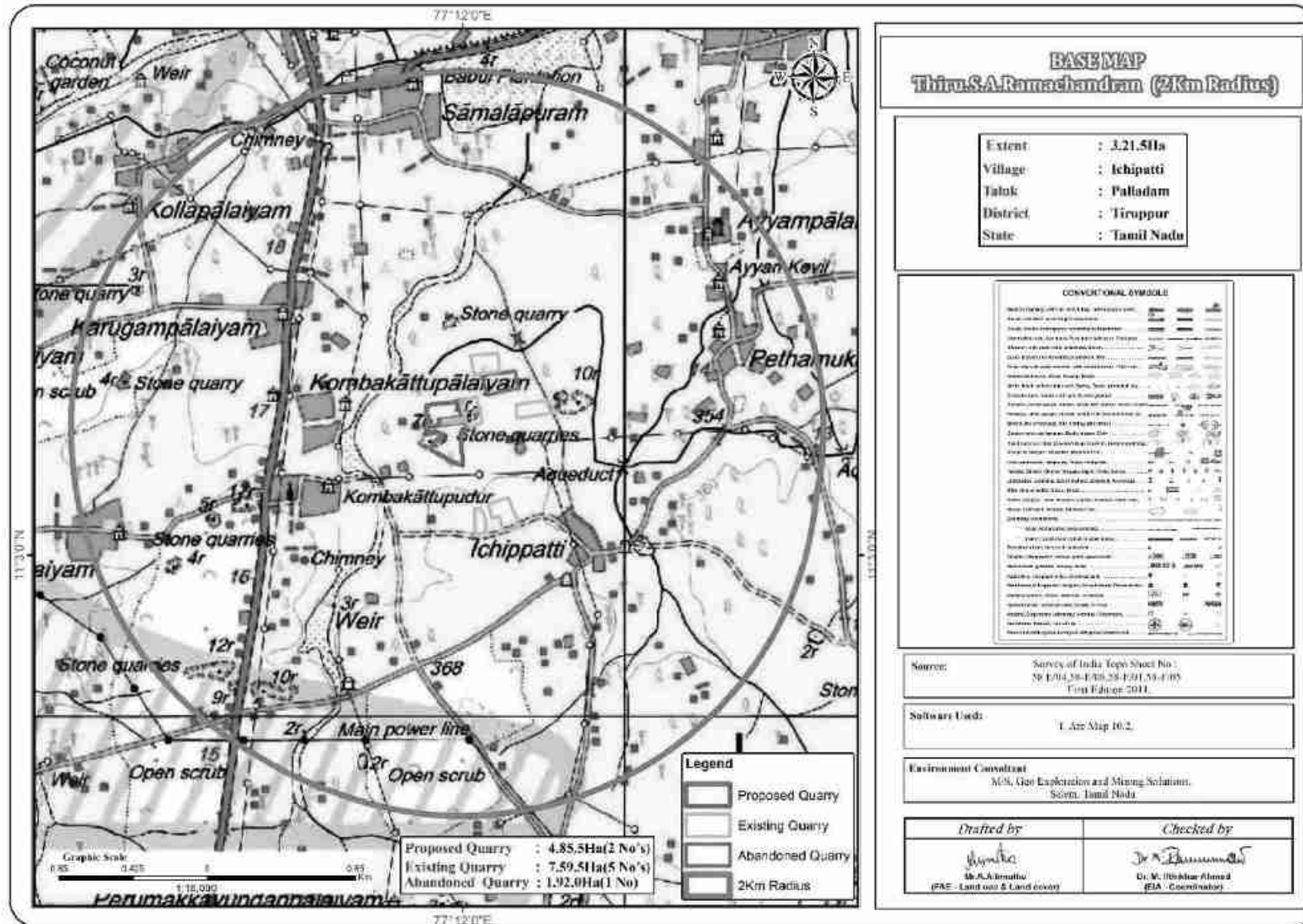


FIGURE 1.4: TOPOSHEET MAP OF THE STUDY AREA 2KM RADIUS



1.4 ENVIRONMENTAL CLEARANCE

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

- Screening,
- Scoping
- Public consultation &
- Appraisal

SCREENING:

- Proponent applied for Rough stone and Gravel quarry lease on 09.12.2020.
- Precise area communication letter was issued by the Assistant Director vide Rc.No.1595/Mines/2020, Dated: 26.09.2022.
- The Mining plan has been prepared by the Qualified person and got approval vide Letter Rc.No. 1595/Mines/2020 Dated: 14.10.2022.
- The proposed project falls under “B1” Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018
- Proponent applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/410467/2022 dated 15.12.2022

SCOPING:

- The proposal was placed in 347th SEAC meeting held on 13.01.2023 & 430th SEAC meeting held on 14.12.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 687th SEIAA meeting held on 09.01.2024, issued ToR vide **Lr No. SEIAA-TN/F.No.9652/SEAC/1(a)ToR-1648/2023 Dated:09.01.2024**

PUBLIC CONSULTATION

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

APPRAISAL –

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

1.5 TERMS OF REFERENCE (ToR)

The ToR was issued by the SEIAA vide **Lr.No.SEIAA-T.N/F.No.9652/SEAC/1(a)ToR-1648/2023 Dated:09.01.2024**. The Details of the ToR Compliance is given in the Page No. 5-20

1.6 POST ENVIRONMENT CLEARANCE MONITORING

The proponent shall submit a half-yearly compliance report in respect of stipulated Environmental Clearance terms and conditions to MoEF & CC Regional Office & SEIAA after grant of EC on 1st June and 1st December of each calendar year as per MoEF & CC Notification S.O. 5845 (E) Dated: 26.11.2018.

1.7 GENERIC STRUCTURE OF EIA DOCUMENT

The overall contents of the EIA report follow the list of contents prescribed in the EIA Notification 2006 and the “Environmental Impact Assessment Guidance Manual for Mining of Minerals” published by MoEF & CC.

1.8 THE SCOPE OF THE STUDY

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the summer season (March to May 2024) for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

TABLE 1.3: ENVIRONMENT ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂	Continuous 24-hourly samples twice a week for three months at 7 locations (1 Core & 6 Buffer)
2	Meteorology	Wind speed and direction, temperature, relative humidity and rainfall	Near project site continuous for three months with hourly recording and from secondary sources of IMD station
3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 6 locations – 2 Surface water and 4 Ground water samples; once during study period.
4	Ecology	Existing terrestrial and aquatic flora and fauna within 10 km radius circle.	Limited primary survey and secondary data was collected from the Forest department.
5	Noise levels	Noise levels in dB(A)	7 locations – data monitored once for 24 hours during EIA study
6	Soil Characteristics	Physical and Chemical Parameters	Once at 6 locations during study period
7	Land use	Existing land use for different categories	Based on Survey of India topographical sheet and satellite imagery and primary survey.
8	Socio-Economic Aspects	Socio-economic and demographic characteristics, worker characteristics	Based on primary survey and secondary sources data like census of India 2011.

9	Hydrology	Drainage pattern of the area, nature of streams, aquifer characteristics, recharge and discharge areas	Based on data collected from secondary sources as well as hydro-geology study report prepared.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances	Based on the findings of Risk analysis done for the risk associated with mining.

Source: Field Monitoring Data

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

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959.
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance.
- The Mining Plan has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959.
- ToR vide Lr No. SEIAA-TN/F.No.9652/SEAC/1(a)ToR-1648/2023 Dated:09.01.2024

2. PROJECT DESCRIPTION

2.0 GENERAL

The Proposed Rough Stone Quarry require Environmental Clearance. There are 2 proposed and 5 existing quarries forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 12.45.0 ha

As the extent of cluster are more than 5 ha, the proposal falls under B1 Category as per the Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018, and requirement for EIA, EMP and Public Consultation for obtaining Environmental Clearance.

2.1 DESCRIPTION OF THE PROJECT

The proposed project is site specific and there is no additional area required for this project. There is no effluent generation/discharge from this project. Method of mining is opencast mechanized method involving splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers and rock breakers to avoid secondary blasting.

2.2 LOCATION OF THE PROJECT

The lease applied area is located about 17.0 km Southwest side of Tiruppur, 12.0 km Northwest side of Palladam and 2km Southwestern side of Ichipatti Village.

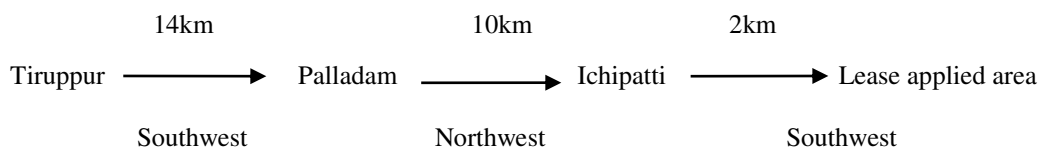


TABLE 2.1: SITE CONNECTIVITY

Nearest Roadway	NH (81) - Coimbatore – Trichy - 4.5 km – South West SH (165) - Kamanaikenpalayam – Annur Road- 830m –West
Nearest Village	Kombakadu 450m-W
Nearest Town	Sulur – 9.0 km-SW
Nearest Railway Station	Somanur – 4.0 km – North West
Nearest Airport	Coimbatore– 27.0 km –South West
Seaport	Kochi– 161.0 km – South West

Source: Survey of India Toposheet

TABLE 2.2: CO-ORDINATES – PROJECT BOUNDARY

Corner Nos.	Latitude	Longitude
1	11° 03' 19.53"N	77° 11' 54.06"E
2	11°03' 19.69"N	77° 11' 54.05"E
3	11°03' 20.84"N	77° 11' 54.41"E
4	11° 03' 22.22"N	77° 11' 56.42"E

5	11° 03' 22.77"N	77° 11' 55.20"E
6	11°03' 22.53"N	77° 11' 53.26"E
7	11° 03' 23.75"N	77° 11' 53.17"E
8	11° 03' 24.76"N	77° 12' 00.30"E
9	11° 03' 24.38"N	77° 12' 00.51"E
10	11° 03' 23.86"N	77° 12' 00.98"E
11	11°03' 22.48"N	77° 11' 59.61"E
12	11°03' 16.64"N	77° 11' 59.91"E
13	11°03' 17.58"N	77° 11' 57.35"E
14	11°03' 17.77"N	77° 11' 56.99"E
15	11°03' 17.96"N	77° 11' 57.00"E
Datum: UTM-WGS84, Zone 43 North		

Source: Approved Mining Plan

FIGURE 2.1: TOPOGRAPHICAL VIEW OF PROJECT AREA

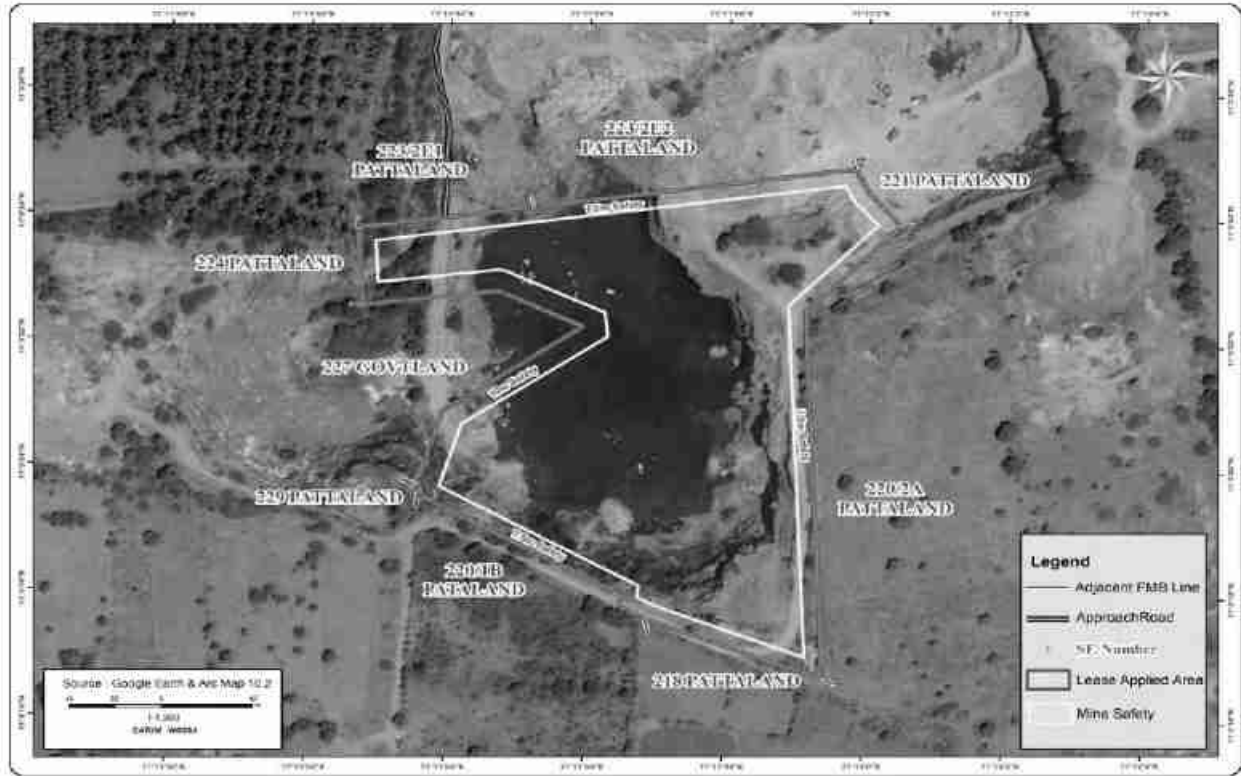


Project Site



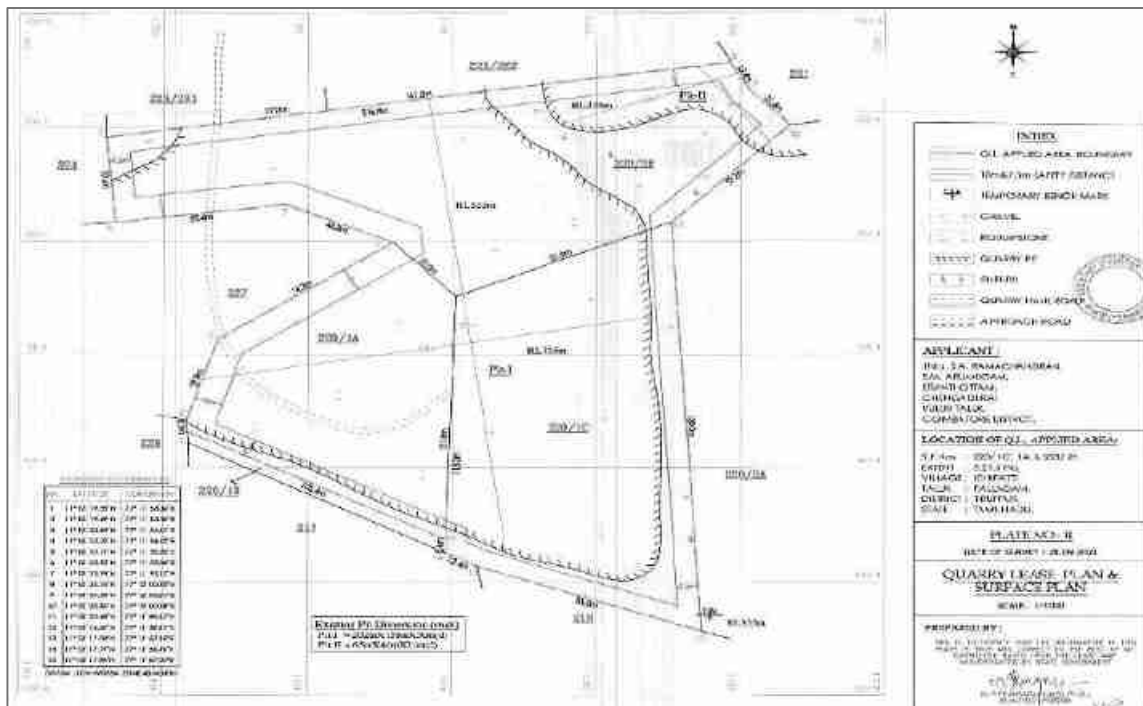
Fencing at Project site

FIGURE 2.2: GOOGLE IMAGE OF THE PROJECT AREA



Source: Google Earth Imagery

FIGURE 2.3: QUARRY LEASE PLAN / SURFACE PLAN



Source: Approved Mining Plan

FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE

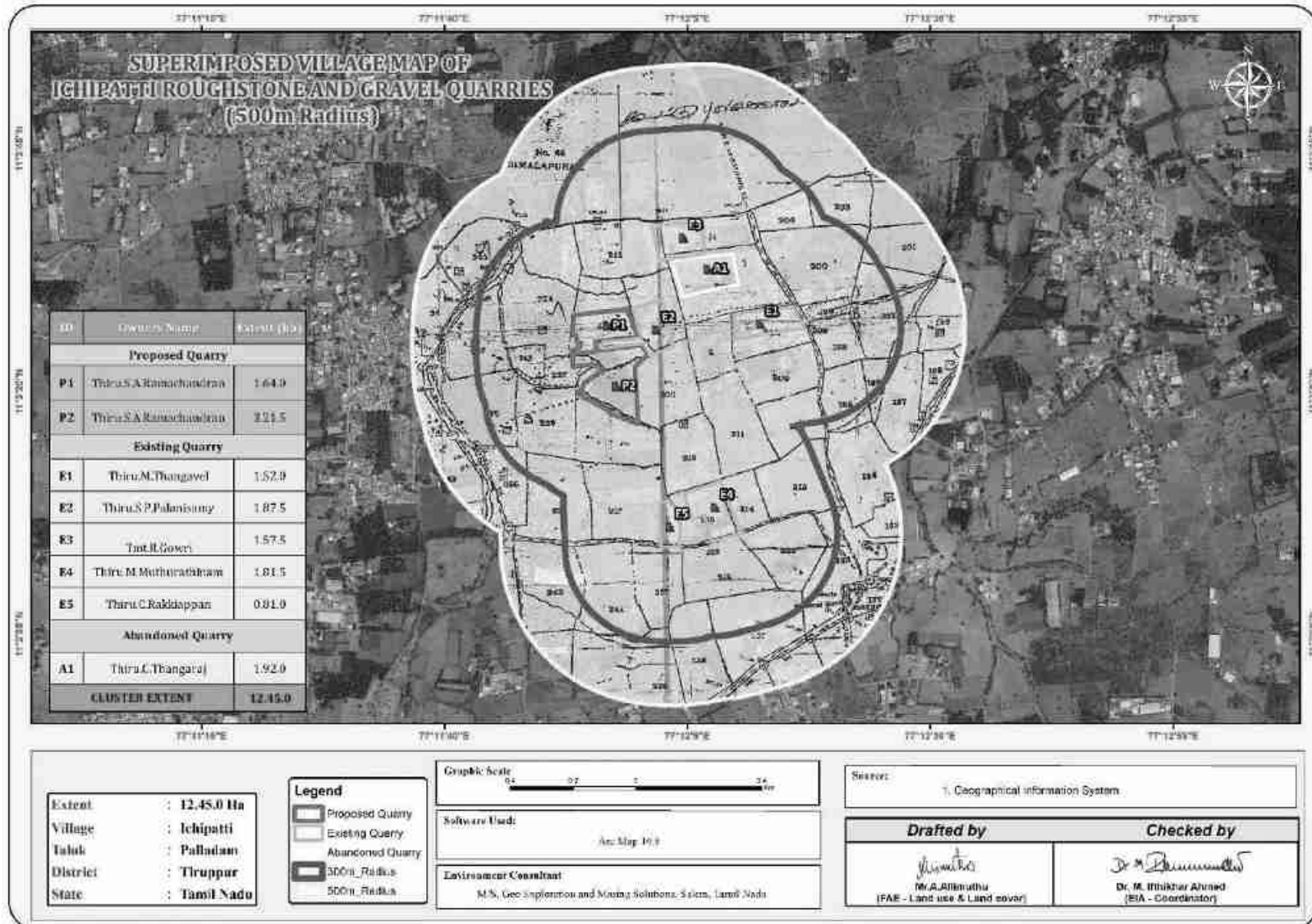


FIGURE 2.5: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS

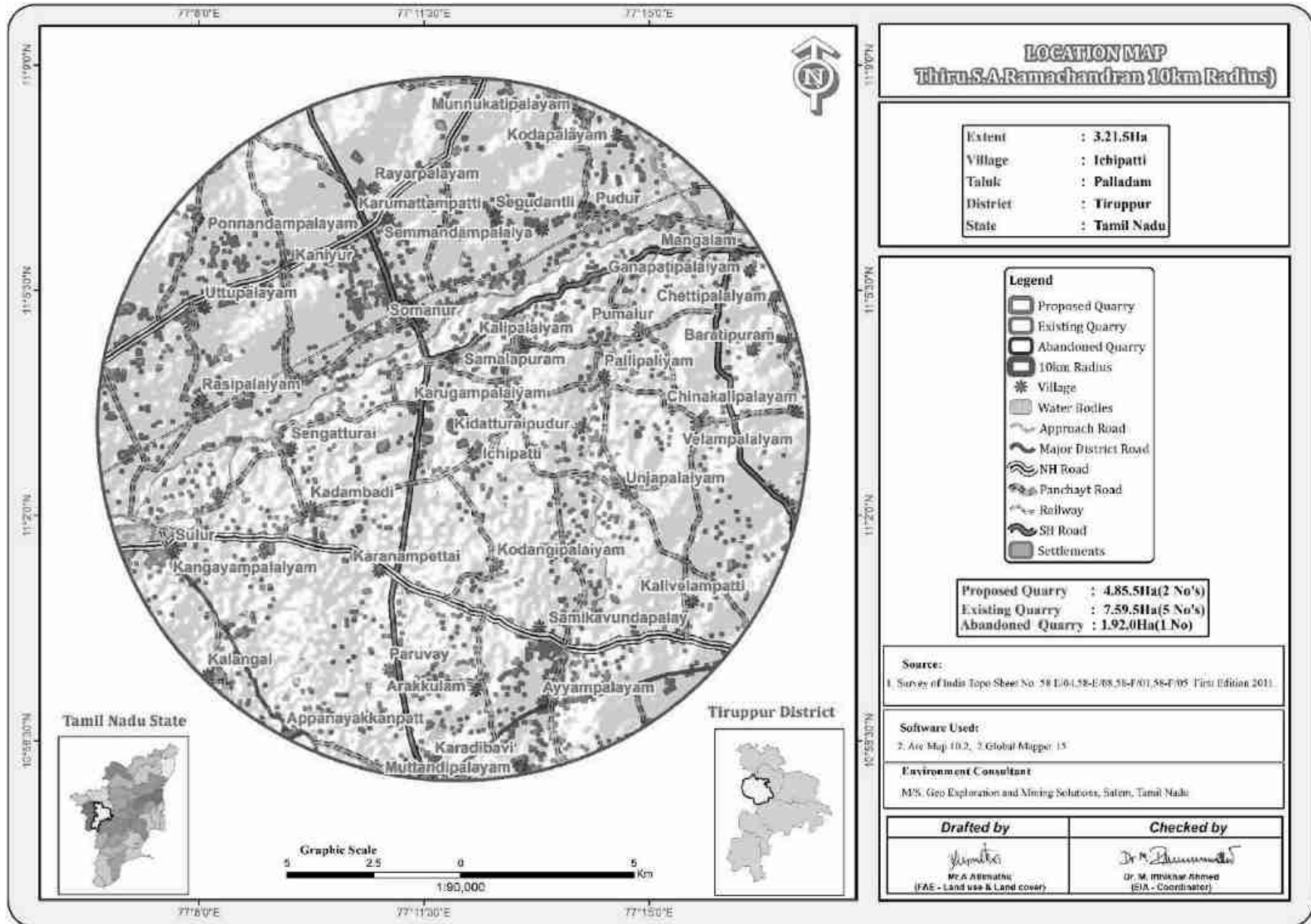
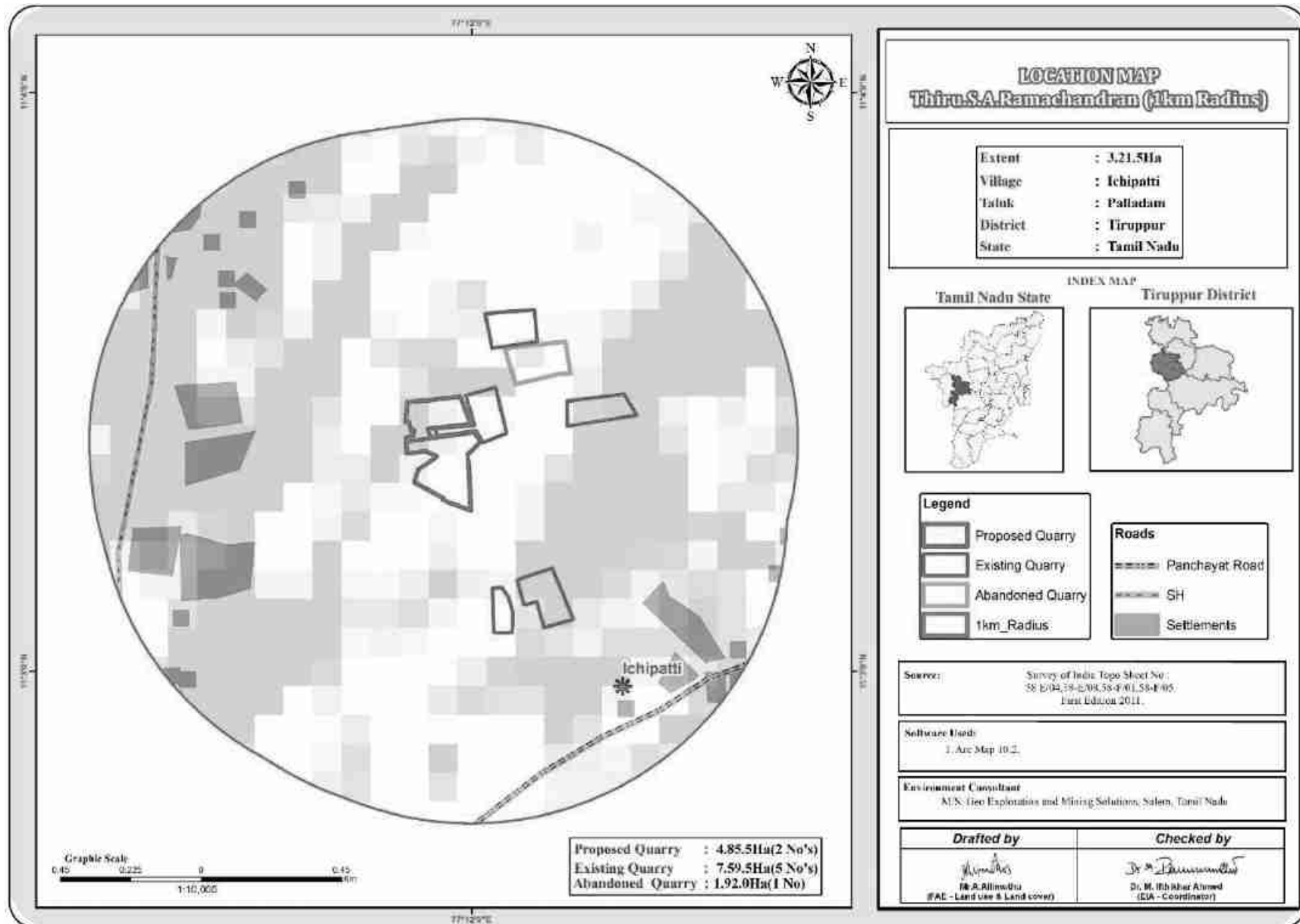


FIGURE 2.6: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS



2.2.1 Project Area

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

TABLE 2.3: LAND USE PATTERN

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Quarrying Pit	2.70.0	2.70.0
Infrastructure	Nil	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.15.0
Unutilized Area	0.49.5	0.33.5
Grand Total	3.21.5	3.21.5

Source: Approved Mining Plan

2.2.2 Size or Magnitude of Operation

TABLE 2.4: RESOURCES AND RESERVES

PARTICULARS	DETAILS		
	Rough Stone in m ³	Weathered Rock in m ³ (1 year)	Gravel in m ³ (1 year)
Geological Resources	6,62,765	9,162	6,108
Mineable Reserves	2,57,985	4,611	3,584
Production for five-year plan period	2,57,985	4,611	3,584
Peak Production	53,850	4,611	3,584
Mining Plan Period / Lease Applied Period	5 Years		
Number of Working Days	300 Days		
Production per day	180	15	12
No of Lorry loads (12m ³ per load)	15	1	1
Total Depth of Mining	45m below ground level		

Source: Approved mining plan.

2.3 GEOLOGY

2.3.1 Regional Geology

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

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

Stratigraphy of the area

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

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

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

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

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

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

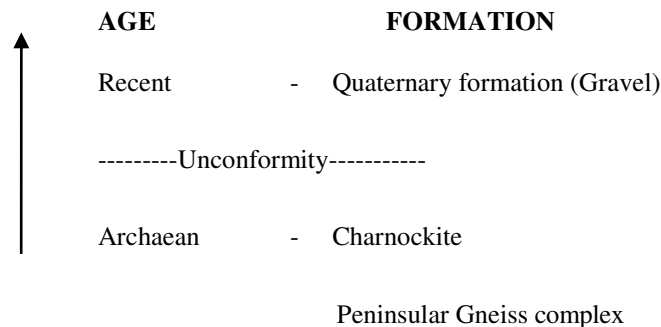
<https://cdn.s3waas.gov.in/s3d1f255a373a3cef72e03aa9d980c7eca/uploads/2019/05/2019052585.pdf>

2.3.2 Local Geology: -

The lease applied area is a Plain terrain. The area has gentle sloping towards Northeastern side and altitude of the area is 378m (max) above from Mean Sea level. The area is covered by 2m thickness of Gravel, 3m thickness of weathered rock and followed by Massive Charnockite which is clearly inferred from the existing quarry pit.

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale of the Charnockite body is N40°E – S40°W with dipping towards SE60°.

The general geological sequences of the rocks in this area are given below:



2.3.3 Hydrogeology

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

Quaternary - Laterites, Sands and Clays

Tertiary - Sandstone, Gravels and Clays

Cretaceous - Limestone, Calcareous Sandstone and Clay unconformity.

Archaean - Charnockites, Gneisses, Granites, Dolerites and Pegmatite

- The major part of the area is covered by metamorphic crystalline rocks of charnockite, granitic gneiss of Archaean age intruded by dolerite dykes and pegmatite veins. These rocks are highly metamorphosed and have been subjected to very severe folding, crushing and faulting.
- Ground Water occurs under the phreatic condition and wherever there are deep seated fractures, it occurs under semi-confined to confined conditions.
- Occurrence of Ground Water in hard rock depends upon the intensity and depth of weathering, fractures and fissures present in the rocks.
- Granites and gneisses yield moderately compared to the yield in Charnockites.
- Depth of well in hard rock generally ranges between 8 and 15m below ground level.
- Generally, yield in open wells ranges from 30 to 250m³ /day and in bore well between 260 and 430 m³ /day. The weathered thickness varies from 2.5 m to 42m in general there are 3 to 5 fracture zones within 100 m and 1 to 4 fracture zones between 100 and 200 m.

The Cretaceous formation is represented by Arenaceous Lime stone, Calcareous sand - stone and marl. The Tertiary formation is argillaceous comprising of Silty clay stones, argillaceous Lime stone.

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

Aquifer Systems:

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

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

Alluvial Formations

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

Tertiary Cuddalore sandstone

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

Cretaceous Formations

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

Hard Rock Formations

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

Granitic Gneiss

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

Charnockite

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

Aquifer Parameters

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

TABLE 2.5: RANGE OF AQUIFER PARAMETERS

Name	Sp. Capacity (lpm/d)	Specific Yield (%)	T (m ² /d)	K (m/day)	Yield of wells (lps)
Alluvium	2.08	7.2	98	19.7	2.5
Tertiary	78-173	1.4-3.5	46-134	16-33	2-3.3
Cretaceous	33-782	0.3-2.56	33-782	10-66	1.1-3.5
Crystalline	27-224	0.8-2.5	16-60	5-20	1-2

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

The Ground Water levels from the 38 number of observation wells of TWAD have been analyzed for Post-Monsoon and Pre-Monsoon.

FIGURE 2.7: GROUND WATER LEVEL VARIATIONS OF TIRUPPUR DISTRICT

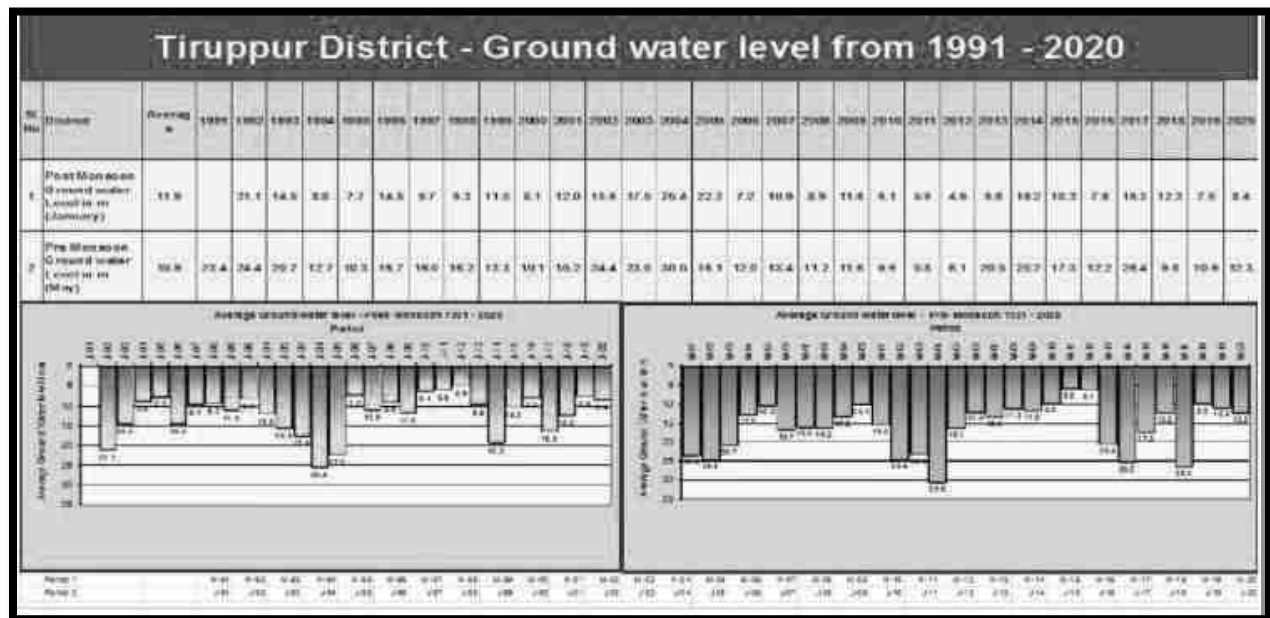


TABLE 2.6: GROUND WATER LEVEL VARIATIONS OF TIRUPPUR DISTRICT

Jan 2017	May 2017	Jan 2018	May 2018	Jan 2019	May 2019	Jan 2020	May 2020	Jan 2021	May 2021	5 Years Pre-Monsoon Average	5Years Post Monsoon Average
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16.3	26.4	12.4	9.8	7.6	10.9	8.4	12.3	7.1	10.6	11.9	8.8
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Source: <https://www.twadboard.tn.gov.in/content/tiruppur>

FIGURE 2.8: REGIONAL GEOLOGY MAP

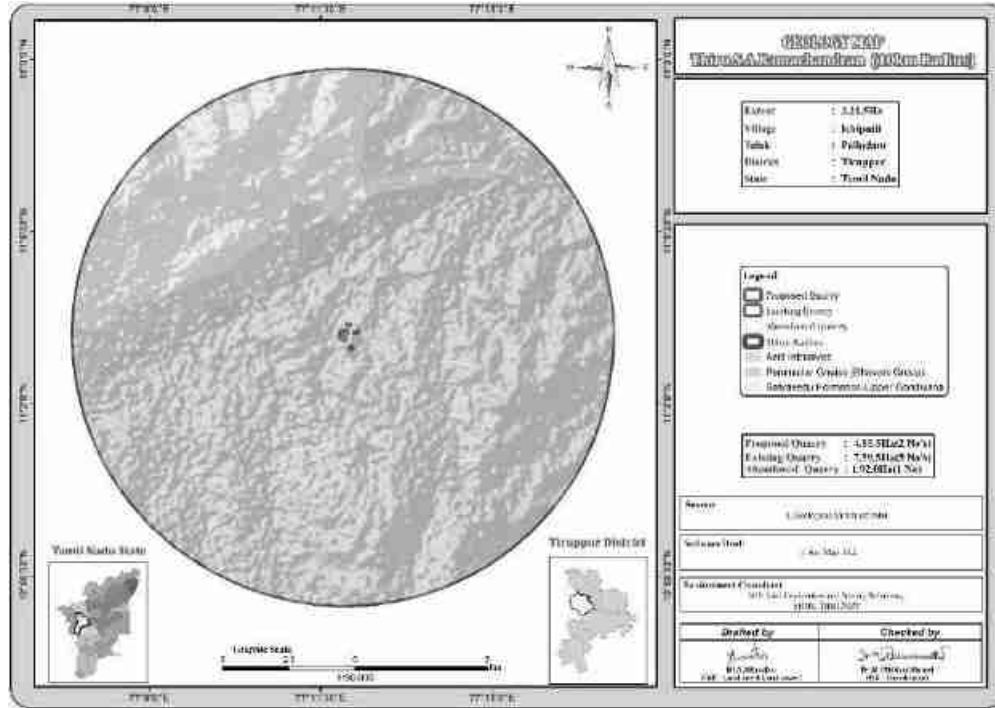
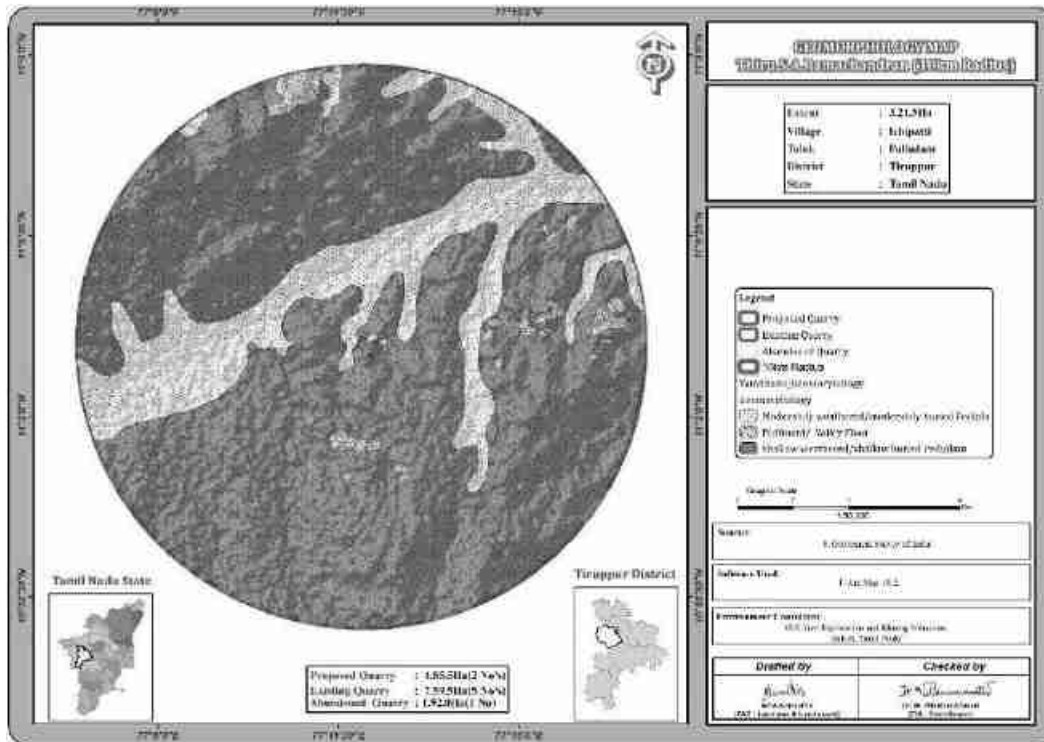


FIGURE 2.9: GEOMORPHOLOGY MAP



2.4 RESOURCES AND RESERVES

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

TABLE 2.7: RESOURCES AND RESERVES

Description	Rough Stone in m ³	Weathered Rock in m ³ (1 year)	Gravel in m ³ (1 year)
Geological Resource in m ³	6,62,765	9,162	6,108
Mineable Resource in m ³	2,57,985	4,611	3,584
Year wise production for five-year plan period	2,57,985	4,611	3,584
Peak Production	53,850	4,611	3,584

Source: Approved Mining Plan

TABLE 2.8: YEAR-WISE PRODUCTION PLAN

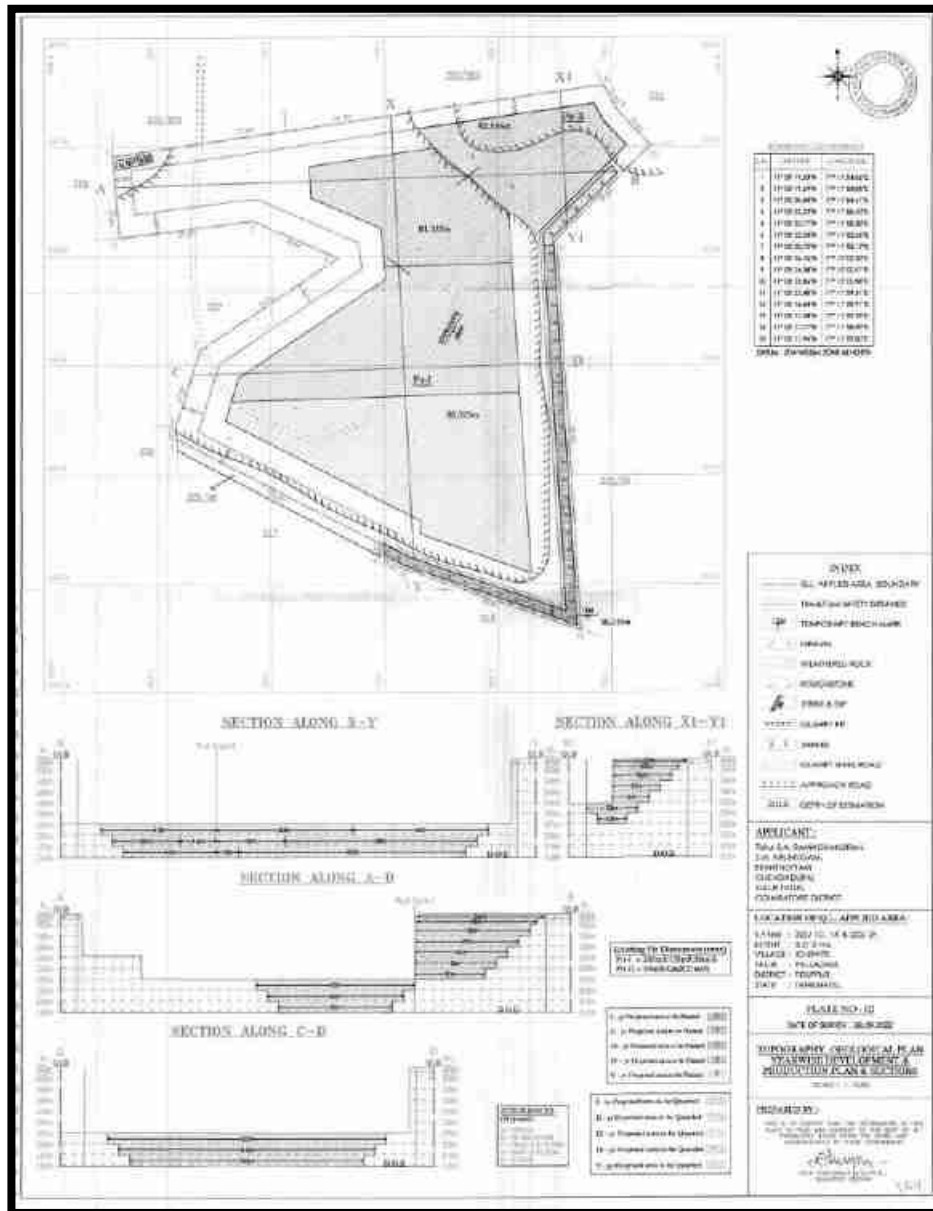
Year	Rough Stone in m ³	Weathered Rock in m ³	Gravel in m ³
I	47,510	4,611	3,584
II	51,950	-	-
III	53,850	-	-
IV	53,175	-	-
V	51,500	-	-
Total	2,57,985	4,611	3,584

Source: Approved Mining Plan

Disposal of Waste

The overburden in the form of Weathered rock and Gravel is about 8,195m³ (4,611m³ + 3,584m³) up to depth 5m(3m+2m). The quarried-out Weathered rock and Gravel will be directly loaded into tippers for the filling and levelling of low-lying areas.

FIGURE 2.10: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS



Conceptual Mining Plan/ Final Mine Closure Plan

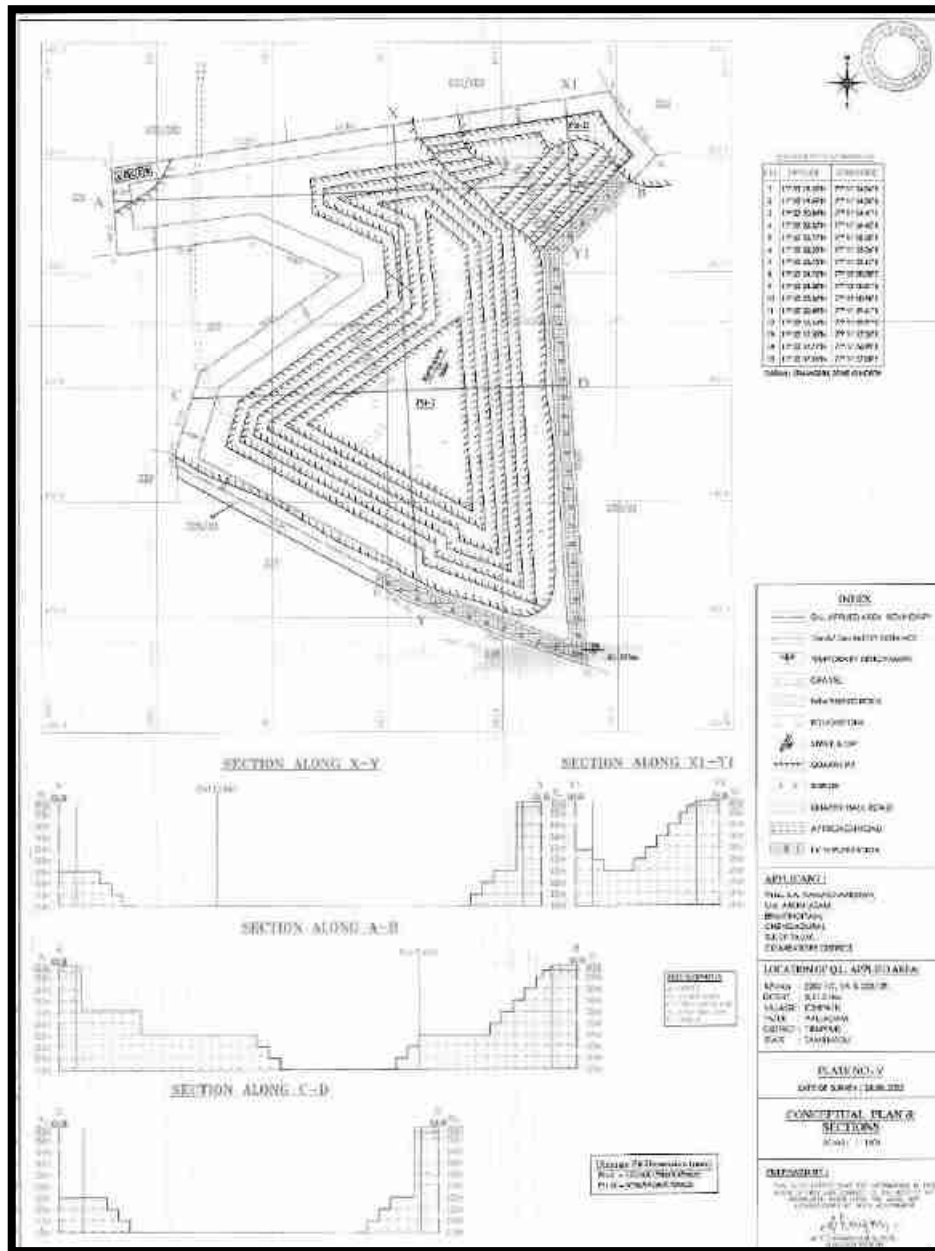
The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.

TABLE 2.9: ULTIMATE PIT DIMENSION

Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max)
I	202	158	45m bgl
II	65	42	30m bgl

Source: Approved Mining Plan

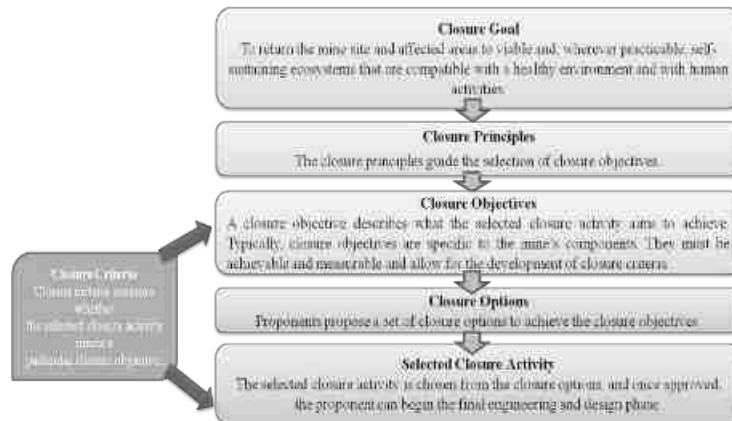
FIGURE 2.11: CLOSURE PLAN AND SECTIONS



Source: Approved Mining Plan

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

Closure Objectives –



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

Closure Planning & Options Considerations in Mine Design –

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

2.5 METHOD OF MINING

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

The Rough Stone is a batholith formation and the splitting of rock mass of considerable volume from the parent rock mass will be carried out by deploying jackhammer drilling and Slurry Explosives will be used for blasting. Hydraulic Excavator attached with rock breaker/ bucket with tipper combination will be involved for the excavation/breaking of Rough stone after blasting. Hydraulic excavators attached with bucket unit will be deployed for loading the Rough Stone into the tippers and then the stone is transported from pithead to the nearby crushers.

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

2.5.1 Drilling & Blasting Parameters

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

Spacing	–	1.2m
Burden	–	1.0 m
Depth of hole	–	1.5 m
Charge per hole	–	0.50 – 0.75kg
Powder factor	–	6.0 tonnes/kg
Diameter of hole	–	32 mm
Peak production Capacity	=	180m ³ of Rough stone per day
Spacing X Burden X Depth	=	1.2m X 1.0m X 1.5m = 1.8m ³
	=	1.8m ³ X 2.6 (Bulk Density) = 4.6Ts per hole

hence for the peak production per day of 180m³ (468Ts) = 150 Nos of holes to be drilled per day

Explosives per hole = ½ kg hence 75 kg of Explosives will be utilized maximum considering the peak production

Type of Explosives to be used –

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

Storage of Explosives –

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

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

2.5.2 Extent of Mechanization

TABLE 2.10 PROPOSED MACHINERY DEPLOYMENT

S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	6	1.2m to 2.0m	Compressed air
2	Compressor	2	400psi	Diesel Drive

3	Excavator with Bucket and Rock Breaker	1	300 HP	Diesel Drive
4	Tipplers	3	20 Tonnes	Diesel Drive

Source: Approved Mining Plan

2.6 GENERAL FEATURES

2.6.1 Existing Infrastructures

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

2.6.2 Drainage Pattern

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

2.6.3 Traffic Density

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

Traffic density measurements were performed at two locations

1. Panchayat Road
2. State Highway_Annur to Pollachi Road

Traffic density measurement was made continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., Heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift- one person on either direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken.

TABLE.2.11: TRAFFIC SURVEY LOCATIONS

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Panchayat Road	760m_NW	Panchayat Road
TS2	Annur to Pollachi Road	850m_NW	State Highway

Source: On-site monitoring by GEMS FAE & TM

TABLE 2.12: EXISTING TRAFFIC VOLUME

Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	60	180	90	90	130	60	330
TS2	240	720	110	110	240	120	950

Source: On-site monitoring by GEMS FAE & TM

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

TABLE 2.13: ROUGH STONE & GRAVEL HOURLY TRANSPORTATION REQUIREMENT

Transportation of Rough Stone & Gravel per day		
Capacity of trucks	No. of Trips per day	Volume in PCU
20 tonnes	17	51

FIGURE.2.12: MINERAL TRANSPORTATION ROUTE MAP

*Transportation of Rough Stone from quarry is to crusher located in Northern direction of the quarry.

TABLE 2.14: 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
Panchayat Road	330	51	381	1200
State Highway_Annur to Pollachi Road	990	51	1001	1500

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

- Due to these projects the existing traffic volume will not exceed
- As per the IRC 1960 this existing village road can handle 1,200 PCU in hour and Major district road can handle 1500 PCU in hour hence there will not be any conjunction due to this proposed transportation.

2.6.4 Mineral Beneficiation and Processing

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

2.7 PROJECT REQUIREMENT

2.7.1 Water Source & Requirement

Detail of water requirements in KLD as given below:

TABLE 2.15: WATER REQUIREMENT FOR THE PROJECT

Purpose	Quantity	Source
Dust Suppression	0.4KLD	From the existing pit or from the water vendors
Green Belt	0.5KLD	From the existing pit or from the water vendors
Sanitation & Drinking	0.4KLD	From the existing pit or from the water vendors.
Total	1.4 KLD	

Source: Prefeasibility report

2.7.2 Power and Other Infrastructure Requirement

Power is not required for the mining operation; the mining operation will be carried out using Diesel Generator and Earth moving machineries using diesel. The quarrying activity is proposed during day time only

(General Shift 8 AM – 5 PM, Lunch Break 1 PM – 2 PM). Electricity for use in office and other internal infrastructure will be obtained from TNEB by project proponent.

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

2.7.3 Fuel Requirement

One Excavator will excavate 25m^3 of Broken up Rough stone per hour and 60m^3 of Gravel per hour.

Peak production of Rough stone = 180m^3

Peak production of Weathered Rock = 15m^3

Peak production of Gravel = 12m^3

Peak production for the overburden (Gravel) = 13m^3

Type of machinery	Working hours	Average Diesel consumption/ Hour	Quantity of Diesel in Ltrs
Working hours of Excavator (Aprx)	$180\text{m}^3/20\text{m}^3=9\text{hrs}$ (Rough stone)	18 Ltrs	162
	$15\text{m}^3/60\text{m}^3 = 0.5-1$ Hrs	18 Ltrs	18
	$11/60\text{m}^3 = 0.5-1\text{Hrs}$	18 Ltrs	18
Compressor	Working hours per day 2Hrs	8 Ltrs	16
Tippers, Motor pumps to drain water	Occasionally		20
Total Diesel Consumption			234

The Maximum diesel consumption is around 234Ltrs per day considering the peak production.

2.7.4 Project Cost

The Environmental Management plan has been prepared considering the mode of working, Safety of the employees and Monitoring periods the **Total cost is 74,01,000 Lakhs.**

2.8 EMPLOYMENT REQUIREMENT:

The following manpower's are proposed in the mining plan to carry out the day-to-day quarrying activities, the same employment is maintaining aimed at the proposed production target and also to comply with the statutory provisions of the Metalliferous mine's regulations, 1961.

TABLE 2.16: PROPOSED MANPOWER DEPLOYMENT

Designation	No of persons
Mines Manager/Mines Foreman	1
Mate/Blaster	1
Jack hammer operator	12
Excavator Operator	4
Labour & Helper	4
Cleaner & Co-operator	5
Security	1
Total	28

Source: Approved Mining Plan

2.9 PROJECT IMPLEMENTATION SCHEDULE

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

TABLE 2.17: EXPECTED TIME SCHEDULE

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

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

3. DESCRIPTION OF ENVIRONMENT

3.0 GENERAL

The baseline environment quality represents the background environmental scenario of various environmental components such as Land, Water, Air, Noise, Biological and Socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering March 2024 to May 2024 with CPCB guidelines for the following attributes –

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

Environmental data has been collected with reference to cluster quarries by EHS 360 labs Pvt Ltd , – An accredited by ISO/IEC 17025:2017 (NABL) Laboratory

Study Area

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

- Core zone is considered as cluster area
- Buffer zone taken as 10km radius from the periphery of the Cluster. Both Core zone and Buffer zone is taken as the study area.

Study Period

The baseline study was conducted during the summer season i.e., March 2024 to May 2024.

Study Methodology

- The project area was surveyed in detail with the help of Total Station Survey instruments and pillars were marked. The boundary coordinates were superimposed on the satellite imagery to understand the relief of the area, besides Land use pattern of the area was studied through the Bhuvan (ISRO)
- Soil samples were collected and analysed for relevant physio-chemical characteristics in order to assess the impact due to mining activities and to recommend saplings for Greenbelt development.
- Ground water samples were collected from the existing bore wells, Surface water was collected from water bodies in the buffer zone and analysed as per CPCB Guidelines.
- An onsite meteorological station was setup in cluster area, to collect data about wind speed, wind direction, temperature, relative humidity, rainfall and general weather conditions were recorded throughout the study period.
- Air quality Data were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM₁₀ and SO₂, NO_x with gaseous attachments & Fine Dust Samplers (FDS) for PM_{2.5} and other parameters as per NAAQ norms and analysed for primary air pollutants to work out the existing status of air quality.
- The Noise level measurements were also made at various locations in different intervals of time with the help of sound level meter to establish the baseline noise levels in the impact zone.
- Baseline biological studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern of the area.

- Socio-Economic survey was conducted at village and household level in the study area to understand the present socio-economic conditions and assess the extent of impact due to the proposed mining project. The sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of samples analysis, etc., are given below Table 3.1.

TABLE 3.1: MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio-Chemical Characteristics	Once during the study period	6 (1 core & 5 buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (2 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Auto matic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourlies twice a week (March to May 2024)	7 (1 core & 6 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	7 (1 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio–Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

Source: On-site monitoring/sampling by EHS 360 labs Private Limited, in association with GEMS

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

3.1 LAND ENVIRONMENT

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

3.1.1 Land Use/ Land Cover

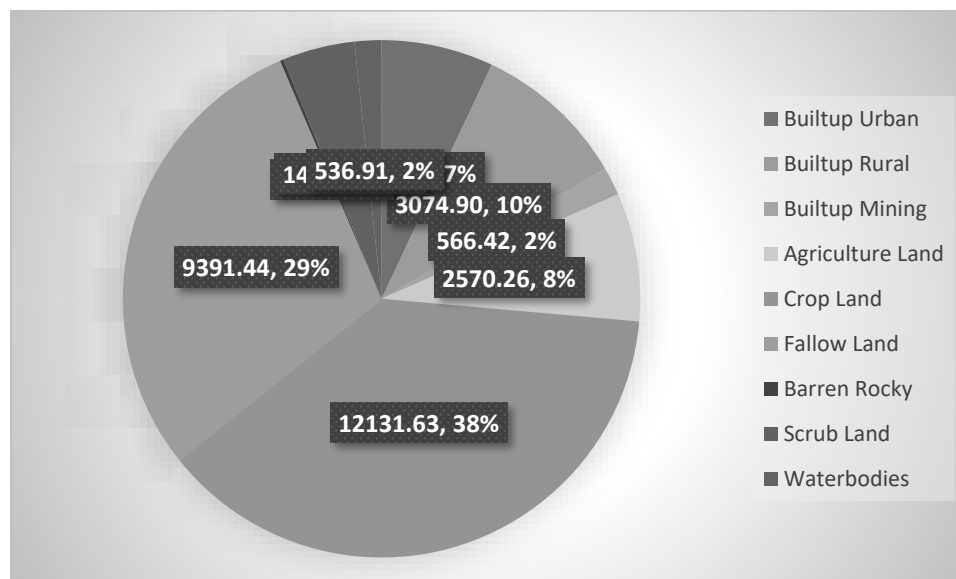
A visual interpretation technique has been adopted for land use classification based on the keys suggested in the chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through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

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

S.No	CLASSIFICATION	AREA_HA	AREA_%
BUILTUP			
1	Builtup Urban	2245.24	7.01
2	Builtup Rural	3074.90	9.60
3	Builtup Mining	566.42	1.77
AGRICULTURAL LAND			
4	Agricultural Land	2570.26	8.02
5	Crop Land	12131.63	37.87
6	Fallow Land	9391.44	29.32
BARREN/WASTE LANDS			
7	Barren Rocky	70.32	0.22
8	Scrub Land	1447.70	4.52
WETLANDS/ WATER BODIES			
9	Waterbodies	536.91	1.68
TOTAL		31904.02	32034.83

Source: Survey of India Toposheet and Landsat Satellite Imagery

FIGURE 3.1: PIE DIAGRAM OF LAND USE AND LAND COVER



From the above table, pie diagram and land use map it is inferred that the majority of the land in the study area is Agriculture and fallow land (includes crop land) 75.21 % followed by Built-up Lands – 18.38 %, Scrub land – 4.74%, and Water bodies 1.68%.

The total mining area within the study area is 566.42 ha i.e., 1.77%. The cluster area of 12.45.0ha contributes about 2.19% of the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment.

3.1.2 Topography

The lease applied area exhibits plain topography. The area has gentle sloping towards Northeastern side. The altitude of the area is 355m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation and 3m of Weathered Rock. Massive Charnockite is found after 5m (2m Gravel + 3m Weathered Rock) which is clearly inferred from the existing quarry pits. The North, North East & South East side of the areas are existing Rough stone quarry.

3.1.3 Drainage Pattern of the Area

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

3.1.4 Seismic Sensitivity

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

3.1.5 Environmental Features in the Study Area

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

FIGURE 3.2: PHYSIOGRAPHIC MAP 10KM RADIUS

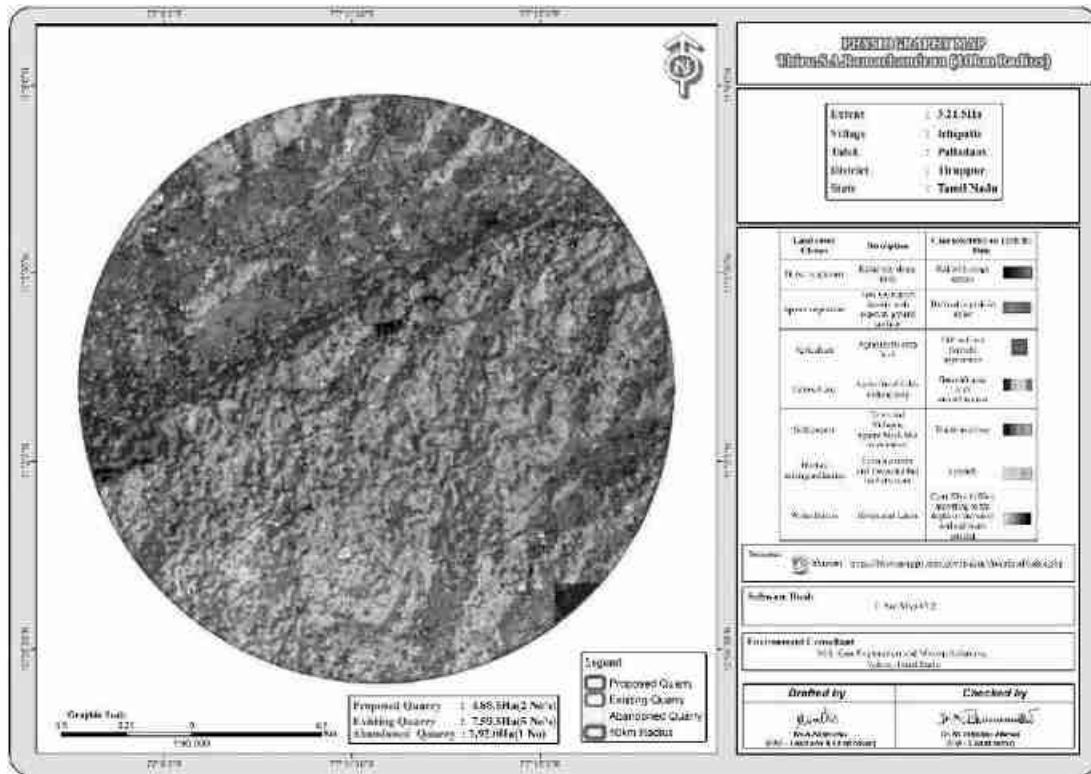


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS

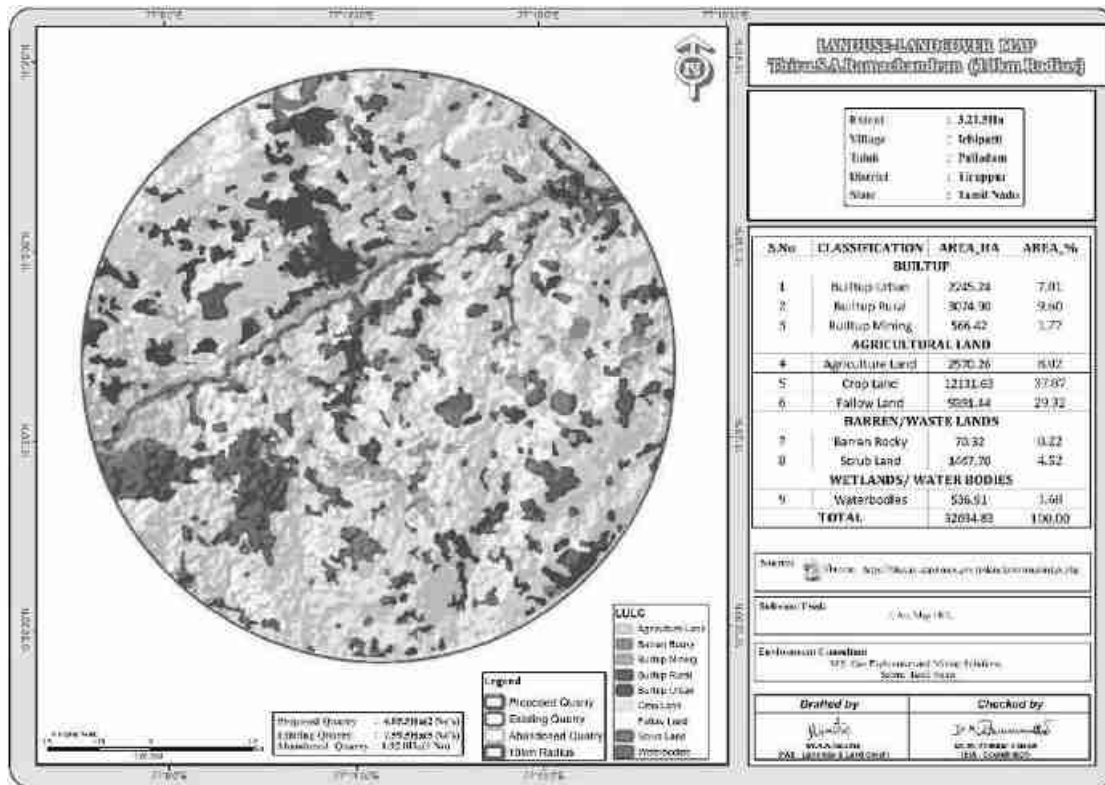


TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER

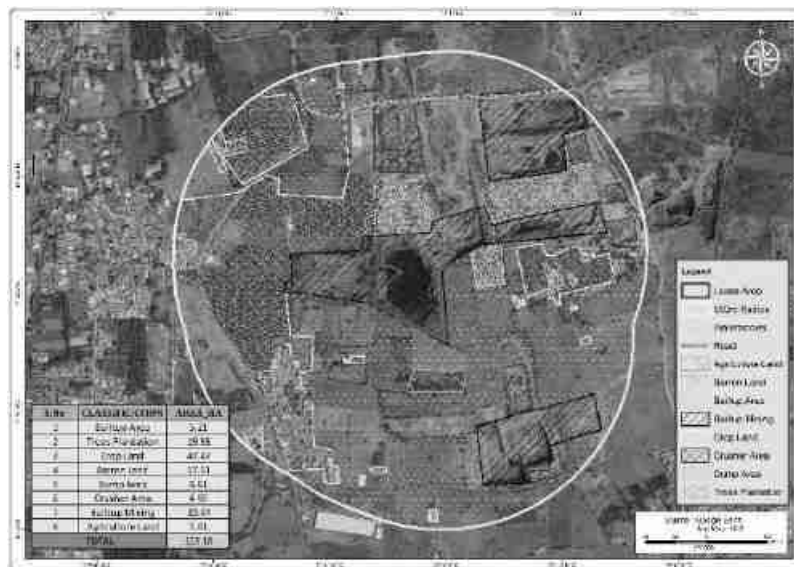
Sl.No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	None	Nil within 10km Radius
2	Reserve Forest	Thadagam Block IV R.F	32.0 Km –West
3	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	Sathiyamangalam Tiger Reserve	46.0km - NW
4	Critically Polluted Areas	Coimbatore - SIDCO Industrial Estate	Around 26.5 km- South West
5	Mangroves	None	Nil within 10km Radius
6	Mountains/Hills	None	Nil within 10km Radius
7	Notified Archaeological Sites	None	Nil within 10km Radius
8	Industries/ Thermal Power Plants	None	Nil within 10km Radius
9	Defence Installation	None	Nil within 10km Radius

Source: Survey of India Toposheet

TABLE 3.4: NEARBY WATER BODIES FROM THE PROPOSED PROJECT SITE

Sl.No	NAME	DISTANCE & DIRECTION
1	Odai	320m_NW
2	Samalapuram Lake	1.6Km_N
3	Noyyal River	2.5Km_NW
4	Sulur Lake	7.6Km_SW
5	Kowshika River	9.2Km_NE

Source: Village Cadastral Map and Field Survey

FIGURE 3.4: LAND USE LAND COVER MAP 500m RADIUS

Land use Landcover of the area within 500m radius were studied in detailed that the majority of the land within 500m is Agriculture land followed by Barren land and Built-up mining area are contributing majority of the land use.

3.1.6 Soil Environment

Soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and analysed for different parameters. The locations of the monitoring sites are detailed in Table 3.5 and Figure 3.5.

The objective of the soil sampling is -

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

TABLE 3.5: SOIL SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Project Area	Core Zone	11° 3'17.07"N 77°11'59.40"E
2	S-2	Near Project Area	450m SW	11° 3'4.41"N 77°11'51.89"E
3	S-3	Karugampalayam	1.2km NW	11° 3'59.95"N 77°11'34.47"E
4	S-4	Naduvelampalayam	4.8km SE	11° 2'29.63"N 77°14'23.75"E
5	S-5	Pallapalayam	3.2km NE	11° 4'57.71"N 77°12'38.99"E
6	S-6	Kadampadi	4.5km SW	11° 1'58.78"N 77° 9'55.45"E

Source: On-site monitoring/sampling by EHS 360 lab Pvt Ltd in association with GEMS.

Methodology –

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the project site representing various land use conditions. The samples were collected by auger boring into the soil up to 90-cm depth. Six (6) locations were selected for soil sampling on the basis of soil types, vegetative cover, industrial & residential activities including infrastructure facilities, which would accord an overall idea of the soil characteristics. The samples were analysed for physical and chemical characteristics. The samples were sent to laboratory for analysis. The samples were filled in Polythene bags, coded and sent to laboratory for analysis and the details of methodology in respect are given in below Table 3.6.

TABLE 3.6: METHODOLOGY OF SAMPLING COLLECTION

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

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

Soil Testing Result –

The samples were analysed as per the standard methods prescribed in “Soil Chemical Analysis (M.L. Jackson, 1967) & Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India”. The important properties analysed for soil are bulk density, porosity, infiltration rate, pH and Organic matter, kjeldahi Nitrogen, Phosphorous and Potassium. The standard classifications of soil are presented below in Figure 3.4 and the physico-chemical characteristics of the Soil & Test Results in Table 3.7.

FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

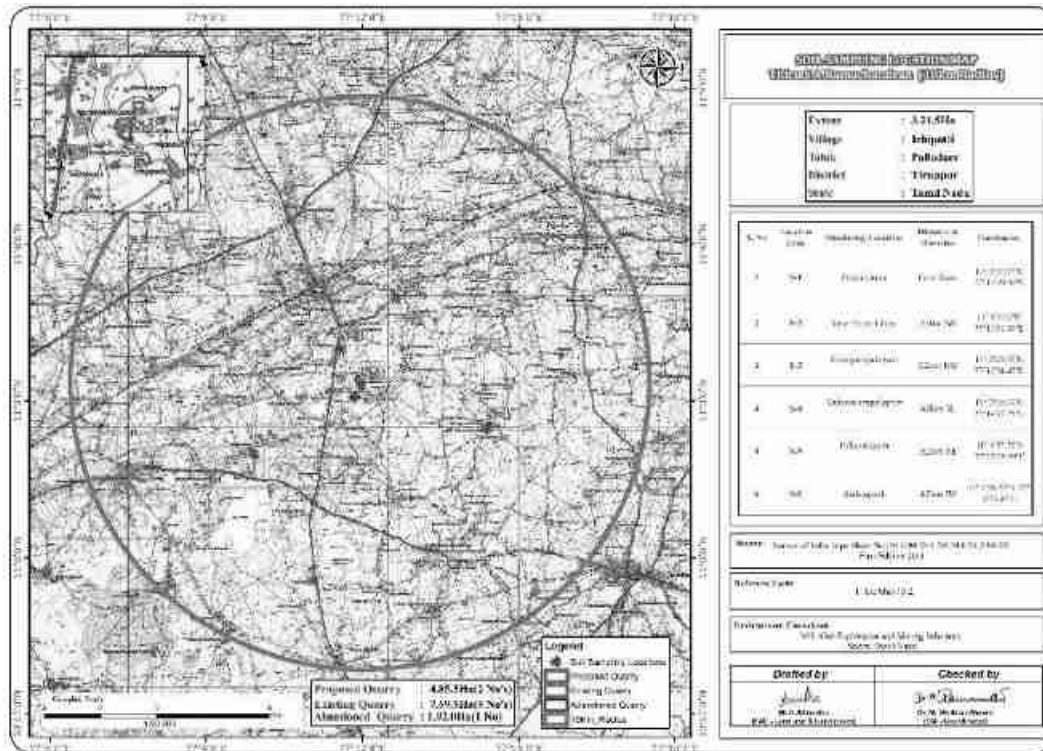


FIGURE 3.6: SOIL MAP

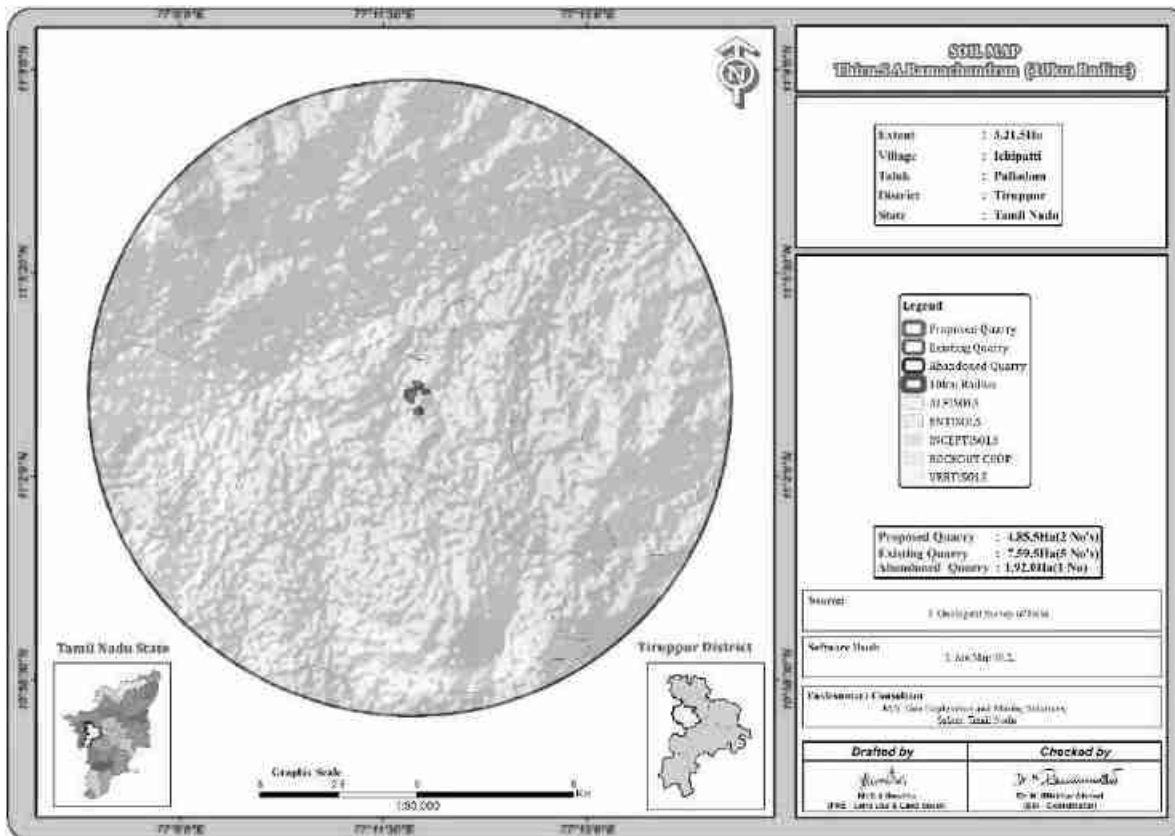


TABLE 3.7: SOIL QUALITY OF THE STUDY AREA

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	S-1 Project Area	S-2 Near Project Area	S-3 Karugampalay am	S-4 Naduvelampal ayam	S-5 Pallapalayam	S-6 Kadampadi
1	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	-	8.35	8.51	8.61	8.54	8.55	8.59
2	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	µS/cm	402	510	371	532	373	531
3	Water Holding Capacity	By Gravimetric Method	%	47.5	46.6	46.2	48.8	48.1	46.6
4	Bulk Density	By Cylindrical Method	g/cc	1.05	0.97	1.01	0.99	1.11	1.14
5	Porosity	By Gravimetric Method	%	46.9	48.2	45.6	46.55	45.3	45.8
6	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	mg/kg	37.5	52	39.1	63	70.2	52.3
7	Magnesium as Mg	GLCS/SOP/S/009	mg/kg	25.4	38.4	33	55.5	42.5	28.1
8	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	mg/kg	49	23	28.4	28.5	26	65.5
9	Soluble Sulphate as SO ₄	IS 2720 Part 27: 1977 (Reaff:2015)	%	0.0011	0.0015	0.0020	0.0024	0.0008	0.0018
10	Total Phosphorus as P	IS 10158: 1982 (Reaff: 2019)	mg/kg	3.52	3.05	3.6	5.6	4.02	6.26
11	Total Nitrogen as N	IS 14684: 1999 (Reaff:2019)	mg/kg	388.1	415	451.6	471	400	410.5
12	Organic Matter	IS: 2720 Part 22: 1972 (Reaff: 2015)	%	1.57	1.77	2.14	1.77	2.62	2.28
13	Organic Carbon	IS: 2720 Part 22: 1972 (Reaff: 2015)	%	0.91	1.03	1.24	1.03	1.52	1.32
14	Clay	By Gravimetric Method	%	31.8	29.1	25.9	33.4	33.9	32.5
15	Sand	By Gravimetric Method	%	32.4	33.0	31.4	31.1	30.8	31.0
16	Silt	By Gravimetric Method	%	35.8	37.9	42.7	35.5	35.4	36.5
17	Manganese as Mn	USEPA Method	mg/kg	14.4	16.5	30.1	8.64	20.2	17.5
18	Zinc as Zn	USEPA Method	mg/kg	1.61	5.05	3.56	6.61	5.63	4.13
19	Boron as B	USEPA Method	mg/kg	2.3	4.55	5.01	12	5.01	1.02
20	Potassium as K	USEPA Method	mg/kg	30.1	31	24.6	15.5	13.7	14
21	Cadmium as Cd	USEPA Method	mg/kg	BDL (DL : 1.0 mg/kg)					
22	Total Chromium as Cr	USEPA Method	-	2.2	BDL (DL : 1.0 mg/kg)	2.55	3.44	3.54	1.23
23	Copper as Cu	USEPA Method	mg/kg	BDL (DL : 1.0 mg/kg)					
24	Lead as Pb	USEPA Method	mg/kg	1.64	1.05	2.02	2.03	2.09	1.26
25	Iron as Fe	USEPA Method	mg/kg	3.01	2.22	1.45	4.15	8.37	2.33
26	Cation Exchange Capacity	USEPA 9080 – 1986	meq/100g of soil	39.1	42.5	44.8	46.6	40	38.3

Source: Sampling Results by EHS 360 labs Private Limited.

FIGURE 3.7: SOIL SAMPLE COLLECTION**Interpretation & Conclusion****Physical Characteristics –**

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay (25.9 % to 33.9%) to Sandy Loam Soil and Bulk Density of Soils in the study area varied between 0.97– 1.14 g/cc. The Water Holding Capacity is found to be medium i.e., ranging from 48.8 – 46.2 %.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline with pH range 8.35 to 8.61
- The available Nitrogen content range between 388.1 to 471 mg/kg
- The available Phosphorus content range between 3.05 to 6.26 mg/kg
- The available Potassium range between 13.7 mg/kg to 31.0 meq/l

Observation:

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

3.2 WATER ENVIRONMENT

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

3.2.1 Surface Water Resources:

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

3.2.2 Ground Water Resources:

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

3.2.3 Methodology

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

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

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

TABLE 3.8: WATER SAMPLING LOCATIONS

S.NO	CODE	LOCATIONS	DISTANCE & DIRECTION	CO-ORDINATES
SURFACE WATER				
1	SW-1	Noyyal River Sendevipalayam	3.5km West	11° 3'56.24"N 77°10'3.79"E
2	SW-2	Samalapuram Lake	1.8km North	11° 4'19.24"N 77°12'0.55"E
GROUND WATER				
3	WW-1	Near Project Area	380m NW	11° 3'30.03"N 77°11'42.11"E
4	WW-2	Semmipalayam	6.5km SE	11° 0'21.15"N 77°14'17.92"E
5	BW-1	Near Project Area	450m East	11° 3'24.14"N 77°12'15.64"E
6	BW-2	Kadampadi	4.5km SW	11° 2'7.50"N 77° 9'54.08"E

Source: On-site monitoring/sampling by EHS 360 labs Private Limited in association with GEMS

FIGURE 3.8: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS

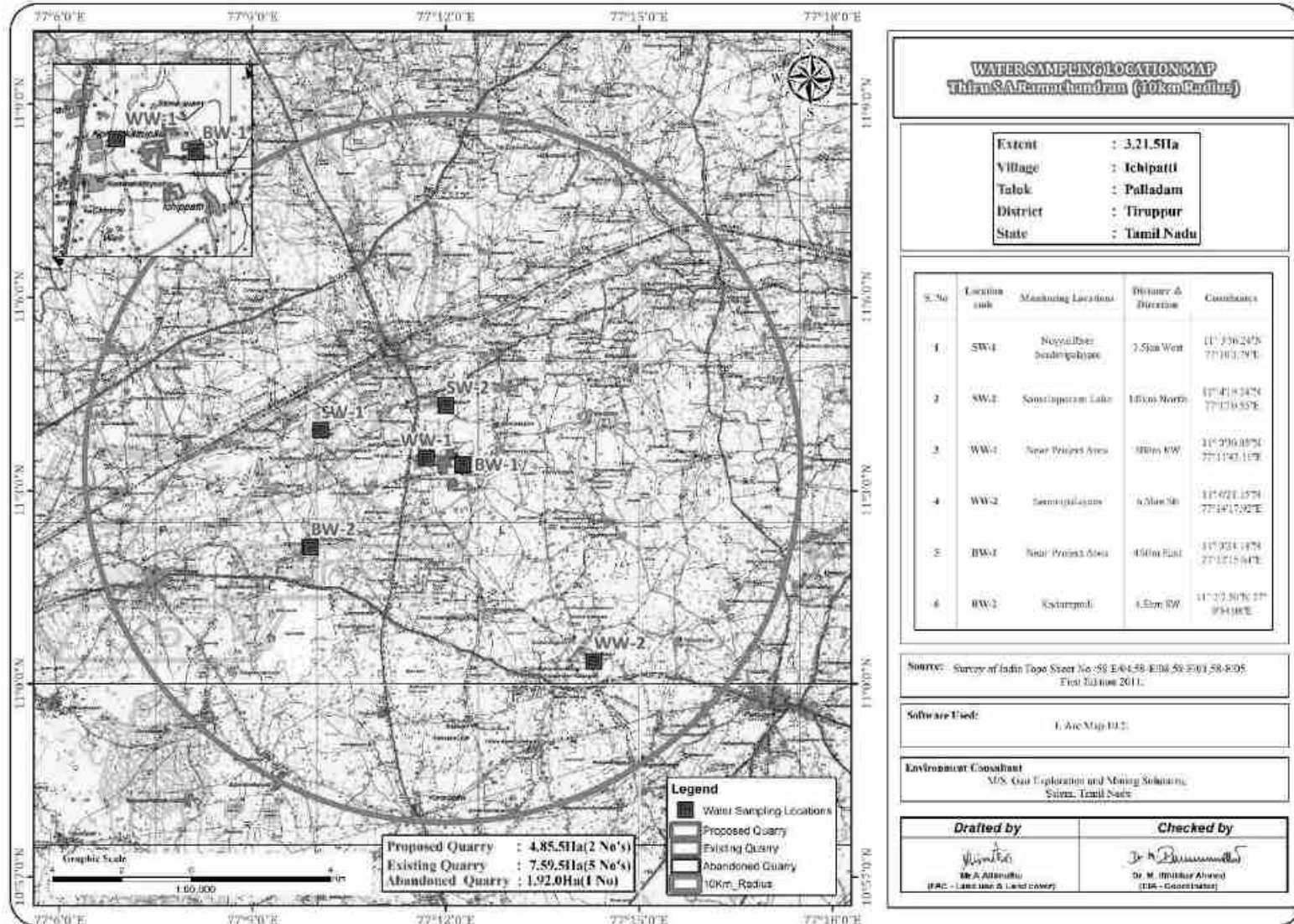


TABLE 3.9: GROUND WATER SAMPLING RESULTS

Sl. No.	TEST PARAMETERS	TEST METHOD	WW1-Near Project area	WW2-Semmpalayam	BW1- Near Project Area	BW2-Kadampadi
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5	5	5	5
2	Odour	IS 3025 Part 5:2018	Agreeable	Agreeable	Agreeable	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.95	7.28	6.82	7.66
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	837 µmhos/cm	1056 µmhos/cm	828 µmhos/cm	915 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.2 NTU	1.1 NTU	1.0 NTU	1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	494 mg/l	623 mg/l	488 mg/l	540 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	203.35 mg/l	187.53 mg/l	158.12 mg/l	200.02 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	37.5 mg/l	36.6 mg/l	29.1 mg/l	33.2 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	26.7 mg/l	23.4 mg/l	20.8 mg/l	28.5 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	189 mg/l	200 mg/l	162 mg/l	210 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	78.3 mg/l	145 mg/l	98.6 mg/l	125 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	60 mg/l	96 mg/l	52 mg/l	25 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.36 mg/l	0.38 mg/l	0.21 mg/l	0.22 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.24 mg/l	0.19 mg/l	0.35 mg/l	0.20 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	4.16 mg/l	5.1 mg/l	8 mg/l	6.6 mg/l
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)		BDL (DL:0.01 mg/l)		
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)		BDL (DL:0.02 mg/l)		
19	Mercury as Hg	USEPA 200.8		BDL (DL:0.0005 mg/l)		
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)		BDL (DL:0.001 mg/l)		
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)		BDL (DL:0.005 mg/l)		
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)		BDL (DL:0.005 mg/l)		
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)		BDL (DL:0.005 mg/l)		
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)		BDL(DL : 0.05 mg/l)		
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)		BDL(DL : 0.02 mg/l)		
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)		BDL(DL : 0.05 mg/l)		
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff: 2019)		BDL(DL : 0.01 mg/l)		
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)		BDL (DL:0.0005 mg/l)		
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)		BDL (DL:0.01 mg/l)		
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)		BDL (DL:0.01 mg/l)		
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)		BDL(DL:0.05 mg/l)		
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)		BDL (DL:0.01 mg/l)		
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)		BDL (DL:0.01 mg/l)		
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)		BDL (DL:0.02 mg/l)		
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)		BDL (DL:0.005 mg/l)		
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)		BDL (DL:1.0 mg/l)		
36	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)		BDL (DL:0.01 mg/l)		
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	160 MPN/100ml	100 MPN/100ml	114 MPN/100ml	155 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml

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

TABLE 3.10: SURFACE WATER SAMPLING RESULTS

Sl. No.	TEST PARAMETERS	TEST METHOD	SW-1 Noyyal River	SW-2 Samalapuram Lake
1	Colour	IS 3025 PART 4	5 Hazen	10 Hazen
2	Odour	IS 3025 PART 5	Agreeable	Agreeable
3	pH at 25°C	IS 3025 PART11	7.97	7.59
4	Conductivity @ 25°C	IS 3025 PART14	867 µmhos/cm	725 µmhos/cm
5	Turbidity	IS 3025 PART10	4.5 NTU	2.1 NTU
6	Total Dissolved Solids	IS 3025 PART16	511 mg/l	428 mg/l
7	Total Hardness as CaCO ₃	IS 3025 PART 23	175.93 mg/l	161.14 mg/l
8	Calcium as Ca	IS 3025 PART 21	30.8 mg/l	28.0 mg/l
9	Magnesium as Mg	IS 3025 PART40	24.1 mg/l	22.2 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 PART 46	166 mg/l	130 mg/l
11	Chloride as Cl	IS 3025 PART 32	110.5 mg/l	87.1 mg/l
12	Sulphate as SO ₄	IS 3025 PART24	61.2 mg/l	51 mg/l
13	Iron as Fe	IS 3025 PART 53	0.26 mg/l	0.15 mg/l
14	Residual Free Chlorine	IS 3025 PART 57	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Fluoride as F	IS 3025 PART 26	0.35 mg/l	0.22 mg/l
16	Nitrate as NO ₃	GLCS/SOP/W/015	11 mg/l	8.64 mg/l
17	Copper as Cu	IS 3025 PART 59	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 PART 34	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	IS 3025 PART 38	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 PART 44	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 PART 58	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 PART 34	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 PART 17	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 PART 43	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 13428	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 PART 27	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	GLCS/SOP/W/66	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	GLCS/SOP/W/62	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	GLCS/SOP/W/62	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	GLCS/SOP/W/62	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	GLCS/SOP/W/62	14 mg/l	9.1 mg/l
32	Chemical Oxygen Demand	GLCS/SOP/W/62	50 mg/l	30 mg/l
33	Dissolved Oxygen	GLCS/SOP/W/62	5.6 mg/l	5.5 mg/l
34	Barium as Ba	GLCS/SOP/W/62	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	GLCS/SOP/W/62	2.5 mg/l	1.02 mg/l
36	Sulphide as H ₂ S	GLCS/SOP/W/62	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	GLCS/SOP/W/62	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	GLCS/SOP/W/62	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 1622	21.5 mg/l	16.7 mg/l
40	Total Coliform	Total Coliforms Organism MPN/100ml shall be 50 or less	610 MPN/100ml	510 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	130 MPN/100ml	100 MPN/100ml

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

3.2.4 Interpretation & Conclusion

Surface Water

The pH varied from 7.59 to 7.97 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH).

Total Dissolved Solids:

Total Dissolved Solids varied from 428 to 511 mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

Other parameters:

Chloride content is 87.1 –110.5 mg/l. Nitrates varied from 8.64 to 11.0 mg/l, while sulphates varied from 51.0 to 61.2 mg/l.

Ground Water

The pH of the water samples collected ranged from 6.82 to 7.95 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. On Turbidity, the water samples meet the requirement. Total Dissolved Solids were found in the range of 488 – 623 mg/l in all samples. Total hardness varied between 158.12– 203.35mg/l for all samples.

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

3.2.5 Hydrology and Hydrogeological studies

The district is underlain by hard rock formation fissured and fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-ATS Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 58-62m. The maximum depth proposed out of proposed projects is 45m below ground level.

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

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

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

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

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

The water level in the area is above 55m hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area.

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

S.NO	LABEL	LONGITUDE	LATITUDE	Mar-24	Apr-24	May-24
1	OW1	11° 03' 30.00"N	77° 11' 42.07"E	11	11.6	12.2
2	OW2	11° 03' 47.79"N	77° 11' 48.23"E	11.2	11.8	12.4
3	OW3	11° 03' 51.62"N	77° 11' 53.37"E	11.1	11.7	12.3
4	OW4	11° 04' 00.73"N	77° 12' 07.60"E	11.5	12.1	12.7
5	OW5	11° 03' 53.21"N	77° 12' 20.62"E	11.3	11.9	12.5
6	OW6	11° 03' 17.23"N	77° 12' 29.01"E	11.6	12.2	12.8
7	OW7	11° 03' 03.83"N	77° 12' 15.37"E	11.4	12	12.6
8	OW8	11° 03' 12.32"N	77° 11' 57.12"E	12	12.6	13.2
9	OW9	11° 03' 22.47"N	77° 11' 39.84"E	11.9	12.5	13.1

Source: Onsite monitoring data

FIGURE 3.9: OPEN WELL CONTOUR MAP (Mar to May 2024)

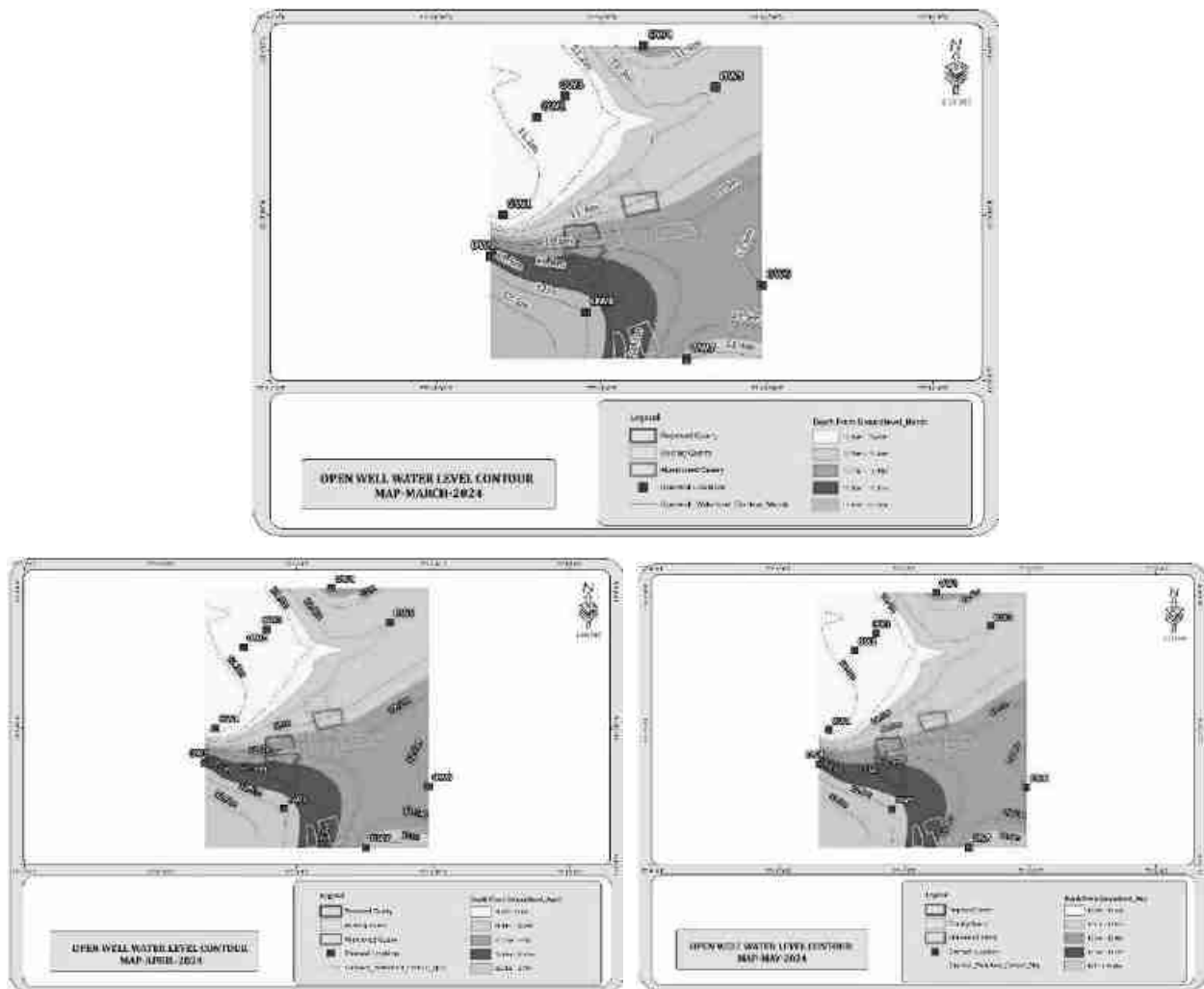


TABLE 3.12: PRE MONSOON SEASON WATER LEVEL OF BOREWELLS 1 KM RADIUS

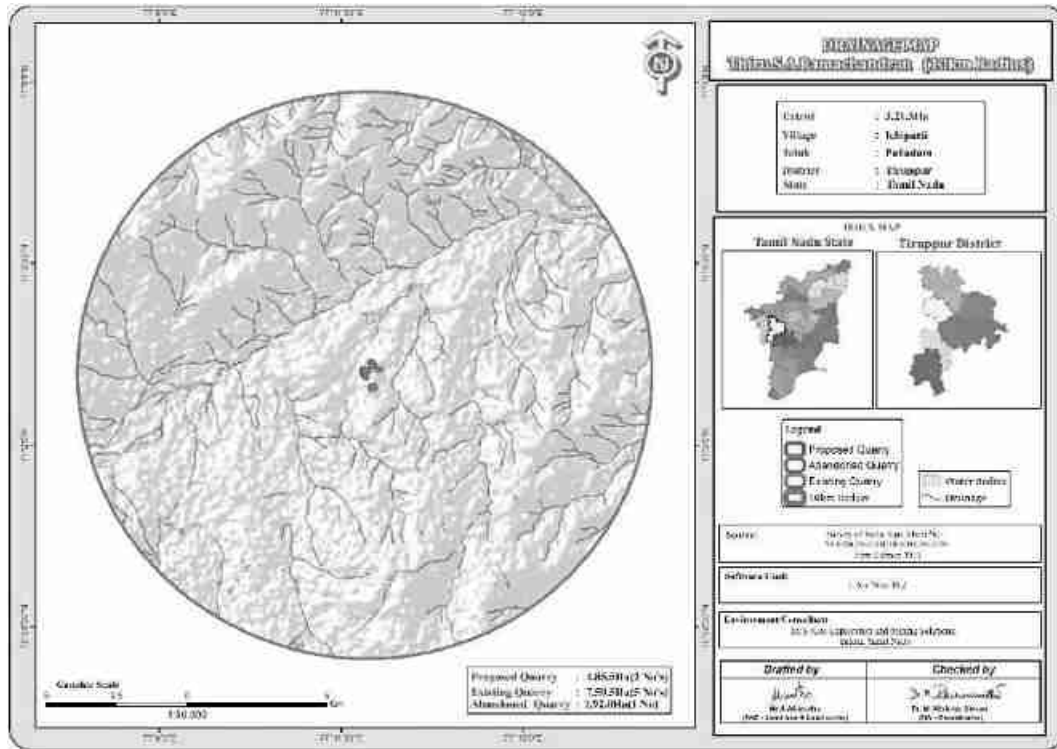
S.NO	LABEL	LONGITUDE	LATITUDE	Mar-24	Apr-24	May-24
1	BW1	11° 03' 25.26"N	77° 11' 36.40"E	56	56.6	57.2
2	BW2	11° 03' 39.60"N	77° 11' 37.10"E	56.2	56.8	57.4
3	BW3	11° 03' 57.27"N	77° 11' 45.90"E	56.3	56.9	57.5
4	BW4	11° 03' 51.71"N	77° 12' 16.92"E	56.1	56.7	57.3
5	BW5	11° 03' 14.07"N	77° 12' 25.92"E	56.5	57.1	57.7
6	BW6	11° 03' 00.49"N	77° 12' 17.59"E	56.4	57	57.6
7	BW7	11° 02' 57.76"N	77° 11' 59.45"E	56.8	57.4	58
8	BW8	11° 03' 09.98"N	77° 11' 35.17"E	56.6	57.2	57.8

Source: Onsite monitoring data

FIGURE 3.10: BOREWELL CONTOUR MAP (Mar-May2024)

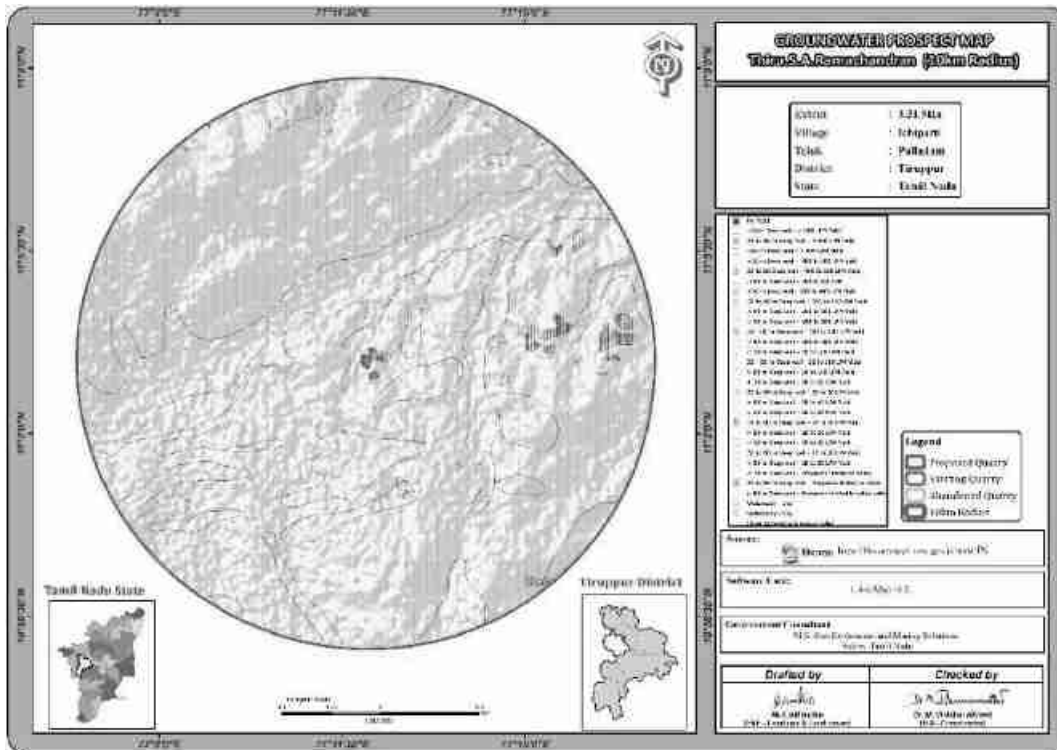


FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE



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

FIGURE 3.12: GROUND WATER PROSPECT MAP



Remarks: Water table in the area is 80m as per the Bhuvan Data

FIGURE 3.12: WATER QUALITY MONITORING PHOTOGRAPHS

Geophysical Resistivity Survey

3.2.5.1 Methodology and Data Acquisition

The Geophysical Electrical Resistivity survey conducted in the area Schlumberger configuration, Vertical Electrical Sounding (VES) method. Schlumberger electrode set up was employed for making sounding measurements. Since it is least influenced by lateral in homogeneities and is capable of providing higher depth of investigation. This is four electrodes collinear set up where in the outer electrodes send current into the ground and the inner electrodes measure the potential difference.

The present study utilizes maximum current electrode separation $AB/2$. The data from this survey are commonly arranged and contoured in the form of Pseudo-section that gives an approximate of the subsurface resistivity. This technique is used for the inversion of Schlumberger VES data to predict the layer parameter namely layer resistivity and Geo electric layer thickness. The main goal of the present study is to search the vertical in homogeneities that is consistent with the measured data.

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

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

ΔV = potential difference between receiving electrodes

G = Geometric Factor.

Rocks show wide variation in resistivity ranging from 10^{-8} more than 10^{14} ohmmeter. On a broad classification, one can group the rocks falling in the range of 10^{-8} to 1 ohmmeter as good conductors. 1 to 10^6 ohmmeter as intermediate conductors and 10^6 to 10^{12} ohmmeter as more as poor conductor. The resistivity of rocks and subsurface lithology, which is mostly dependent on its porosity and the pore fluid resistivity is defined by Archie's Law,

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

ρ_r = Resistivity of Rocks

ρ_w = Resistivity of water in pores of rock

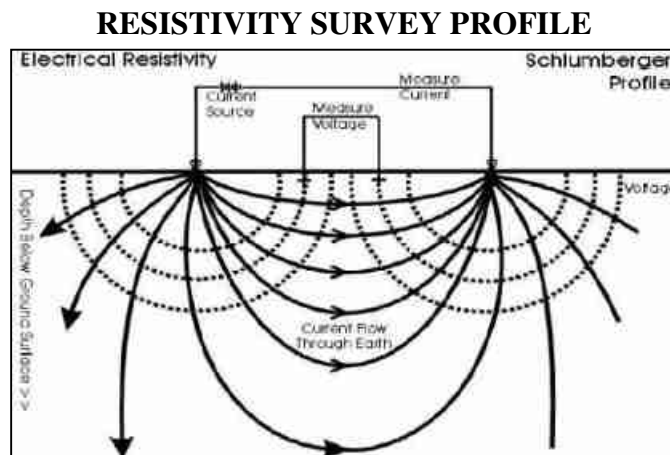
F = Formation Factor

\emptyset = Fractional pore volume

A = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

The field equipment deployed for the study is in a deep resistivity meter with a model of SSR – MP – AT. This Signal stacking Resistivity meter is a high-quality data acquisition system incorporating several innovation features for Earth resistivity. In the presence of random earth Noises the signal to noise ratio can be enhanced by \sqrt{N} where N is the number of stacked readings. This SSR meter in which running averages of measurements [1, (1+2)/2, (1+2+3)/3 ... (1+2...+16/16)] up to the chosen stacks are displayed and the final average is stored automatically, in memory utilizing the principles of stacking to achieve the benefit of high signals to noise ratio. Based on these above significations the signal stacking resistivity meter was used for (VES) Vertical Electric Resistivity Sounding.



Measurements of ground Resistivity is essentially done by sending a current through two electrodes called current electrodes (C_1 & C_2) and measuring the resulting potential by two other electrodes called potential electrode (P_1 & P_2). The amount of current required to be sent into the ground depends on the contact resistance at the current electrode, the ground resistivity and the depth of interest.

3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth between 58-62m. The maximum depth proposed out of proposed projects 45m BGL. Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area.

3.2.5.4 Geophysical Data Interpretation

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

It is inferred that the existing quarries in the surrounding area reaches maximum of 42m and the water table is not intersected, only the seepage water during rainy season encountered from the upper layer and it will be used for the Greenbelt development, Dust suppression and quarrying operation.

3.3 AIR ENVIRONMENT

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

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

3.3.1 Meteorology & Climate

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

A temporary meteorological station was installed at project site by covering cluster quarries. The station was installed at a height of 3 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis.

Climate

- The atmospheric conditions prevailing in this region are of a tropical nature. In Tiruppur, the precipitation during summers is significantly higher in comparison to winters. This location is classified as Aw by Köppen and Geiger. In Tiruppur, the average annual temperature is 26.4 °C | 79.6 °F. Approximately 943 mm | 37.1 inch of rainfall occurs on a yearly basis.
- Due to its proximity to the equator, it is quite challenging to precisely delineate summers in Tiruppur. The period of January, February, March, June, July, August, September, October, November, December is widely regarded as the peak season for visitation.
- The month with the least amount of precipitation is January exhibiting a mere 13 mm | 0.5 inch rainfall. The maximum quantity of rainfall is observed during the month of October, exhibiting an average value of 209 mm | 8.2 inch.
- The month of April boasts the highest average temperature, with a recorded maximum of 30.0 °C | 86.0 °F. During the month of December, there is a notable drop in temperature, with an average low of approximately 23.7 °C | 74.7 °F.

<https://en.climate-data.org/asia/india/tamil-nadu/tiruppur-2789/>

Rainfall

TABLE 3.13: RAINFALL DATA

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
679.8	716.2	488.1	748.8	845.1	606.8

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

TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE

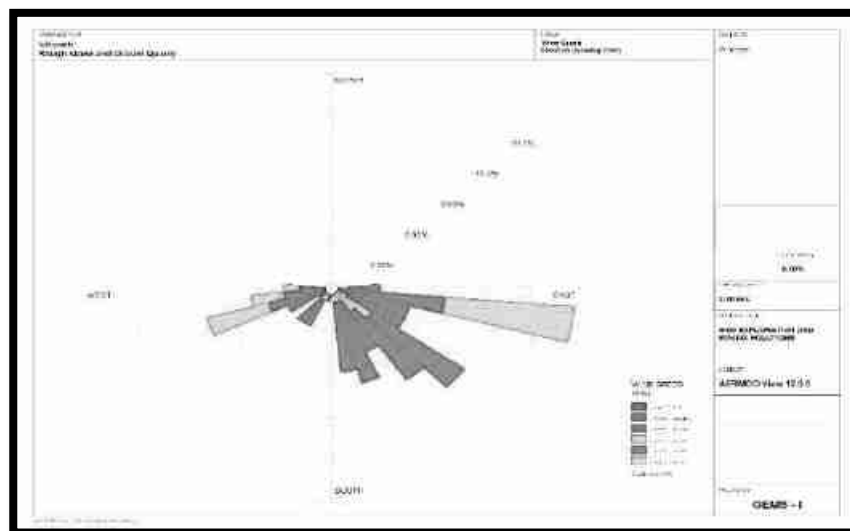
S.No	Parameters		Mar-2024	Apr-2024	May-2024
1	Temperature (°C)	Max	32.76	34.76	35.04
		Min	27.66	32.17	28.9
		Avg	30.21	33.46	31.97
2	Relative Humidity (%)	Avg	40.41	44.78	59.90
3	Wind Speed (m/s)	Max	3.59	4.44	4.41
		Min	1.66	1.75	1.09
		Avg	2.62	3.09	2.75
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ESE, SE	ESE, SE	WSW, W

Source: On-site monitoring/sampling by EHS 360 labs Private Limited in association with GEMS

Correlation between Secondary and Primary Data

The average rain fall over the period of five years is 606.8mm. The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Tiruppur_agro. A comparison of site data generated during the three months with that of IMD, Tiruppur_agro

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

FIGURE 3.13: WINDROSE DIAGRAM

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

1. Predominant winds were from ESE, SE, WSW, W
2. Wind velocity readings were recorded between 0.50 to 5.70m/s

3. Calm conditions prevail of about 0 % of the monitoring period
4. Temperature readings ranging from 27.66 to 35.04 °C
5. Relative humidity ranging from 40.41- 59.9%
6. The monitoring was carried out continuously for three months.

3.3.2 Methodology and Objective

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

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

3.3.3 Sampling and Analytical Techniques

TABLE 3.15: METHODOLOGY AND INSTRUMENT USED FOR AAQ ANALYSIS

Parameter	Method	Instrument
PM2.5	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM10	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO ₂	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hochheiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by EHS 360 labs Private Limited & CPCB Notification

TABLE 3.16: NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl.No.	Pollutant	Time Weighted Average	Concentration in ambient air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	Sulphur Dioxide (µg/m ³)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	Nitrogen Dioxide (µg/m ³)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	Particulate matter (size less than 10µm) PM10 (µg/m ³)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than 2.5 µm PM2.5 (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

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

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

3.3.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at eight (8) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period March – May 2024. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂) Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

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

3.3.5 Ambient Air Quality Monitoring Stations

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

TABLE 3.17: AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ-1	Project Area	Core Zone	11° 3'23.26"N 77°11'59.30"E
2	AAQ-2	Near Project Area	450m SW	11° 3'4.27"N 77°11'51.24"E
3	AAQ-3	Karugampalayam Near School	1.2km NW	11° 4'0.17"N 77°11'33.97"E
4	AAQ-4	Naduvlampalayam School	4.8km SE	11° 2'27.63"N 77°14'30.28"E
5	AAQ-5	Pallapalayam (Hospital)	3.2km NE	11° 5'0.60"N 77°12'43.03"E
6	AAQ-6	Kadampadi	4.5km SW	11° 1'58.03"N 77° 9'53.51"E
7	AAQ-7	Semmipalayam	6.3km SE	11° 0'29.43"N 77°14'2.67"E

Source: On-site monitoring/sampling by EHS 360 labs Private Limited in association with GEMS.

FIGURE 3.14: AIR QUALITY MONITORING PHOTOGRAPHS



FIGURE 3.15: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

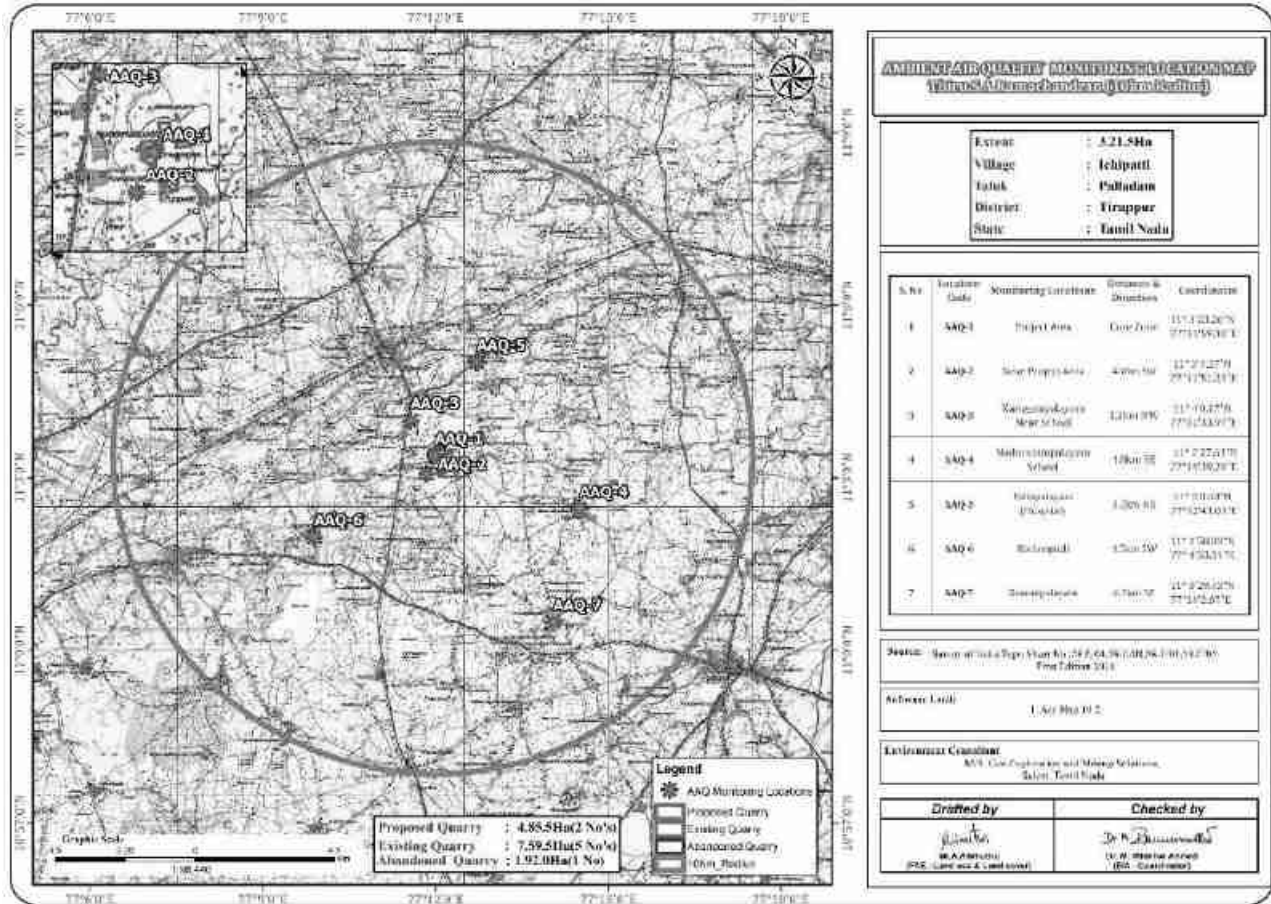


TABLE 3.18: SUMMARY OF AAQ 1 to AAQ 7

PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	44.7	47.2	45.8	44.8	46.5	47.2	44.6
Minimum	43.2	46.2	44.2	43.0	45.0	45.0	43.0
Maximum	45.8	49.0	47.0	46.7	48.0	49.0	46.0
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	19.7	21.6	22.2	19.9	21.1	21.9	19.5
Minimum	18.2	20.0	21.1	18.1	20.0	20.1	17.9
Maximum	21.3	22.9	23.0	21.7	22.9	23.1	21.5
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0
SO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	7.2	6.4	6.3	6.6	6.3	6.3	7.0
Minimum	6.1	5.0	5.0	5.0	5.1	5.0	6.0
Maximum	8.0	7.8	7.7	7.8	7.4	8.0	8.0
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0
NO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	20.9	24.1	25.6	25.5	23.2	24.1	25.2
Minimum	19.1	23.2	24.0	22.5	22.0	23.1	24.0
Maximum	22.0	25.0	26.7	28.6	24.0	25.0	26.0
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0

TABLE 3.19: ABSTRACT OF AMBIENT AIR QUALITY DATA

1	Parameter	PM10	PM2.5	SO ₂	NO ₂
2	No. of Observations	260	260	260	260
3	98 th Percentile Value	49.0	23.0	8.0	27.5
4	Arithmetic Mean	46.6	21.4	6.8	24.8
5	Geometric Mean	46.6	21.4	6.8	24.7
6	Standard Deviation	1.7	1.4	0.8	1.7
7	Minimum	44.0	18.7	5.5	21.7
8	Maximum	49.0	23.0	8.0	27.5
9	NAAQ Norms*	100.0	60.0	80.0	80.0
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

FIGURE 3.16: BAR DIAGRAM OF SUMMARY OF AAQ 1 – AAQ7

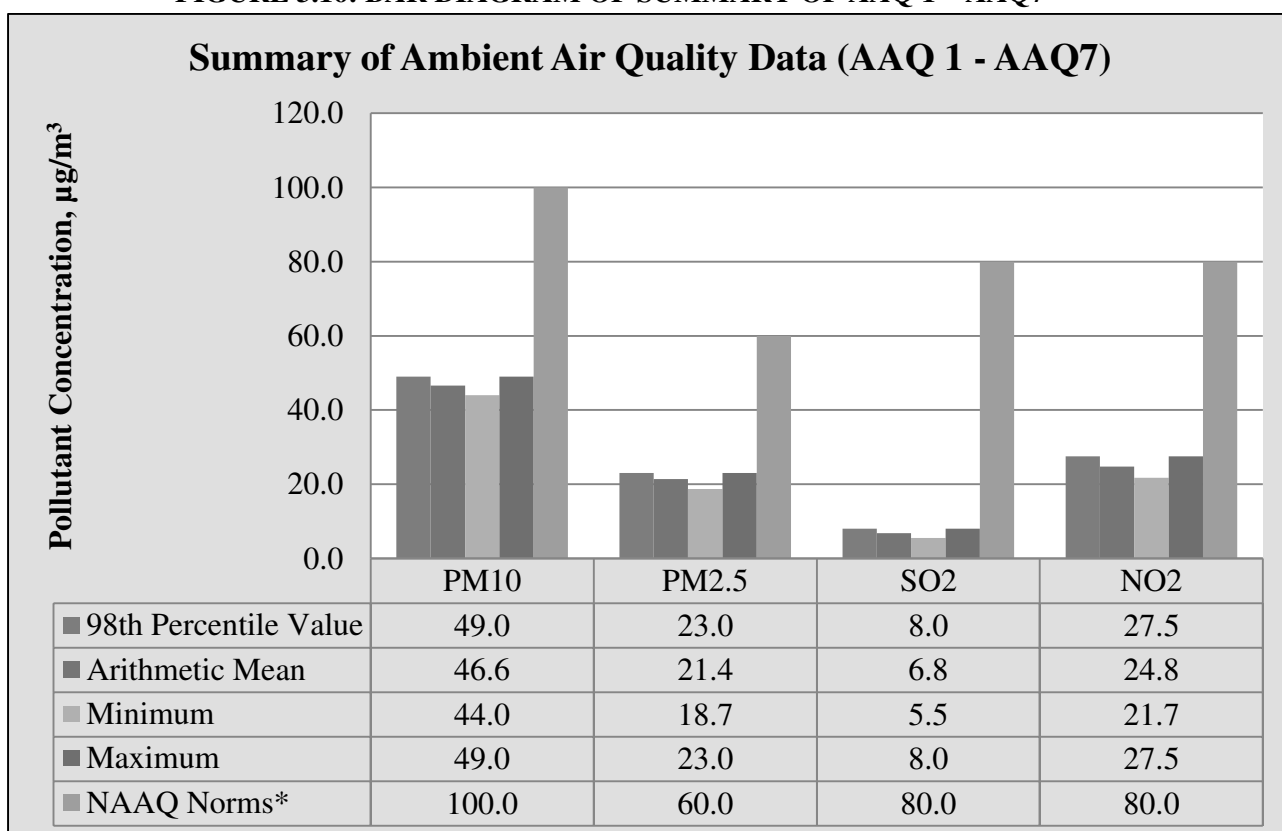


FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER PM_{2.5}

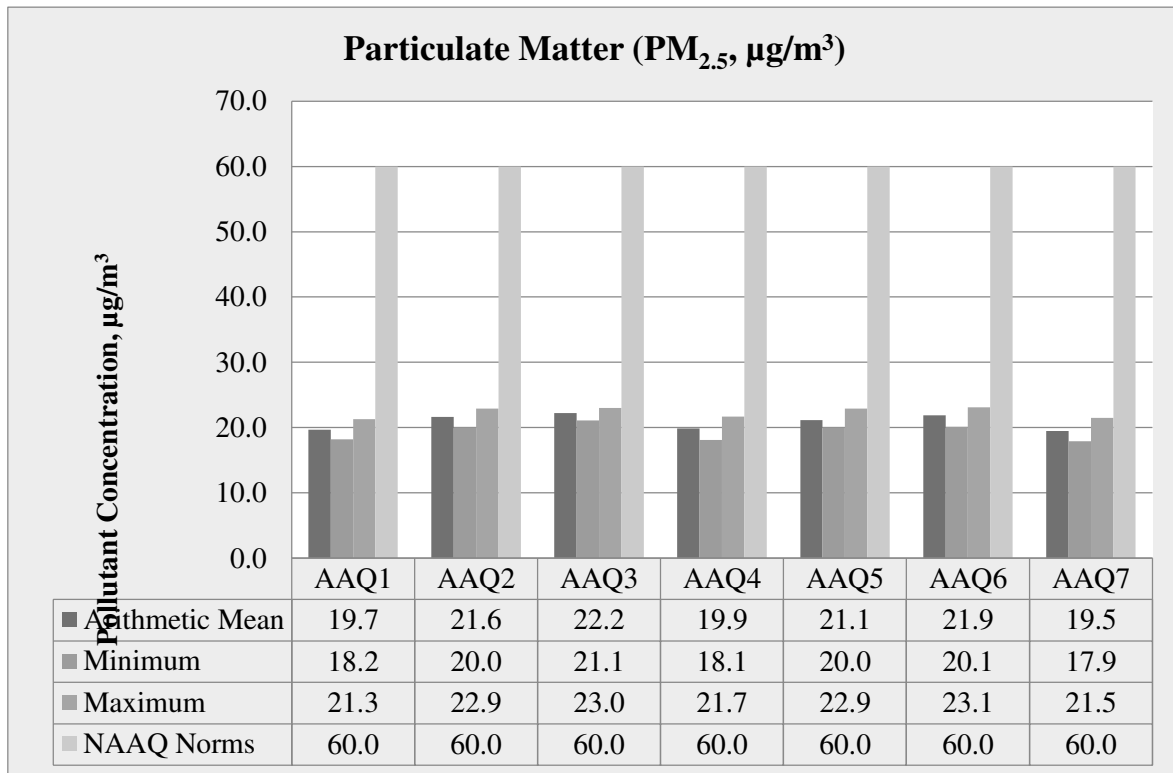


FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM₁₀

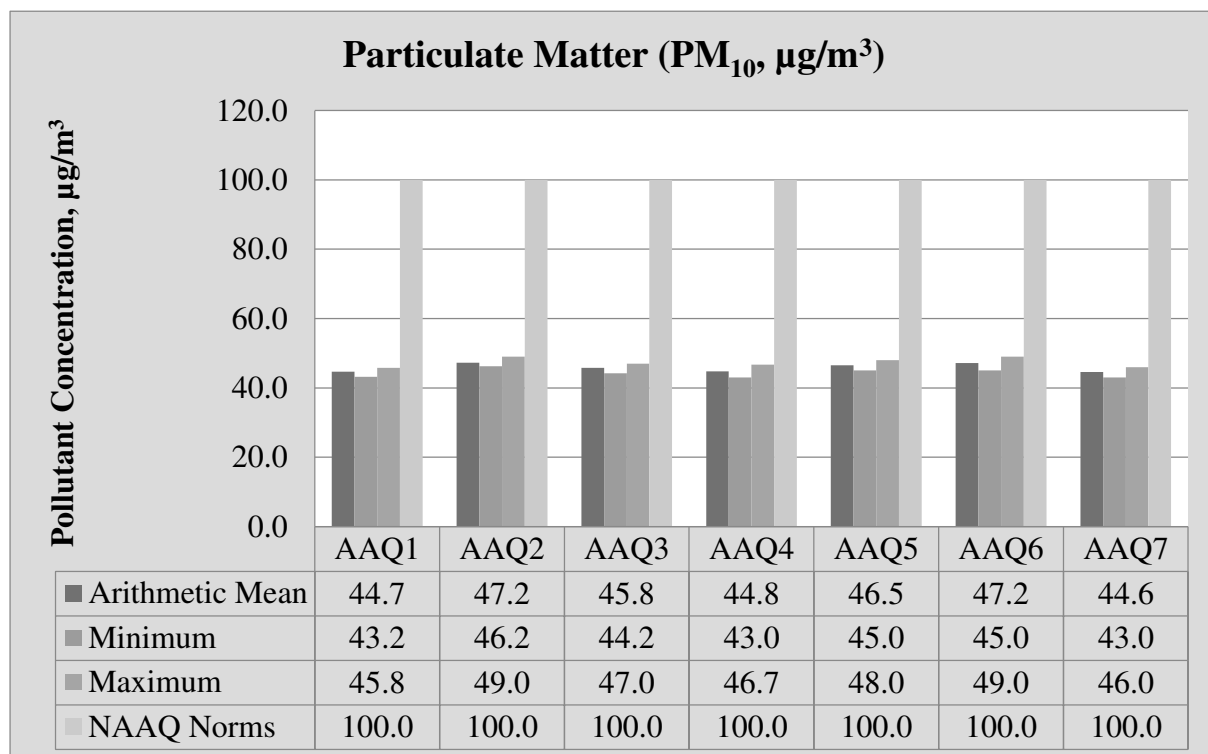


FIGURE 3.19: BAR DIAGRAM OF GASEOUS POLLUTANT SO₂

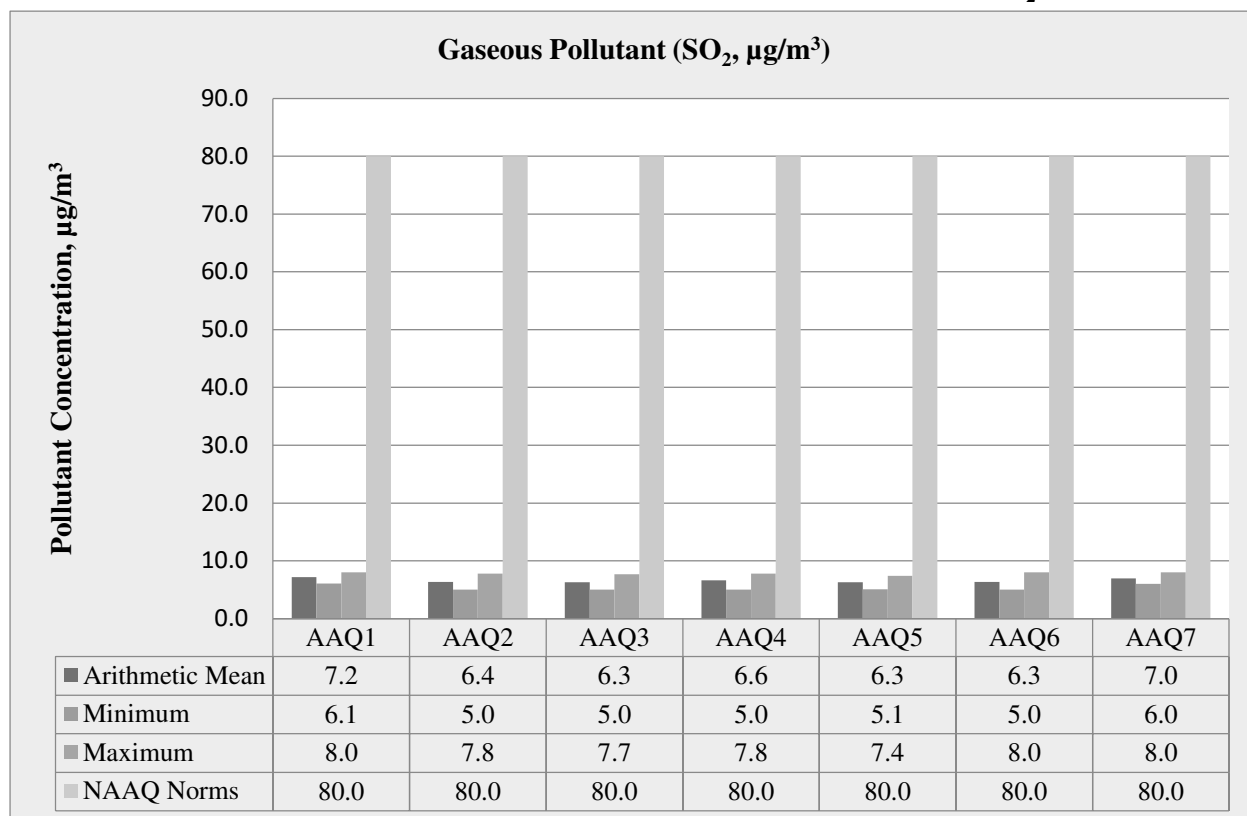
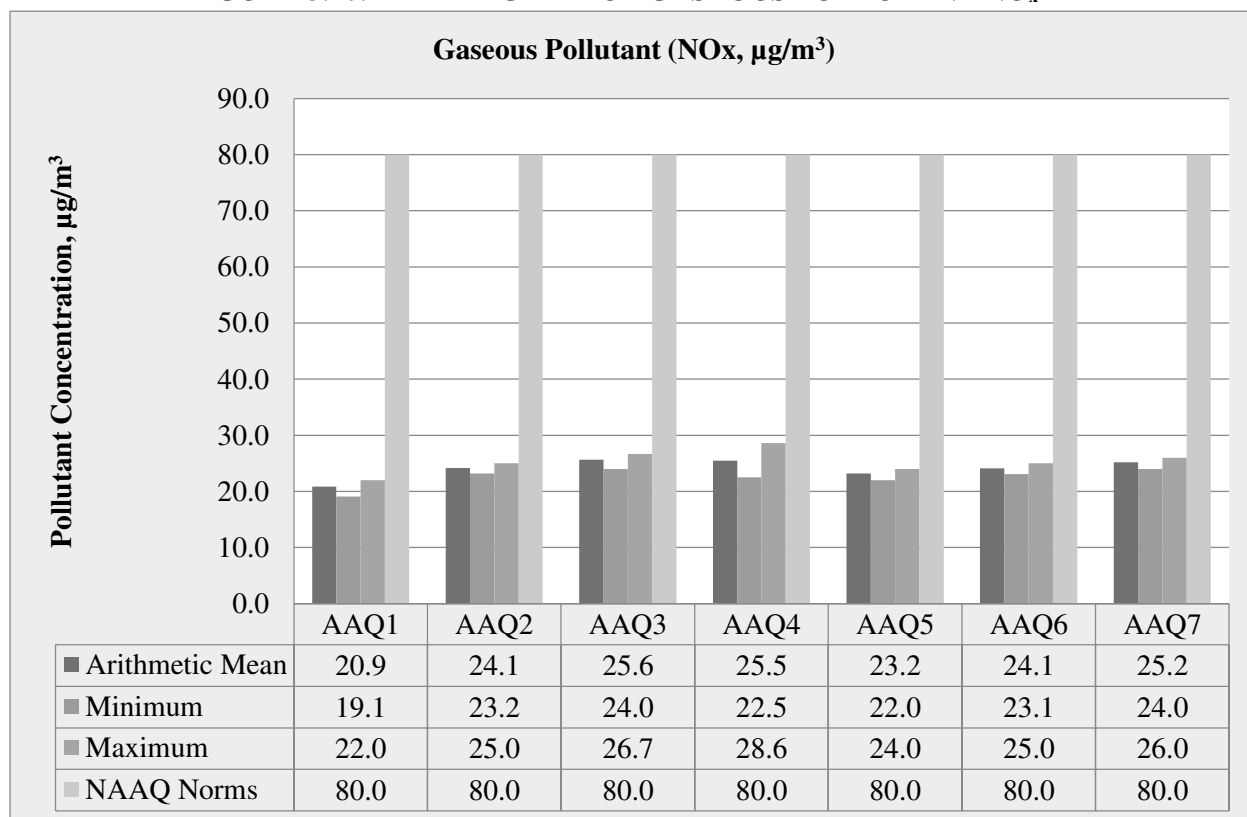


FIGURE 3.20: BAR DIAGRAM OF GASEOUS POLLUTANT NO_x



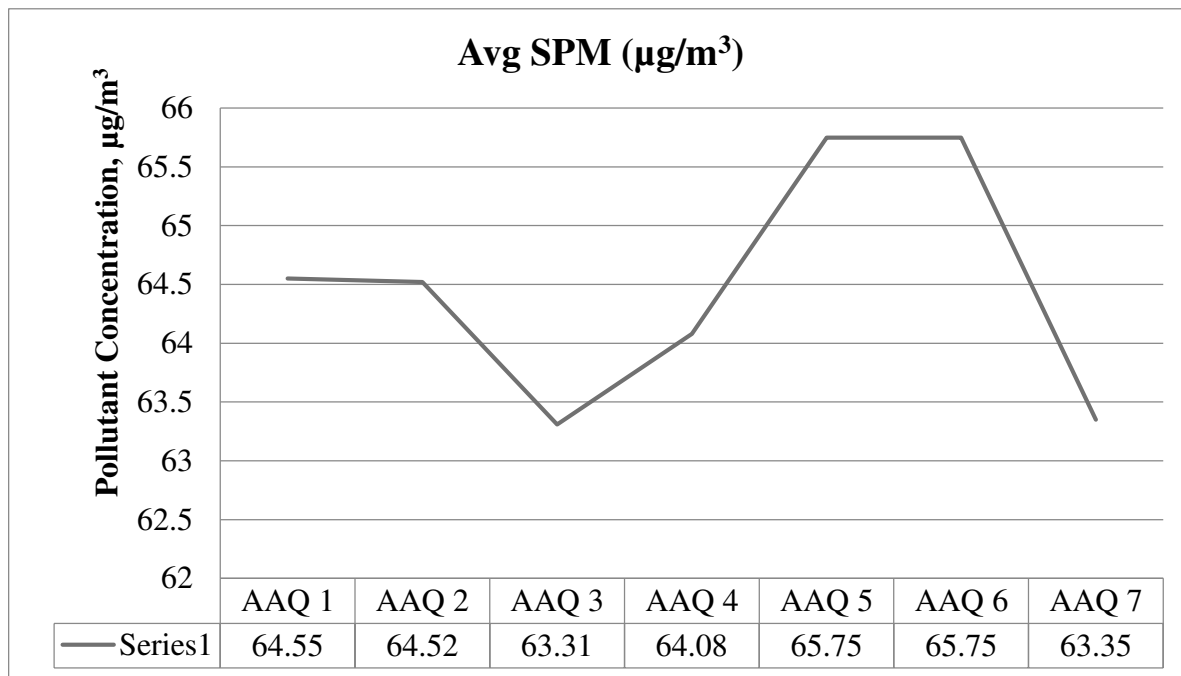
3.3.7 FUGITIVE DUST EMISSION –

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

TABLE 3.20: FUGITIVE DUST SAMPLE VALUES IN $\mu\text{g}/\text{m}^3$

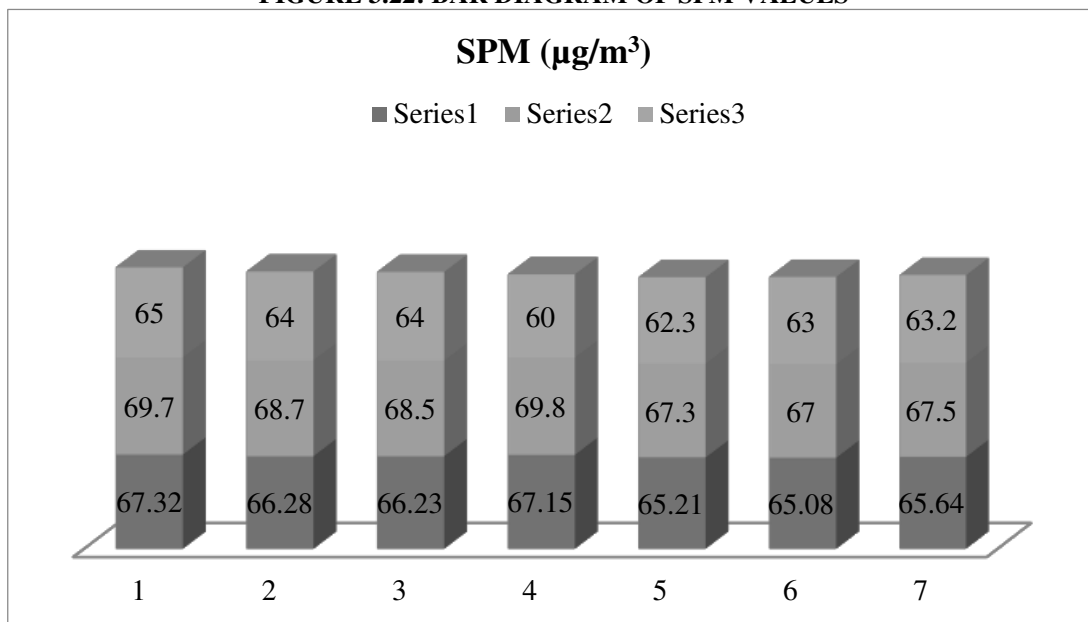
SPM ($\mu\text{g}/\text{m}^3$)	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Average	67.32	66.28	66.23	67.15	65.21	65.08	65.64
Min	69.7	68.7	68.5	69.8	67.3	67	67.5
Max	65	64	64	60	62.3	63	63.2

FIGURE 3.21: LINE DIAGRAM OF AVERAGE SPM VALUES



Source: Calculations from Lab Analysis Reports

FIGURE 3.22: BAR DIAGRAM OF SPM VALUES



3.3.6 Interpretations & Conclusion

As per monitoring data, PM_{10} ranges from $43.0 \mu\text{g}/\text{m}^3$ to $49.0 \mu\text{g}/\text{m}^3$, $\text{PM}_{2.5}$ data ranges from $18.1 \mu\text{g}/\text{m}^3$ to $23.1 \mu\text{g}/\text{m}^3$, SO_2 ranges from $5.0 \mu\text{g}/\text{m}^3$ to $8.0 \mu\text{g}/\text{m}^3$ and NO_2 data ranges from $19.1 \mu\text{g}/\text{m}^3$ to 28.6

$\mu\text{g}/\text{m}^3$. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

3.4 NOISE ENVIRONMENT

The vehicular movement on road and mining activities is the major sources of noise in study area, the environmental assessment of noise from the mining activity and vehicular traffic can be undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses. The main objective of noise monitoring in the study area is to establish the baseline noise level and assess the impact of the total noise expected to be generated during the project operations around the project site.

3.4.1 Identification of Sampling Locations

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at Seven (7) locations. The noise level measurement was carried out at each ambient air quality station. The main aim of the noise level monitoring is

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

The noise level monitoring locations were carried out by covering commercial, residential, rural areas within the radius of 10km. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study.

TABLE 3.21: DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	N1	Project Area	Core Zone	11° 3'24.26"N 77°11'58.23"E
2	N2	Near Project Area	450m SW	11° 3'4.68"N 77°11'47.81"E
3	N3	Karugampalayam Near School	1.2km NW	11° 3'59.79"N 77°11'31.89"E
4	N4	Naduvelampalayam School	4.8km SE	11° 2'28.14"N 77°14'30.70"E
5	N5	Pallapalayam (Hospital)	3.2km NE	11° 5'0.23"N 77°12'42.38"E
6	N6	Kadampadi	4.5km SW	11° 1'57.97"N 77° 9'54.22"E
7	N7	Semmipalayam	6.3km SE	11° 0'29.14"N 77°14'2.90"E

Source: On-site monitoring/sampling by EHS 360 labs Private Limited in association with GEMS.

FIGURE 3.23: NOISE MONITORING PHOTOGRAPHS



3.4.2 Method of Monitoring

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

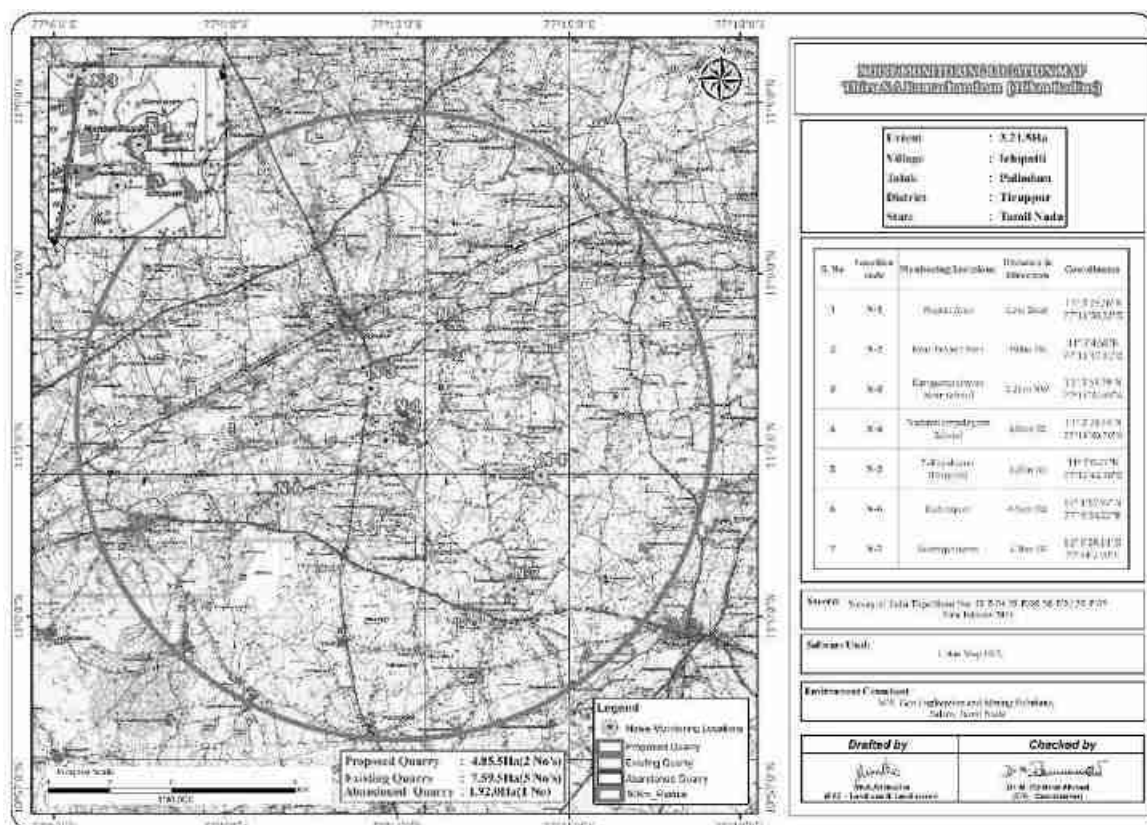
$$Leq = 10 \log L / T \sum (10L_n/10)$$

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

T = Time interval of observation

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

FIGURE 3.24: NOISE MONITORING STATIONS AROUND 10 KM RADIUS



3.4.3 Analysis of Ambient Noise Level in the Study Area

The Digital Sound pressure level has been measured by a sound level meter (Model: HTC SL-1352) An analysis of the different Leq data obtained during the study period has been made. Variation was noted during the day-time as well as night-time. The results are presented in below Table 3.32.

Day time: 6:00 hours to 22.00 hours.
 Night time: 22:00 hours to 6.00 hours.

TABLE 3.22: AMBIENT NOISE QUALITY RESULT

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Project Area	40.8	36.0	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Near Project Area	39.7	36.8	
3	Karugampalayam Near School	41.8	37.9	
4	Naduvampalayam School	39.7	36.5	
5	Pallapalayam (Hospital)	41.4	38.1	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
6	Kadampadi	41.8	36.8	
7	Semmipalayam	42.4	36.6	

Source: On-site monitoring/sampling by EHS 360 labs Private Limited in association with GEMS

FIGURE 3.25: DAY TIME NOISE LEVELS IN CORE AND BUFFER ZONE

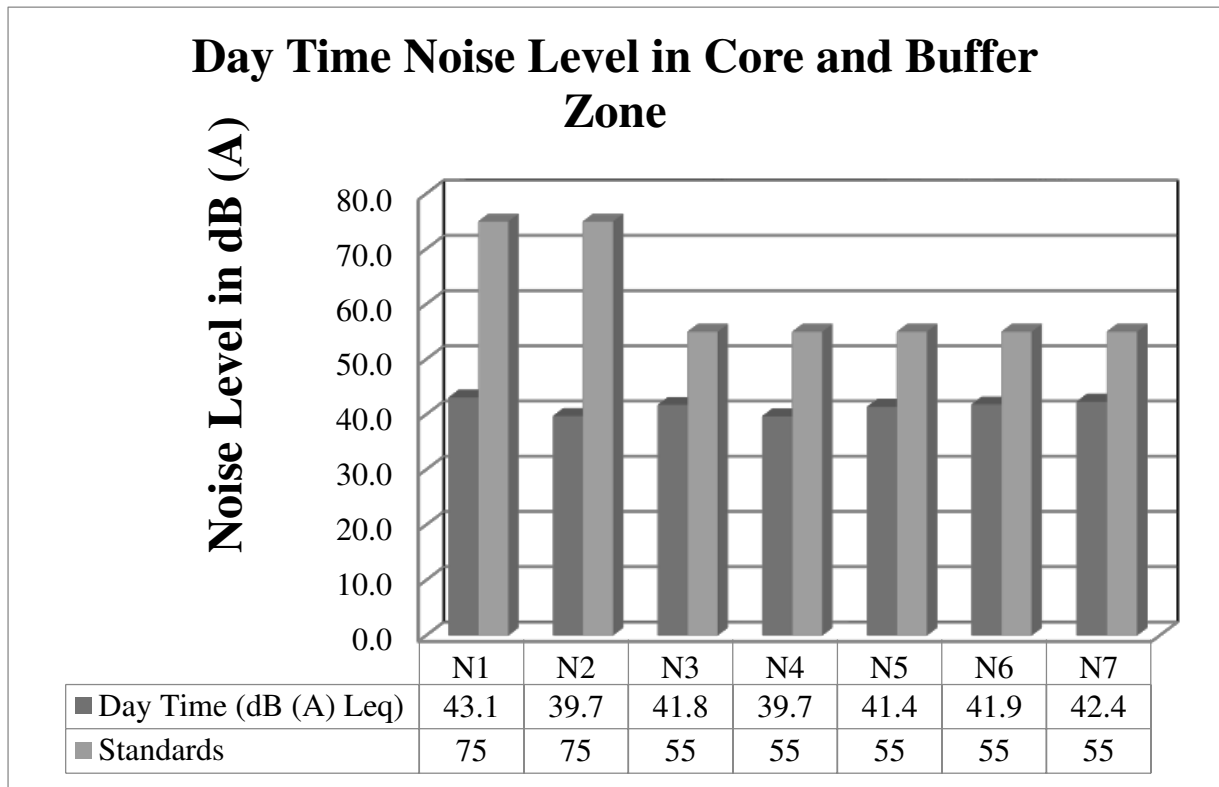
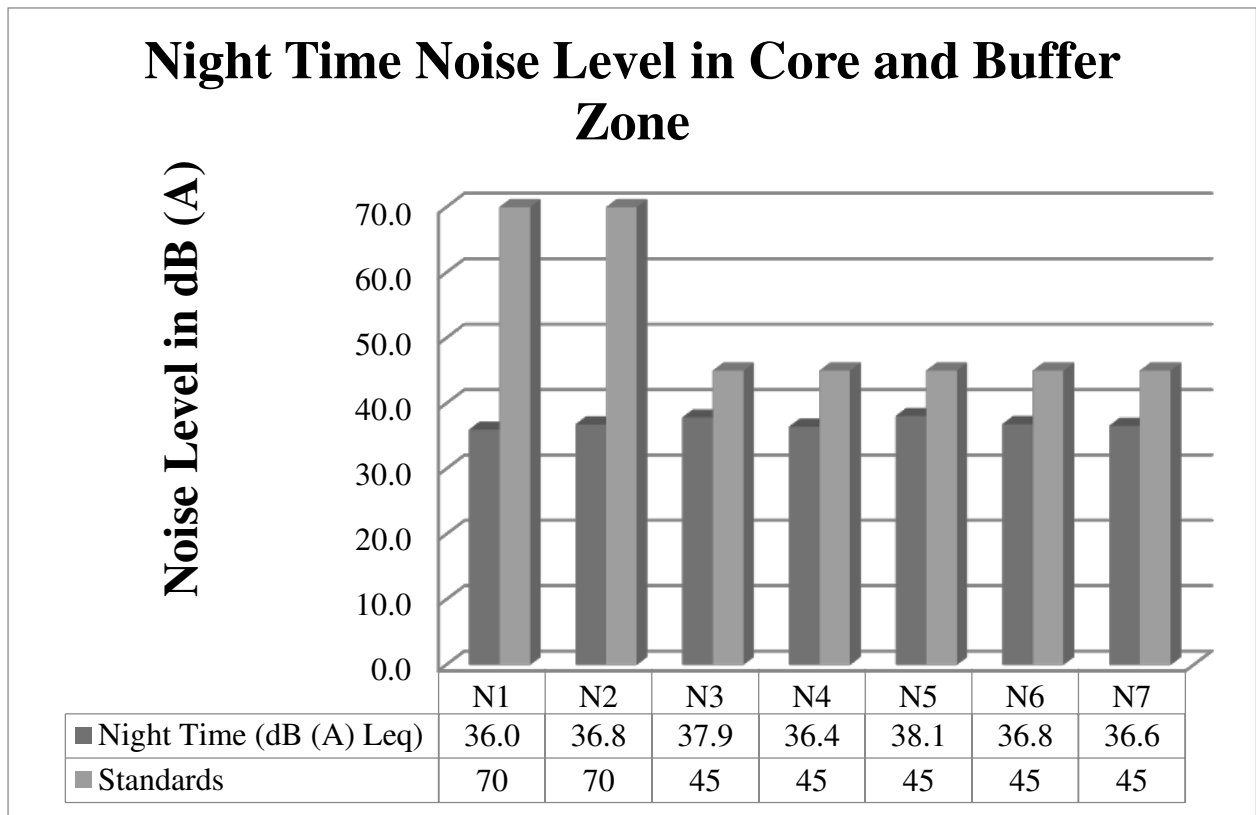


FIGURE 3.26: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 7 (Seven) locations around the proposed project area. Noise levels recorded in core zone during day time were from 40.8 dB (A) Leq and during night time were from 36.0

dB (A) Leq. Noise levels recorded in buffer zone during day time were from 39.7 to 42.4 dB (A) Leq and during night time were from 36.5 to 38.1 dB (A) Leq. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5 BIOLOGICAL ENVIRONMENT

3.5.1. Study area Ecology

The core area extent of 3.21.5 Ha of has an impact on the diversity of flora and fauna of the surrounding area. But present work was carried out on the detailed study of the impacts of the Rough stone and gravel quarry on the ecology and biodiversity of the core lease area with the proper mitigation and sustainable management plan. The proposed mine lease area is situated on a plain terrain. The following methods were applied during the baseline study of flora, fauna and diversity assessment.

3.5.2. Objectives of Biological Studies

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

3.5.3. Methodology of Sampling

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

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

Plot method is used in the floral documentation in the core and buffer zone. For trees (10x10-m), shrubs (5x5-m) and herbs (1x1-m) plots were taken. Birds and butterflies were mainly focused during faunal assessment, transect method was employed for birds and butterflies. Transect is a path along which one counts and records the occurrence of an individual for study. A straight-line walk covering desired distance, within a time span of one

hour to 30 minutes was carried out in the proposed region. Bird species were recorded during the hours of peak activity. 0700 to 1100 Hrs and 1430 to 1730 Hrs (Bibby et al. 2000).

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

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

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

3.5.3.1. Sampling

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

3.5.3.2. Sampling Size

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

3.5.3.3. Timing of Study

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

3.5.3.4. Observations from Sampling

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

3.5.3.5. Equipment/ References

Following tools/equipment were used for conducting phytosociological study.

- Ballpoint pen, Field bags, Field notebooks, field shoes, gloves, GPS, Measuring tapes and scales, Plant cutters, packet lens, ropes etc.
- Canon Mark III Camera with 50-500mm lens– Snap shots taken
- Leica Binoculars (8x 20) to spot/identify species
- IUCN Red Data Book – <https://www.iucnredlist.org/species>

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

3.5.4. Part I Field Sampling Techniques

3.5.4.1. Transect walk – Birds

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

3.5.4.2. Modified Pollard Walk – for Butterflies

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

3.5.4.3. Visual Encounter Survey (VES) - reptiles and amphibians

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

3.5.4.4. Observational methods- Mammals

For the purpose of recording mammals, we used two different observational techniques: (1) direct observations, and (2) recording of occurrences like holes, markings, scats, hairs, and spines (Menon 2003). For identification confirmations, photographs with a scale reference were used, and locations were recorded using a portable GPS device. Indigenous knowledge particularly that of the locals, was occasionally employed to compile a preliminary list of species and/or aid in the recognition of indicators.

3.5.4.5. Multiple Stage Quadrat – Vegetation

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

3.5.5. Flora

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

3.5.5.1. Flora Composition in the Core Zone

Core zone flora samplings were conducted between 12.30 pm to 1.30 pm in three locations. The applied area is a plain terrain, so we used quadrat sampling methods. Taxonomically a total of 13 species belonging to 8 families have been recorded from the core mining lease area. It is exhibit plain topography. Based on habitat classification of the enumerated plants the majority of species were Herbs 6 (46%) followed by Shrubs 1 (8%), Trees 2 (15%), Grasses 3 (23%), and Climbers/Creepers 1 (8%). Details of flora with the scientific name were mentioned in Table No. 3.23. The result of the core zone of flora studies shows that Poaceae and Lamiaceae are the main dominating species in the study area mentioned in Table No.3.53. No species were found as a threatened category (Table No. 3.23). The% distribution of floral life forms in Core Zone is given in Fig No.3.27.

Table No: 3.23. Flora in the Core zone of Ichipatti Village, Rough stone and Gravel quarry, Palladam Taluk, Tiruppur District (Primary data)

SI.	English Name	Vernacular Name	Scientific Name	Family Name
-----	--------------	-----------------	-----------------	-------------

No				
Trees				
1.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae
2.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
Shrubs				
1.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
Herbs				
1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Indian Catmint Plant	Pei viratti	<i>Anisomeles malabarica</i>	Lamiaceae
3.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
4.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
5.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae
6.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
Creeper /Climbers				
1	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
Grass				
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
2.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae
3.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae

Sources: Species observation in the field study

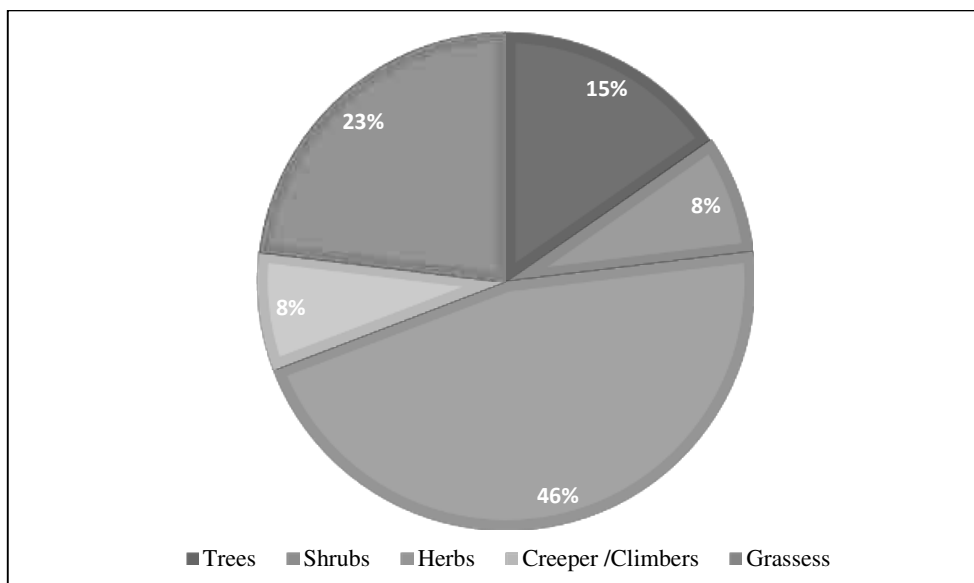


Figure No. 3.27 Graph Showing % Distribution of Floral Life Forms (Core Zone)



a. *Calotropis gigantea*



b. *Prosopis juliflora*



c. *Anisomeles malabarica*



Azadirachta indica

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

Table No: 3.24. Flora in the Buffer zone of Ichipatti Village, Rough stone and Gravel quarry, Palladam Taluk, Tiruppur District. (Primary data & Secondary data)

Sl.No.	English Name	Vernacular Name	Scientific Name	Resource use type *(E, M, EM)
Trees				
1.	Millettia pinnata	Pongam oiltree	Pongamia pinnata	E
2.	Tamarind	Puliyamaram	Tamarindus indica	EM
3.	Asian Palmyra palm	Panai maram	Borassus flabellifer	E
4.	Wild Date Palm	Pericham	Phoenix sylvestris	E
5.	Coconut	Thennai maram	Cocos nucifera	EM
6.	River tamarind	Savunda	Leucaenaleucocephala	E
7.	Lemon	Ezhumuchaipalam	Citrus lemon	EM
8.	Mango	Manga	Mangifera indica	E
9.	Banyan tree	Alamaram	Ficus benghalensis	E
10.	Neem or Indian lilac	Vembu	Azadirachta indica	M
11.	Creamy Peacock flower	Vadanarayani	Delonix elata	M
12.	Mesquite	Sema Karuvelam	Prosopis juliflora	E
13.	Beauty leaf	Punnai	Calophyllu inophyllum	M
14.	Madras Thorn	Kodukapuli	Pithecellobium dulce	E
15.	Castor oil plant	Amanakku	Ricinus communis	M
16.	Gum arabic tree	Karuvelam	Acacia nilotica	NE
17.	False ashoka	Asoka maram	Polyalthia longifolia	E
18.	Monkey pod tree	Thungumoonchi	Samanea saman	E
19.	Bitter Albizia	Arappu	Albizia amara	M
20.	Giant thorny bamboo	Perumungil	Bambusa bambos	M
21.	Wood-apple	Vilamaram	Limonia acidissima	M
22.	Orange jessamine	Venkarai	Murraya paniculata	E
23.	Black plum	Navalmaram	Sygygium cumini	EM
24.	Eucalyptus	Eucalyptus	Eucalyptus globules	EM
25.	Custard apple	Seethapazham	Annona reticulata	E
26.	Copperpod	Iyal Vaagai	copperpod	E
27.	Acacia Nilotica	Karuvelam maram	Vachellia nilotica	M
28.	Indian gooseberry	Nelli	Embllica officinalis	EM
29.	Henna	Marudaani	Lawsonia inermis	EM
30.	Sacred fig	Arasan	Ficus religiosa	E
31.	Indian mulberry	Nuan	Morinda tinctoria	E
32.	Teak	Thekku	Tectona grandis	E

33.	Papaya	Pappali maram	Carica papaya	EM
34.	Chinese chaste tree	Nochi	Vitex negundo	E
35.	Peepal	Arasanmaram	Ficus religiosa	M
36.	Indian fir tree	Nettilinkam	Polyalthia longifolia	E
37.	Guava	Koyya	Psidium guajava	EM
38.	Curry tree	Velipparuthi	Murraya koenigii	EM
39.	Bamboo	Moonghil	Bambusa bambo	E
40.	Drumstick tree	Murunga maram	Moringa oleifera	EM
41.	Indian almond	Padam maram	Terminalia catappa	EM
42.	Mesquite	Velikathan maram	Prosopis juliflora	M
43.	Portia tree	Poovarasan	Thespesia populnea	E
Shrubs				
1.	Avaram	Avarai	Senna auriculata	M
2.	Night shade plan	Sundaika	Solanum torvum	EM
3.	Lantana	Unnichi	Lantana camara	M
4.	Rough cocklebu	Ottarachedi	Xanthium strumarium	M
5.	Triangular spruge	Chaturakalli	Euphorbia antiquorum	NE
6.	Indian jujube	Elanthalai	Ziziphus mauritiana	M
7.	Prickly pear	Nagathali	Opuntia dillenii	M
8.	Coffee senna	Kattuttakarai	Senna occidentalis	M
9.	Rosy Periwinkle	Nithyakalyani	Cathranthus roseus	M
10.	Bush Morning Glory	Neyvelik Kattamanakku	Ipomoea carnea	E
11.	Chinese chastetree	Nochi	Vitex negundo	M
12.	Water spinach	Nalikal	Ipomoea aquatica	E
13.	Indian Oleander	Arali	Nerium indicum	M
14.	Shoe flower	Chemparuthi	Hibiscus rosa-sinensis	EM
15.	Puriging nut	Kattamanakku	Jatropha curcas	EM
16.	Columnar Cactus	Sappathikal	Cereus pterogonus	M
17.	Thorn apple	Oomathai	Datura stramonium	E
18.	Century plant	Anaikathalai	Agave americana	M
19.	Jackal jujube	Soorai pazham	Ziziphus oenopolia	M
20.	Indian mallow	Thuthi	Abutilon indicum	M
21.	Flame of the Woods	Idlipoo	Xoracoc cinea	M
22.	Peacock Flower	Mayil Kontai	Caesalpinia pulcherrima	M
23.	Datura metel	Uumaththai	Datura metel	NE
24.	Milk Weed	Erukku	Calotropis gigantea	M
25.	Cassava	Maravalli kizhangu	Manihot esculenta	EM

26.	Hopbush	Virali	Dodonaea viscosa	E
27.	Paper flower	Kahitha poo	Bougainvillea glabra	M
28.	Tiger nail	Eli verandi	Martynia annua	M
Herbs				
1.	Prickly chaff flower	Nayuruv	Achyranthes aspera	M
2.	Tridax daisy	Veetukaayapoondu	Tridax procumbens	M
3.	Indian Copperleaf	Kuppaimeni	Acalypha indica	M
4.	Indian doab	Arugampul	Cynodon dactylon	E
5.	Copperleaf	Kuppaimeni	Acalypha indica	M
6.	Indian Catmint Plant	Pei viratti	Anisomeles malabarica	M
7.	Cleome viscosa	Nai kadugu	Celome viscosa	M
8.	Common Wireweed	Arivalmanai poondu	Sida acuta	M
9.	Punarnava	Mukkirattai	Boerhaavia diffusa	EM
10.	Mexican prickly poppy	Kudiyotti	Argemone mexicana	M
11.	Common leucas	Thumbai	Leucas aspera	M
12.	Licorice weed	Kallurukki	Scoparia dulcis	M
13.	Chay root	Chaaya ver	Oldenlandia umbellata	M
14.	Slender dwarf morning-glory	Vittunu-k-kiranti	Evolvulus alsinoides	M
15.	Marsh barbel	Neermulli	Hygrophila auriculata	M
16.	Yellow-fruit nightshade	Kandakathirika	Solanum surattense	M
17.	Shameplant	Thottachenunki	Mimosa pudica	M
18.	Water willow	Kodakasalai	Justicia procumbens	M
19.	Threadstem carpetweed	Parpatakam	Mollugo cerviana	M
20.	Node Flower	Kumattikkirai	Allmania nodiflora	M
21.	Asthma-plant	Ammanpacharisi	Euphorbia hirta	M
22.	Pignut	Nattapoochedi	Hyptis suaveolens	M
23.	Holy basil	Thulasi	Ocimum tenuiflorum	M
24.	Madagascar Periwinkle	Nithykalyani Podi	Catharanthus roseus	E
25.	Asian spiderflower	Naaikaduku	Cleome viscosa L	M
26.	Digeria muricata	Thoiya keerai	Digeria muricata	EM
27.	Carrot grass	Partiniyam	Parthenium hysterophorus	NE
28.	Europeanblack nightshade	Manathakkali	Solanumnigrum	EM
29.	Mountain knotgrass	Thengaipoo kirai	Aerva lanata	M
30.	Bindii	Nerunchi	Tribulus terrestris	M
31.	Fish poison	Kolinchi	Tephrosia purpurea	M
32.	East Indian globe thistle	Kottakaranthai	Sphaeranthus indicus	M
33.	Tomato	Thakkali	Solanum lycopersicum	EM

34.	False daisy	Karisalankanni	Eclipta alba	M
35.	Chilli	Milakai	Capsicum annuum	EM
36.	Red Spiderling	Mukirattai	Boerhavia diffusa	M
37.	Aloe	Katrzhai	Aloe vera	M
38.	Coat buttons	Thatha poo	Tridax procumbens	M
39.	Indian mint	Karpura valli	Coleus amboinicus	EM
Climber/ Creeper				
1.	Stemmed vine	Perandai	Cissus quadrangularis	M
2.	Wild bitter	Pavarkai	Momordica charantia	EM
3.	Pointed gourd	Kovakkai	Trichosanthes dioica	EM
4.	Ivy gourd	Kovai	Coccinia grandis	M
5.	Bottle Guard	Sorakkai	Lagenaria siceraria	EM
6.	Ground Spurge	Sithrapaalavi	Euphorbia prostrata	EM
Grass				
1.	Jungle rice	Kuthirai vaalKattu arusi	Echinochloa colona	NE
2.	Mauritian Grass	Moongil pul	Apluda mutica	NE
3.	Swollen Windmill Grass	Kondai Pul	Chloris barbata	NE
4.	Needle Grass	Thodappam	Aristida adscensionis	E
5.	Eragrostis	Pullu	Eragrostis ferruginea	E
6.	Windmill grass	Chevvarakupul	Chloris barbata	NE
7.	Sugarcane	Karumbu	Saccharum	E

Sources: Species observation in the field study and secondary data

The trees surveys were conducted around 300m radius from the proposed project site cluster are of Ichipatti village. This is the standard scientific method followed by various workers in respect of phytosociological studies (Cottom and Curtis 1956; Ralhan et al. 1982; Saxena and Sing 1982; Nayak et al. 2000; Lu et al. 2004; Nautiyal 2008). While sampling, circumference at breast Height (CBH) of tree species was measured at 1.30m from ground level, along with the name of the species, phenology (flowering, fruiting, and flushes), and uses. After surveying areas, a detailed trees inventory has been compiled. A list of all plants from the study area was prepared and their habitats were recorded. The species of trees were documented during this base line survey. The dominant plant species growing in this area were Cocos nucifera Prosopis juliflora, etc. Please refer the Table No.3.25.

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

S.No	English Name	Vernacular Name	Scientific Name	No of trees
Trees				
1.	Acacia Nilotica	Karuvelammaram	<i>Vachellianilotica</i>	6
2.	Mesquite	Mullumaram	<i>Prosopis juliflora</i>	15
3.	Neem	Vembu	<i>Azadirachta indica</i>	32
4.	Coconut	Thennai maram	<i>Cocos nucifera</i>	68

5.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	3
6.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	16

(Sources: Species observation in the field study)

3.5.6. Flora Composition in the Buffer Zone

The Buffer zone flora samplings were conducted between 3.00 pm to 6.00 pm in different locations. Similar habitats may be found in the buffer area as well, although there is a wider variety of plants there than in the core zone area. The proposed project site there are 123 species in the buffer zone study area in total, based on records. The floral (123) varieties among them Trees 43, Herbs 39, Shrubs 28, Climbers/ Creepers 6, Grasses 7 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Cucurbitaceous, Euphorbiaceae is the main dominating species in the study area mentioned in Table No.3.24. There are no impacts due to this mining activity. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. A list of floral species has been prepared based on primary survey (site observations) and discussion with local people. The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table No 3.26 and their % distribution is shown in Figure 3.29.

Table No. 3.26: Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	43
2	Shrubs	28
3	Herbs	39
4	Climber/Creepers	6
6	Grasses	7
Total No. of Species		123

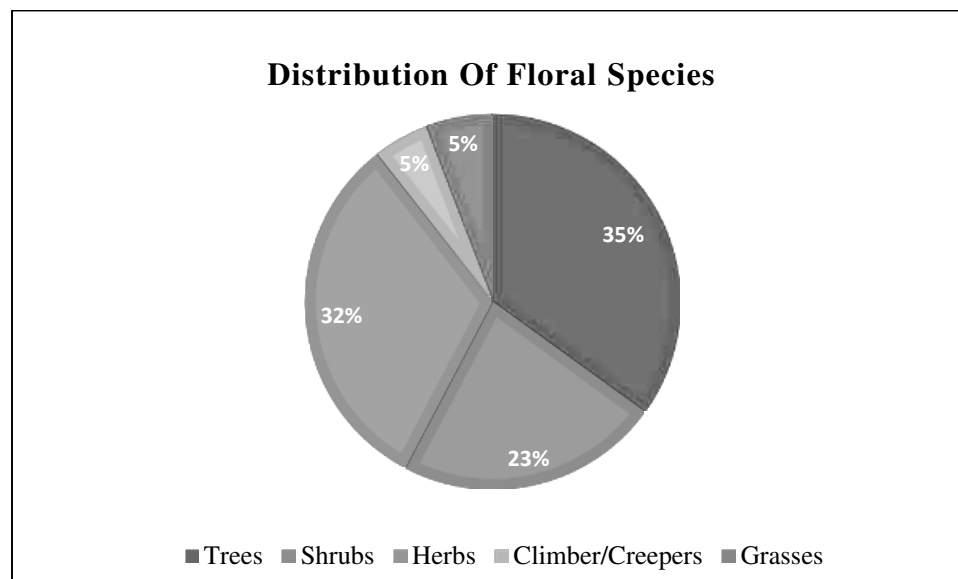


Figure No. 3.29: Diagram showing % distribution of floral life forms**3.5.6.1. Major Agricultural Crops**

Tiruppur district though an industrial district plays important role in Agriculture also. The food production required to be enhanced to provide food and nutritional security to the growing district population. In Tiruppur more than 80% of the farmers belong to small and marginal category and they play a key role in overall development in Agriculture. The total area of cultivation is around 2,28,556 hectares, mainly food and commercial crops. The chief food crops are paddy, millets and pulses. The non-food or commercial crops in the district are cotton, oil seeds and coconut. Details of the major crops are given in Table No: 3.27.

Table No: 3.27. Major crops in Tiruppur District

S.No	Major crops	Scientific name	Families
1	Paddy	<i>Oryza sativa</i>	Grasses
2	Sorghum	<i>Sorghum bicolor</i>	Grasses
3	Maize	<i>Zea mays</i>	Grasses

(Source: Agriculture Contingency Plan– Tiruppur-2013)

3.5.6.2. Horticulture

Major horticulture crops cultivated in this district are fruits crops like mango, banana, aonla, sapota and papaya, vegetables like bhendi, tomato, brinjal, onion, tapioca, moringa, spices and condiments like chillies and turmeric, plantation crops like cocoa, flower crops like jasmine, tube rose, marigold, cock's comb and medicinal plants like gloriosa and coleus. Details of major field crops and horticulture in Tiruppur district is given in Table No: 3.28.

Table No: 3.28. Major Field crops & horticulture in Tiruppur District.

Sl.No	Common Name	Scientific Name	Family
Major Horticultural Crops			
1	Banana	<i>Musa</i>	Musaceae
2	Mango	<i>Mangifera indica</i>	Anacardiaceae
3	Jack	<i>Artocarpus heterophyllus</i>	Mulberry
4	Guava	<i>Psidium guajava</i>	Myrtle
5	Sapota	<i>Manilkara zapota</i>	Sapotaceae
6	Lemon	<i>Citrus × limon</i>	Rutaceae
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	Gourds	<i>Lagenaria siceraria</i>	Cucurbits
12	Bhendi	<i>Abelmoschus esculentus</i>	Mallows
13	Moringa	<i>Moringa oleifera</i>	Moringaceae

Medicinal and Aromatic Plants			
14	Gloriosa superba	<i>Colchicaceae</i>	Colchicaceae
15	Coleus	<i>Plectranthus scutellarioides</i>	Mints
Flowers			
16	Jasmine	<i>Jasminum</i>	Jasminaceae
17	Crossandra	<i>Crossandra infundibuliformis</i>	
18	Crysanthimum	<i>Asteraceae</i>	Asteraceae
19	Rose & Jathi	<i>Rosa</i>	Rosaceae
20	Tuberose	<i>Polianthes tuberosa</i>	Asparagus
Spices and Condiments			
21	Chillies	<i>Capsicum frutescens</i>	Solanaceae
22	Turmeric	<i>Curcuma longa</i>	Zingiberaceae
23	Tamarind	<i>Tamarindus indica</i>	Legumes
24	Curry leaf	<i>Murraya koenigii</i>	Rutaceae
Plantation Crops			
25	Cashew	<i>Anacardium occidentale</i>	Cashews
26	Cocoa	<i>Theobroma cacao</i>	Mallows

(Source: Statistical handbook of Tamil Nadu-2013)

3.5.6.3. of Irrigation

Irrigation is the artificial application of water to the soil for normal growth of plants. Water is an important determinant factor for production of crops in agriculture sector. Intensive and extensive cultivation of land depends mainly on the availability of water. Medium and minor irrigation schemes are implemented in the state for augmenting the water supply for agriculture. The various sources of irrigation are canals, tanks, tube wells, ordinary wells, springs and channels. The Following Table No: 3.29. Shows the area irrigated in Tiruppur District.

Table No: 3.29. Area irrigated in the district

S.No	Irrigation	Area ('000 ha)
1	Net irrigated area	119.3
2	Gross irrigated area	123.1
3	Rain fed area	72.9

(Source: Statistical handbook of Tamil Nadu-2013)

Dug wells are the major source of water for irrigation in Tiruppur district, accounting for about 59.97 percent of the total area irrigated in this district. Tube wells accounting for about 9.48 percent of the total area irrigated in this district. Of the net area irrigated, the canal irrigated area is only 29.45 percent. The area irrigated under tank is 1.10 percent.

(Source: Statistical handbook of Tamil Nadu-2013)

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

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

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

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

3.6. Fauna

The faunal survey has been carried out as per the methodology cited and listed out Mammals, birds, Reptiles, Amphibians, and Butterflies. All the listed species were compared with the Red Data Book and the Indian Wildlife Protection Act, 1972. There are no rare, endangered, threatened (RET), and endemic species present in the core area.

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

Core zone fauna samplings were conducted between 12.30 pm to 1.30 pm in three locations. A total of 16 varieties of species were observed in the Core zone of Ichipatti Village, Rough stone and gravel quarry (Table No.3.60) among them numbers of Insects 5 (31%), Reptiles 2 (13%), Mammals 2 (12%) and Avian 7 (44%). A total of 15 species belonging to 13 families have been recorded from the core mining lease area. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and six species are under schedule IV according to the Indian wild life Act 1972. A total of 7 species of bird were sighted in the mining lease area. There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in Table No. 3.30.

Table No: 3.30. Fauna in the Core zone of Ichipatti Village, Rough stone and Gravel quarry, Palladam Taluk, Tiruppur District (Primary data)

SI. No	Common name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
Insects/ Butterflies			
1.	Mottled emigrant	Catopsilia pyranthe	NL
2.	Striped tiger	Danaus plexippus	Schedule IV
3.	Common Tiger	Danaus genutia	NL
4.	Red-veined darter	Sympetrum fonscolombii	NL
5.	Danaid egg fly	Hypolimnasmisippus	Schedule IV
Reptiles			
1.	Garden lizard	Calotes versicolor	Schedule IV
2.	Common skink	Mabuya carinatus	Schedule IV

Mammals			
1.	Indian Field Mouse	Mus booduga	Schedule IV
2.	Common rat	Rattus rattus	Schedule IV
Aves			
1.	Common myna	Acridotheres tristis	Schedule IV
2.	House crow	Corvus splendens	Schedule IV
3.	Common quail	Coturnix coturnix	Schedule IV
4.	Koel	Eudynamys	Schedule IV
5.	Cattle egret	Bubulcus ibis	Schedule IV
6.	Asian green bee-eater	Merops orientalis	Schedule IV
7.	Black drongo	Dicurus macrocercus	Schedule IV

(Sources: Species observation in the field study)

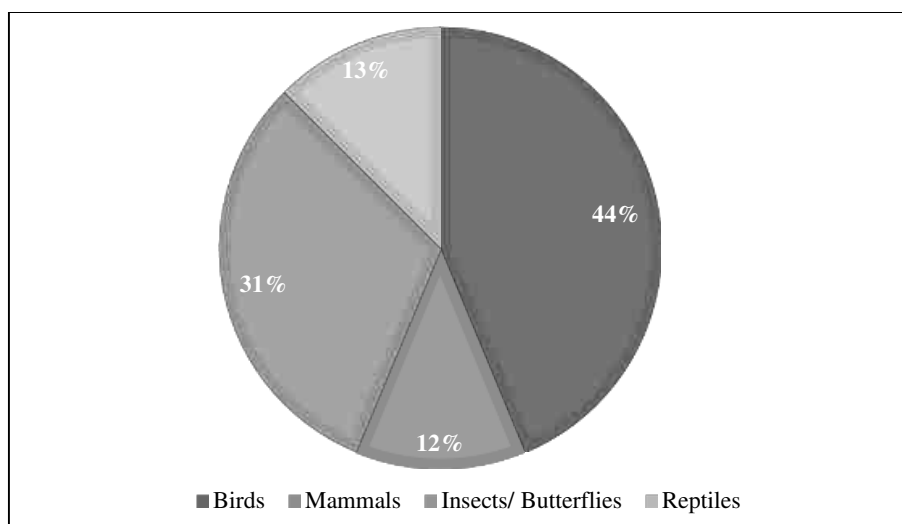


Figure No.3.30. Graph Showing % Distribution of Fauna Life Forms (Core Zone)

3.6.2. Fauna Composition in the Buffer Zone

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

There are no Sanctuaries, National Parks, Tiger Reserve or Biosphere reserves or Elephant Corridor or other protected areas within 10 km radius of from the core area. It is evident from the available records, reports, and circumstantial evidence that the entire study area including the core and buffer areas were free from any endangered animals. There were no resident birds other than common bird species such as Red-whiskered Bulbul, Asian Koel, House crow, Black drangos, etc.

The list of Mammals (*directly sighted animals & Secondary data) is given in table No.3.31. The list of bird species recorded during the field survey and literature from the study area are given in Table 3.32. The list of reptilian

species recorded during the field survey and literature from the study area is given in Table 3.33. The list of insect species recorded during the field survey and literature from the study area are given in Table 3.34. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.35. It is apparent from the list that none of the species either spotted or reported is included in Schedule I of the Wildlife Protection Act. Similarly, none of them comes under the REET category.

Taxonomically a total of 63 species recorded were from the buffer zone area. Based on habitat classification the majority of species were birds 29, followed by Butterflies 12, Reptiles 7, Insects 5, Mammals 5, and Amphibians 4. There are three Schedule II species, two species are under the Schedule III and fifty-four species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 29 species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed. There are no impacts on nearby fauna species.

Dominant species are mostly birds, butterflies, and insects, and four amphibians was observed during the extensive field visit *Sphaerotheca breviceps*, *Euphyctis hexadactylus*, *Bufo melanostictus*, etc. There is no Schedule I Species in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

Table No. 3.31. List of Fauna & Their Conservation Status, Mammals: (*directly sighted animals & Secondary data)

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

Table No. 3.32. Listed birds (Primary & Secondary data)

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Black kite	<i>Milvus migrans</i>	Schedule IV
2.	Jungle babbler	<i>Turdoides striata</i>	Schedule IV
3.	Indian robin	<i>Saxicoloides fulicatus</i>	Schedule IV
4.	Asian Koel	<i>Eudynamys</i>	Schedule IV
5.	Cattle egret	<i>Bubulcus ibis</i>	Schedule IV
6.	Rock pigeon	<i>Columbidae</i>	Schedule IV
7.	Common myna	<i>Acridotheres tristis</i>	Schedule IV
8.	House crow	<i>Corvus splendens</i>	Schedule V
9.	Red Vented Bulbul	<i>Pycnonotus cafer</i>	Schedule IV

10.	Small Bee Eater	Merops orientalis	Schedule IV
11.	Purple sunbird	Cinnyris asiaticus	Schedule IV
12.	House sparrow	Passer domesticus	Schedule IV
13.	Brahminy myna	Temenuchus pagodarum	Schedule IV
14.	Small blue Kingfisher	Alcedo atthis	Schedule IV
15.	Rose-ringed parakeet	Psittacula krameri	Schedule IV
16.	Common quail	Coturnix coturnix	Schedule IV
17.	Pond herons	Ardeola grayii	Schedule IV
18.	Black drongo	Dicrurus macrocercus	Schedule IV
19.	Woodpecker bird	Picidae	Schedule IV
20.	Weaver bird	Ploceus philippines	Schedule IV
21.	Two-tailed Sparrow	Dicrurus macrocercus	Schedule IV
22.	Grey drongo	Dicrurus longicaudatus	Schedule IV
23.	Grey Francolin	Francolinus pondicerianus	Schedule IV
24.	Wood Sandpiper	Tringa glareola	Schedule IV
25.	Blue-Tailed Bee Eater	Merops philippinus	Schedule IV
26.	Indian Roller	Coracias benghalensis	Schedule IV
27.	Common Swallow	Hirundo rustica	Schedule IV
28.	Purple Rumped Sunbird	Leptocoma zeylonica	Schedule IV
29.	Purple Sunbird	Cinnyris asiaticus	NL

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

(*indicates direct observations & Secondary data)

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Oriental garden lizard	Calotes versicolor	III
2.	House lizards	Hemidactylus flaviviridis	Schedule IV
3.	Indian cobra	Naja naja	Sch II (Part II)
4.	Green vine snake	Ahaetulla nasuta	Schedule IV
5.	Rat snake	Ptyas mucosa	III
6.	Common krait	Bungarus caeruleus	Schedule IV
7.	Common skink	Mabuya carinatus	NL

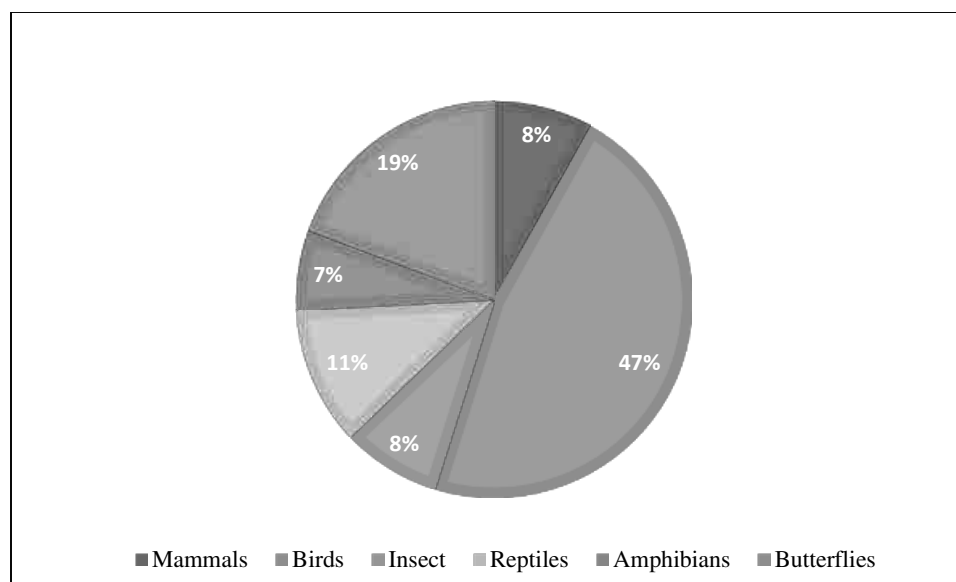
Table No. 3.34. List of insects either spotted or reported from the study area

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Indian honey bee	Apis cerana	-
2.	Termite	Hamitermes silvestri	NE

3.	Grasshopper	Hieroglyphus sp	NL
4.	Ant	Camponotus Vicinus	NL
5.	Dragonfly	Ceratogomphus pictus	-

Table No.3.35. List of Butterflies reported from the study area (Primary data & Secondary data)

SI. No	Common Name/English Name	Scientific Name	Schedule
1.	Indian palm bob	Suastusgremius	Schedule IV
2.	Common Mormon	Papilio polytes	Schedule IV
3.	Common rose	Pachlioptaaristolochiaee	Schedule IV
4.	Spotless grass yellow	Eurema laeta	Schedule IV
5.	Common Tiger	Danaus genutia	Schedule IV
6.	Common emigrant	Catopsiliapomona	Schedule IV
7.	Crimson tip	Colotisdanae	Schedule IV
8.	Common Indian crow	Euploea core	Schedule IV
9.	Lime Butterfly	Papilio demoleus	Schedule IV
10.	Yellow Pansy	Junonia hierta	Schedule IV
11.	Chocolate Pansy	Junonia iphita	Schedule IV
12.	Double-branded Black Crow	Euploea sylvester	Schedule IV

**Figure No. 3.31: Diagram showing % Distribution of Faunal Communities**

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

The study area is marked with moderate population of flora and fauna. With reference to the Wildlife Protection Act 1972 total number of wildlife tabulated in this study can be characterized as given in the Table No. 3.36.

Table No: 3.36. Characterization of Fauna in the Study Area (As Per W.P Act, 1972)

S.No	Schedule of Wildlife Protection Act 1972	No. of species	Remark
1.	Schedule I	0	-
2.	Schedule II	3	-
3.	Schedule III	2	-
4.	Schedule IV	50	-
5.	Schedule V	1	-
6.	Schedule VI	0	-

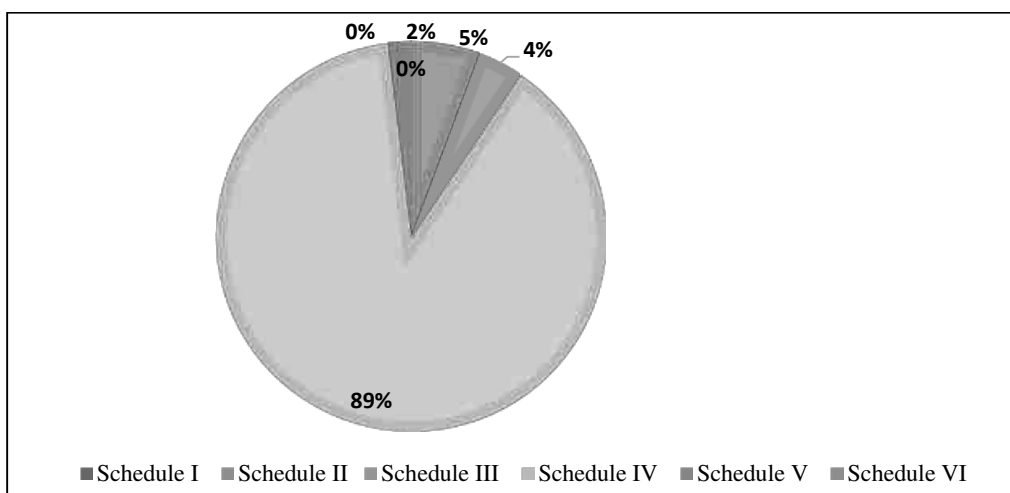


Figure No:3.32. Schedule of Wildlife Protection Act 1972

Table 3.37: Description of Flora & Fauna

S.No	Type of Species	Name	Local Name
Flora			
1.	Endangered species	None	None
2.	Threatened species	None	None
3.	Near Threatened species	None	None
4.	Vulnerable species	None	None
Fauna			
5.	Endangered species	None	None
6.	Threatened species	None	None
7.	Near Threatened species	None	None

8.	Vulnerable species	None	None
9.	Migratory Corridors & Flight Paths	No corridors & flight paths	-
10.	Breeding & Spawning grounds	None	-

A comprehensive Central Legislation Namely Wild Life (Protection) Act was enforced in 1972 to provide protection to wild animals. Schedule-I of this act contains the list of rare and endangered species, which are completely protected throughout the country. The list of wild animals and their conservation status as per Wild Life Act (1972) presented in Table 3.32 are the species recorded/reported from the study area, out of which three species belongs to schedule-II, 2 species belong to schedule-III, 1 species belongs to Schedule-V and rest of the species belongs to schedule-IV of Wildlife Protection Act, 1972.

3.6.3. Aquatic Ecology

Mining activities will not have an impact on aquatic ecosystems because no effluent discharge from the Limestone mine is planned. There are no natural perennial surface water bodies, such as marshes, rivers, streams, lakes, or agricultural sites, inside the mining lease area. The study region contains a few seasonal bodies of water. There is no aquatic flora and, aquatic fauna. Hence, it does not harbour any significant aquatic life. Therefore, the project is not likely to affect the aquatic ecology. Aquatic weeds are found to be growing everywhere in 10 km radius area, in every water bog, pond, etc. Typha angustata can be found growing all along the drains of villages, small water-logged depressions, and agricultural fields lacking water but containing enough moisture to support its growth. And where water is present, Eichhornia crassipes has taken its roots and covers the entire water surface by its sprawl and invasion.

3.6.3.1. Objectives of Aquatic Studies

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

3.6.3.2. Macrophytes

The macrophytes observed within the study area are tabulated in Table No. 3.38

Table No.3.38 Description of Macrophytes

Sl.No	Scientific name	Common Name	Vernacular Name (Tamil)	IUCN Red List of Threatened Species
1.	<i>Eichornia crassipe</i>	Water hyacinth	Agayatamarai	NA
2.	<i>Aponogetonmatans</i>	Floating lace plant	Kottikizhnagu	NA
3.	<i>Nymphaea nouchali</i>	Blue water lily	Nellambal	LC
4.	<i>Typha angustifolia</i>	Sambu	Narrowleaf cattail	LC
5.	<i>Carex cruciata</i>	Cross Grass	Koraipullu	NA
6.	<i>Cyperus exaltatus</i>	Tall Flat Sedge	Koraikizhangu	LC

Sources: Species observation in the field study

3.6.3.3. Aquatic Faunal Diversity

Amphibian species like the common Indian Burrowing frog, and Green pond frog, and etc. were sighted near the water bodies located in the study area.

Table No. 3.39. Amphibians Observed/Recorded from the Study Area

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Indian Burrowing frog	Sphaerotheca breviceps	Schedule IV
2.	Green pond frog	Euphlyctis hexadactylus	Schedule IV
3.	Indian Toad	Bufo melanostictus	Schedule IV
4.	Skipper	Euphlyctiscynophlyctis	Schedule IV

3.6.3.4. Other Aquatic Fauna

3.6.3.5. Fishes

The study area has low aquatic diversity, with few types of fish living. The species of fish reported during the primary visit are Rohu, Catla, Catfish, etc. Species of fish reported in the study area are given in Table No 3.40.

Table No. 3.40. Based on Actual Sighting, based on inputs from locals and Perused from Secondary Data

S.No	Common name	Scientific name	Family
1.	Ponthia	Puntius sophore	Cyprinidae
2.	Catla	Catla Catla	Cyprinidae
3.	Catfish	Siluriformes	-
4.	Rohu	Labeo rohita	Cyprinidae
5.	Eel fish	Electrophorus electricus	Gymnotidae

3.7. Findings/Results

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

Records of threatened species in the area

No threatened species were observed

Endangered Species as per Wildlife (Protection) Act

No Endangered fauna was recorded in the project area.

Endemic Species of the Project areas

No endemic species were observed in the project area.

Migratory species of the Project areas

No migratory fauna observed in project area.

Migratory corridors and Flight paths

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

Breeding and spawning grounds

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

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

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

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

3.8. Conclusion

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

Sources:

[A survey on the floral diversity of rural areas in Udumalpet Taluk Tiruppur District Tamil Nadu India](https://www.academia.edu/49349854/Avenue_Trees_of_Urban_Landscape_Tiruppur_City_Tamil_Nadu)

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https://www.psgcas.ac.in/journals/search/issues/Volume-III-Issue_I/8.pdf

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[Invasive Alien Species | IUCN](#)

https://ebird.org/region/IN-TN-TP/bird-list?rank=lrec&hs_sortBy=count

https://uk.inaturalist.org/check_lists/316687-Tiruppur-Check-List

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

[Ali, S and Ripley, S.D. 1969. Handbook of the Birds of India and Pakistan together with those of Nepal, Sikkim, Bhutan and Ceylon, 3. Stone Curlews to Owls. Oxford University Press, Bombay, 327pp.](#)

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

3.6 SOCIO ECONOMIC ENVIRONMENT

The major developmental activities in mining sector are required for economic development as well as creation of employment opportunities (direct and indirect) and to meet the basic/modern needs of the society, which ultimately results in overall improvement of the quality of life through upliftment of social, economic, health, education and nutritional status in the project region, state as well as the country. In this manner all developmental projects have direct as well as indirect relationships with socioeconomic aspects, which also include public acceptability for new developmental projects. Thus, the study of socioeconomic component incorporating various facets related to prevailing social and cultural conditions and economic status of the rough stone and gravel quarry project 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.

3.6.1 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.
- g) To analysis of impact of socio economic and Environmental Infrastructure facilities and road accessibility.

3.6.2 Scope of Work

- To study the Socio-economic Environment of area from the secondary sources
- Data Collection and Analysis
- Identification of impacts due to the mining projects
- Mitigation Measures

3.6.3 Methodology

The methodology adopted for the socio-economic impact assessment is as follows:

- a) The details of the activities and population structure have been obtained from Census 2001 and 2011 and analyzed.
- b) Based on the above data, impacts due to plant operation on the community have been assessed and recommendations for further improvement have been made.

3.6.4 Sources of Information and Data Base

To achieve the above objectives, the information has been collected from both primary and secondary sources. Both primary data and secondary data have been analyzed by means of suitable statistical techniques for the purpose of verifying the above selected hypotheses concerned with the surrounding area.

3.6.5 Primary Survey

The primary data collection includes the collection of data through a structured interview schedule by direct observation method. The questionnaire survey includes both open and closed methods. The sample size is limited respondents, who were selected on the basis of simple random sampling from Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State, in the field survey has been divided into three major segments namely Primary Zone (0 - 3 km), Secondary Zone (3 - 7 km) and tertiary Zone (7 - 10 km).

The questionnaires were designed to suit the subjects considering their rural background enabling to furnish correct information and data as far as possible. Data were collected at village level and household level by questionnaires and focused group discussions.

The study area for the field survey has been divided into three major segments namely Primary Zone (0 - 3 km), Secondary Zone (3 - 7 km) and Outer Zone (7 - 10 km).

Table 3.41 Segment wise Sample in Percentage

<i>Segment Radius</i>	<i>No of Village</i>	<i>% Of sample</i>
0-3km	3	11
3-7km	8	29
7-10km	13	61
Total	24	100%

Source: census of India 2011.

3.6.6 Collection of Data from Secondary Sources

Data from secondary sources were collected on following aspects:

- Demographic profile of the area
- Economic profile of the area

Table 3.42 Type of Information and Sources

Information	Source
Demography	District Census Handbook, Govt. of India
Economic profile of the area	Census of India, Tamil Nadu State

b) Data Presentation and Analysis

The data collected were presented in a suitable, concise form i.e., tabular or diagrammatic or graphic form for further analysis. These tabulated data were interpreted and analyzed with the help of various qualitative techniques and ideographic approaches.

3.7 Background Information of the Area

Tamil Nadu is the 11th largest states in India in terms of area. The state is the seventh most populous state in the country and its main language Tamil has origins that date back to 500 BC. Chennai is the capital of Tamil Nadu and lies on the eastern coast line of India. Tamil Nadu is famous for its wonderful temples and monuments that have been built 1000s of years ago and has places that have been marked as heritage sites by the United Nations. In a 180degree paradigm shift, this state with a rich historical importance is also one of the fastest developing centre for technology and trade.

The State can be divided broadly into two natural divisions (a) the Coastal plains of South India and (b) the hilly western area. Parallel to the coast and gradually rising from it is the broad strip of plain country. It can further be subdivided into coromandal plains comprising the districts of Kancheepuram, Tiruppur, Cuddalore and Vellore. The alluvial plains of the Cauvery Delta extending over Thanjavur and part of Tiruchirappalli districts and dry southern plains in Madurai, Dindigul, Ramanathapuram, Sivaganga, Virudhunagar, Tirunelveli and Tuticorin districts. It extends a little beyond Western Ghats in Kanyakumari District. The Cauvery Delta presents some extremely distinctive physical and human features, its power being a main factor in the remarkable growth, the towns of Tamilnadu have witnessed.

3.8 Geography of the Area

Tamil Nadu is one of the 28 states of India, located in the southernmost part of the country. It extends from 8°4'N to 13°35'N latitudes and from 76°18'E to 80°20'E longitudes. Its extremities are

- in eastern - Point Calimere
- in western - hills of Anaimalai
- in northern - Pulicat lake
- in southern - Cape Comorin

It covers an area of 1,30,058 sq.km and 11th largest state in India. It covers 4% of the area of our country. Tamil Nadu is bounded by the Bay of Bengal in the east, Kerala in the west, Andhra Pradesh in the north, Tamil Nadu in the northwest and Indian Ocean in the south. Gulf of Mannar and Palk Strait separate Tamil Nadu from the Island of Sri Lanka, which lies to the southeast of India.

Already we have learnt that the state of Tamil Nadu had only 13 districts at the time of its formation. After that, the state was reorganised several times for the administrative convenience. At present there are 37 districts in Tamil Nadu, including the newly created districts such as Kallakurichi, Tenkasi, Chengalpet, Ranipet and Tirupathur.

3.9 Population Growth Rate

In 1991, there were only 21 districts in the State of Tamil Nadu. In 2001, eight new districts were created by reorganising the territorial jurisdiction. The nine districts are – Tiruppur, Namakkal, Tiruppur, Perambalur, Viluppuram, Thiruvarur, Nagapattinam, and Theni. The population and its growth trend are important economic factors in a developing economy.

Year	Tamil Nadu	India
1941	11.91	14.22
1951	14.66	13.31
1961	11.85	21.51
1971	22.30	24.80
1981	17.50	24.66
1991	15.39	23.86
2001	11.19	21.34
2011	15.61	5.96
2021	5.96	1.0

3.10 Tiruppur District

During 1990's, Exports have been increased tremendously in Tiruppur Area and the infrastructure and other basic amenities available is not enough for fast growth city like Tiruppur. Therefore, the people of the region demanded Separate Corporation and District for Tiruppur to fulfil the aspiration of the people in the region.

Accordingly, the Government have issued G.O.Ms.No.617 and 618, Revenue [R.A.1(1)] Department, dated 24.10.2008 to bring district administration closer to be people and to fulfil the aspiration of industrialist by reorganizing Tiruppur and Erode Districts into Tiruppur, Erode and Tiruppur Districts. Subsequently, the New District was inaugurated on 22.02.2009 by the hon'ble minister for Rural Development.

Agriculture continues to be the most predominant sector of the district economy, around 30 percent of the working population is engaged in Agriculture and allied activities for their livelihood. The district has an area of 4,72,629 Ha. with net cultivated area of around 1,84,645 Ha.

3.11 Study Area

Detailed socio-economic survey was conducted in the study area (Core and buffer zone) within 10 km radius of the area at Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State. In order to determine the impact of the proposed project on nature and inhabitant. To get an overview of the villagers and their perspectives about this proposed activity, different demographic parameters and social aspects

such population density, sex ratio, literacy rate, worker ratio etc. has been identified, analyzed, studied together. These impacts may be beneficial or disadvantageous. If disadvantageous anticipated suggestions measures are advocated in order to have collective development.

3.12 Demographic pattern of 10km study area characteristics a comparative analysis

Table 3.43 Shows the socio-economic profile of the study area as compared to district, state and national level socio-economic profile

Particular	India	Tamil Nadu	Tiruppur District	Study Area (10km Radius)
Area (in sq. km.)	3,287,263	130058	5087	318
Population Density/ sq. Km.	368	554	487	992
No. of Households	249454252	13357027	712210	89362
Population	1210569573	72147030	2479052	315480
Male	623121843	36137975	1246159	159251
Female	587447730	36009055	1232893	156229
Scheduled Tribes	104281034	794697	5458	264
Scheduled Castes	201378086	14438445	395876	41138
Literacy Rate	72.99%	80%	71%	82.6%
Sex Ratio (Females per 1000 Males)	943	996	989	981

Source: Census of India, 2011

Table no 3.12.1 show demographic pattern of India, Tamil Nadu, Tiruppur District & Study area (10km Radius). In India had total area of 3.2 sqkm, State of Tamil Nadu area was 130058 sqkm, District of Tiruppur area was 5087 sqkm and study area is about 318sqkm. Population density is total population per sqkm. So, India population density was 368 sqkm, state of Tamil Nadu density was 554 sqkm, District had density about 487 sqkm and study area density is about 992sqkm. State level Literacy rate is 80%, district level is 71% but study area has decreased about 82.6% (crude literacy rate). There is literacy rate is study area decrease comparing district level decrease in the study area. Sex ratio female per thousand males about state level is 996, District level is 980 and study area is 981.

The study area has population density 992persons per sq.km of total population about 315480 as per census 2011. There were about 50.48 percent male and 49.52% female population. Study area has literate rate is about 82.6%. District had about 71% of literate rate as per census 2011.

3.13 Population Projection of the Study Area

A population projection is an estimation of the number of people expected to be alive at a future date that is made based on assumptions of population structure, fertility, mortality and migration. It is an essential to assess the need for new jobs, schools, doctors and nurses, planning urban housing, foods, clothing and requirements of energy and resources. It is also needed for policy discourse i.e., helps to the policy-makers to understand the existing problems and finally supports to develop the suitable solutions.

A population projection gives a picture of what the future size and structure of the population by sex and age might look like. It is based on knowledge of the past trends and for the future, on assumptions made for three components: fertility, mortality and migration.

Table 3.44 Total Population of Study Area

Sl No.	Population in 2001	Population in 2011
1	293520	315480

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

Table 3.45 Population Projection of Study Area

S. No	Year	Projected Population (Approximately)
1.	2021	3,37,440
2.	2031	3,59,400
3.	2041	3,81,360
4.	2051	4,03,320

Source: Calculated by SPSS V23.

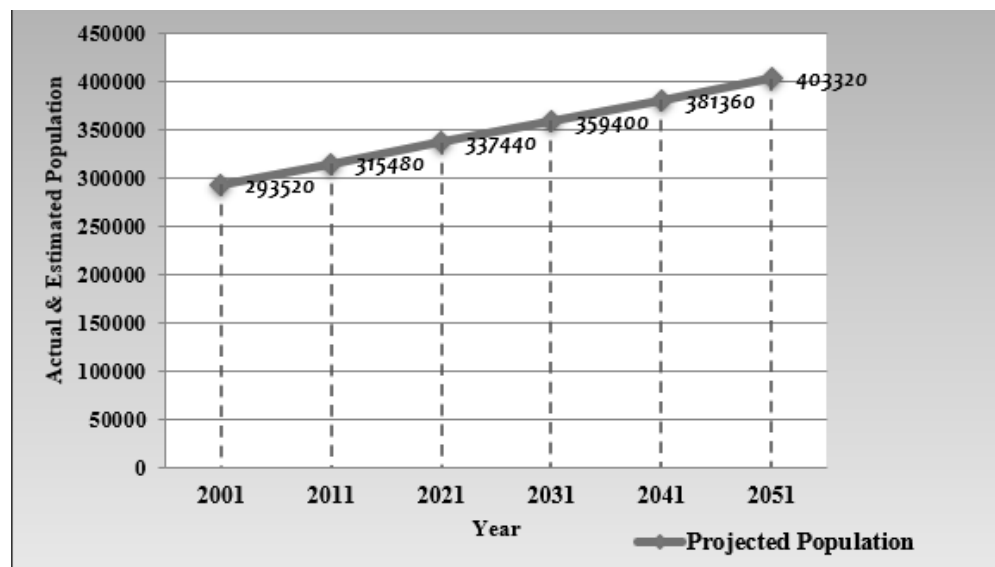


Figure No. 3.33 Graph Showing Population Projection

Following formula has been used for the projection of population.

$$Y=a+b_t$$

Where: Y= Dependent variable (Population)

a=Intercept

b=Slope

t=Interdependent variables (Time)

Above formula is applied to project population for the years (2021, 2031,2041,2051). Due to avoid the errors in manual calculation the statistical software SPSS (demo version 23) is used to calculate the intercept and the slope.

Due to the shortage of data on population the results show same value of growth for the years (2021,2031,2041,2051). If the researcher gets enough the data on population for earlier years the data projection will be accurate.

- Ref: Indian Economic survey, the SLR (Simple Linear Regression) techniques are used by statistical department, Government of India to project population.
- Source: <https://www.ibm.com/in-en/analytics/spss-statistics-software>

3.14 Population Growth of the Study Area

Table 3.46 Population Growth rate in Study area

Year	Actual Population	Growth Rate %
2001	2,93,520	-
2011	3,15,480	10.75
2021	3,37,440	10.70
2031	3,59,400	10.65
2041	3,81,360	10.61
2051	4,03,320	10.58

Source: Compiled by Author-2022

Above table no 3.46 is showing the growth rate of population since 2001, as per census in 2001 the population of study area was 293520 and 2011 it was 315480 if the population growth rate is 10.75%, it will approximately gradually decrease 3,37,440 in year 2021 and 4,03,320 in the year of 2051. It has approximately population growth rate decline will be 10.58%.

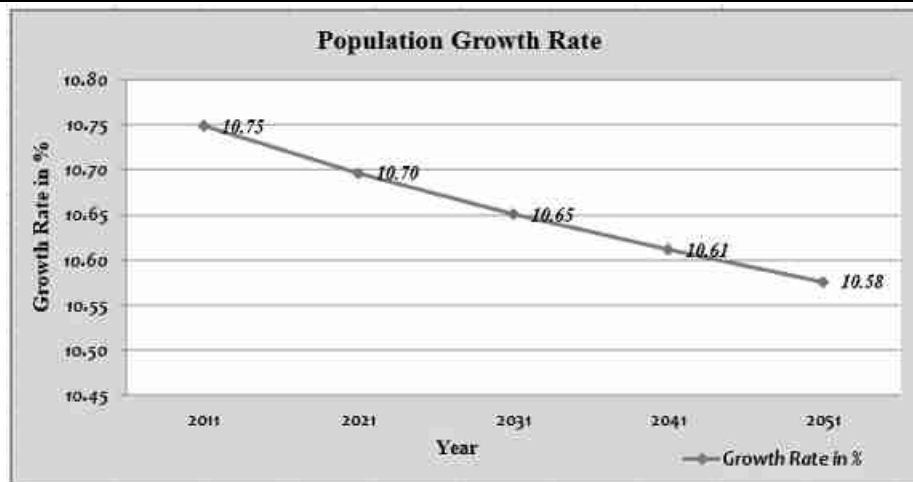


Figure No.3.34 Graph Showing Population Growth Rate

Planning Analysis:

Calculating Growth Rates

The percent change from one period to another is calculated from the formula:

Where:

$$PR = \frac{(V_{Present} - V_{Past})}{V_{Past}} \times 100$$

PR=Percent Rate

V_{Present} =Present or Future Value

V_{Past} = Past or Present Value

The *annual* percentage growth rate is simply the percent growth divided by N, the number of years.

Source: <https://pages.uoregon.edu/rgp/PPPM613/class8a.htm>

3.15 Population Distribution and Composition of Study Area

The population as per 2011 Census records is 315480 (for 10 km radius buffer zone). Total no. of household is 9716, 25929 and 53717 respectively, in primary, secondary and tertiary zone. Sex ratio is 977, 977 and 984 (females per 1000 males) observed in primary, secondary and tertiary zone respectively. SC population distribution is 5453,13469,22216 respectively in primary, secondary and tertiary zone. ST population distribution is 60, 35, 169 respectively in primary, secondary and tertiary. Average household size is 4. Zone wise Demographic profile of study area is given in the table 3.47 below:

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

Table 3.47 Zone wise Demographic Profile of Study Area

Zone	No. of Villages	Total Household	Total Population	Male Population	%	Female Population	%
------	-----------------	-----------------	------------------	-----------------	---	-------------------	---

Primary Zone (0 - 3 Km)	3	9716	33648	17024	50.59	16624	49.41
Secondary Zone (3 - 7 Km)	8	25929	90912	45992	50.59	44920	49.41
Tertiary Zone (7 - 10 km)	13	53717	190920	96235	50.41	94685	49.59
Study Area (0-10 km)	24	89362	315480	159251	50.48	156229	49.52

Source: Census of India, 2011

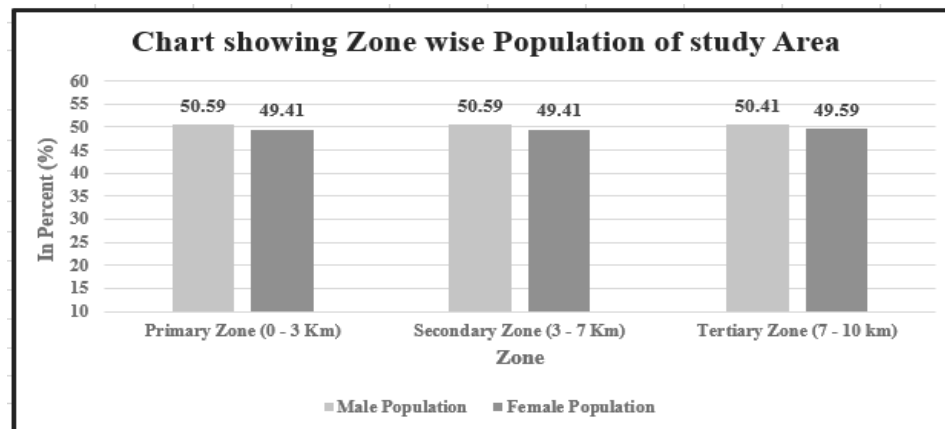


Figure 3.35 Population of study area

- ✓ Above table identifies the presence of villages and their subsequent population divided under three zones from plant boundary (i.e., Primary, secondary and tertiary zone)
- ✓ Primary zone has 3 villages where as much as 9716 households with 33648 population are located. Mostly lying on Built-up land for their livelihood and substance.
- ✓ Secondary and tertiary zone both comprise of 8 and 13 villages having a total population of 90,912 and 190920 respectively.

Table 3.48 Village wise Demographic Profile of the Study Area (Core and Buffer Zone)

Sno	Village Name/Town Panchayat	No.of Households	Total population	Total Male	Total Female	Sex Ratio	Population below 6	Male below 6	Female below 6	SC population	SC Male	SC Female	ST population	ST Male	ST Female	Literate population	Male Literate	Female Literate	Total workers	Main workers	Marg workers	Non workers
0-3KM																						
1	Ichipatti	Rural	2754	9527	4892	4635	1026	527	499	1426	716	710	16	8	8	6315	3577	2738	4980	4825	155	4547
2	Samalapuram (TP)	Urban	5938	20691	10404	10287	2153	1086	1067	3201	1620	1581	44	21	23	14332	7879	6453	10508	10021	487	10183
3	Kasba Ayyampalayam	Rural	1024	3430	1728	1702	290	147	143	826	424	402	0	0	0	2451	1358	1093	1692	1372	320	1738
		Total	9716	33648	17024	16624	3469	1760	1709	5453	2760	2693	60	29	31	23098	12814	10284	17180	16218	962	16468
3-7KM																						
1	Poomalur	Rural	2209	7605	3829	3776	786	373	413	1797	880	917	10	4	6	4602	2614	1988	3960	3563	397	3645
2	Sukkampalayam	Rural	1247	4420	2238	2182	408	210	198	1136	569	567	0	0	0	2947	1665	1282	2760	2290	470	1660
3	Semmipalayam (CT)	Urban	2380	8429	4285	4144	814	403	411	1216	616	600	0	0	0	6413	3467	2946	4231	4053	178	4198
4	Kadampadi	Rural	2370	8147	4131	4016	760	417	343	1747	926	821	13	7	6	5913	3184	2729	3832	3397	435	4315
5	Kangayampalayam	Rural	2247	8251	4394	3857	921	470	451	1163	570	593	5	2	3	6485	3643	2842	3493	2753	740	4758
6	Karumathampatti (TP)	Urban	10071	35062	17593	17469	3473	1734	1739	3440	1741	1699	5	3	2	26180	14098	12082	15723	14654	1069	19339
7	Kaniyur (CT)	Urban	3444	12011	6028	5983	1341	667	674	1763	864	899	2	1	1	8648	4728	3920	5650	5268	382	6361
8	Kodangipalayam	Rural	1961	6987	3494	3493	770	382	388	1207	595	612	0	0	0	4614	2568	2046	3595	3146	449	3392
		Total	25929	90912	45992	44920	9273	4656	4617	13469	6761	6708	35	17	18	65802	35967	29835	43244	39124	4120	47668
7-10KM																						
1	Velampalayam (M)	Urban	24381	87427	44353	43074	10272	5259	5013	5257	2609	2648	139	53	86	68208	36246	31962	40043	38419	1624	47384
2	Mangalam (CT)	Urban	4782	17699	8847	8852	2138	1064	1074	2666	1333	1333	4	3	1	12970	6907	6063	7393	7211	182	10306
3	velampalayam	Rural	971	3512	1789	1723	369	185	184	497	247	250	6	3	3	2101	1212	889	1873	1852	21	1639
4	Naranapuram	Rural	3862	14018	7047	6971	1674	871	803	2010	1013	997	4	1	3	10117	5456	4661	6577	6251	326	7441
5	Karadibavi	Rural	1040	3647	1809	1838	313	167	146	958	495	463	0	0	0	2479	1327	1152	1842	1678	164	1805
6	Paruvai	Rural	1098	3778	1909	1869	340	179	161	856	440	416	0	0	0	2682	1470	1212	1889	1778	111	1889
7	Rasipalayam	Rural	1364	4407	2208	2199	415	200	215	702	351	351	0	0	0	3164	1757	1407	2016	1735	281	2391
8	Appanaickenpatti	Rural	1121	3992	1998	1994	337	170	167	947	478	469	0	0	0	2665	1413	1252	2199	2006	193	1793
9	Kalangal	Rural	1639	5590	2853	2737	500	272	228	784	400	384	0	0	0	3889	2158	1731	3112	2784	328	2478
10	Sulur (TP)	Urban	8014	27909	13835	14074	2636	1351	1285	4231	2104	2127	12	6	6	21951	11435	10516	12178	10514	1664	15731
11	Arasur (CT)	Urban	3306	11510	5798	5712	1343	706	637	1576	815	761	4	2	2	8477	4539	3938	5136	4701	435	6374
12	Manickapuram (CT)	Urban	1739	6215	3150	3065	672	357	315	1386	687	699	0	0	0	4325	2370	1955	3005	2864	141	3210
13	Kurukkapalayam	Rural	400	1216	639	577	82	45	37	346	182	164	0	0	0	729	440	289	804	492	312	412
		Total	53717	190920	96235	94685	21091	10826	10265	22216	11154	11062	169	68	101	143757	76730	67027	88067	82285	5782	102853
		G.Total	89362	315480	159251	156229	33833	17242	16591	41138	20675	20463	264	114	150	232657	125511	107146	148491	137627	10864	166989

Source: Village Wise Demographic Profile of the Study Area, *Census of India, 2011*

3.16 Gender and Sex Ratio

Sex ratio is used to describe the number of females per 1000 of males. Sex ratio is a valuable source for finding the population of women in India and what is the ratio of women to that of men in India. In the Population Census of 2011, it was revealed that the population ratio in India 2011 is 940 females per 1000 of males. The study area has 992 females per 1000 males. Gender and sex ratio determine the Human Development Index (HDI) of an area thereby understanding the status of women in that region. Following table entails information about sex ratio of 14 villages lying in study area (buffer zone) as primary, secondary and tertiary zone.

Table 3.49 Sex ratio of the study area

S. No.	Buffer Zone	Sex Ratio of Study area Female/ 1000 Male
1	Primary Zone (0-3 km)	977
2	Secondary zone (3-7 km)	977
3	Tertiary Zone (7-10 km)	984

Source: Census of India, 2011

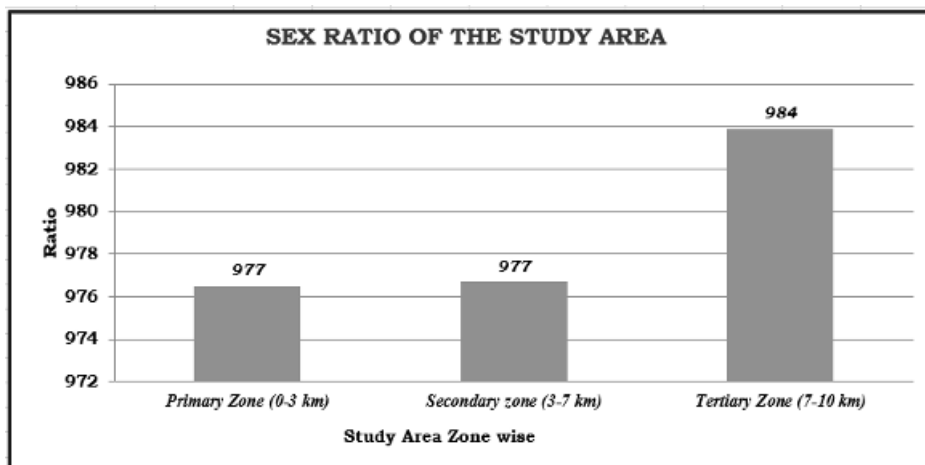


Figure No. 3.36 Sex Ratio within 10 Km study area

Table 3.50 Child Sex ratio of the study area

S. No.	Buffer Zone	Sex Ratio of Study area Female/ 1000 Male
1	Primary Zone (0-3 km)	971
2	Secondary zone (3-7 km)	992
3	Tertiary Zone (7-10 km)	948

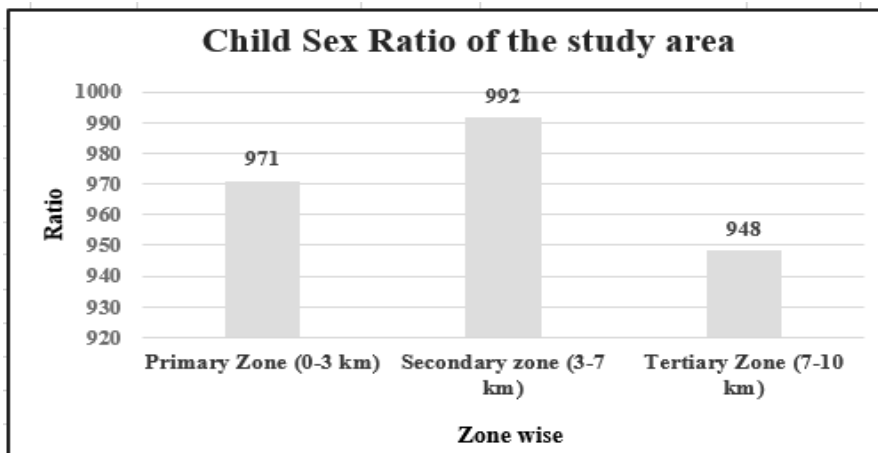


Figure No.3.37 Child Sex Ratio within 10 Km study area

3.17 Literacy Rate in Study Area

Literacy Rate is the percentage of people in a country with the ability to read and write. The analysis of the literacy levels is done in the study area. The 10 km radius of study area demonstrates a literacy rate of 82.61% as per census data 2011. The male literacy rate in the study area indicates 88.38% whereas the female literacy rate, which is an important indicator for social change, is observed to be 76.73% as per the census data 2011. This needs to focus on the region and enhance further development focusing on education. (Table no 3.33).

Table 3.51 Literacy Rate of the Study Area

Zone	No. of Villages	Male Literacy Population	Male literacy Rate	Female Literacy Population	Female literacy Rate	Total Literacy	Total Literacy Rate
Primary Zone (0 - 3 Km)	3	12814	83.95	10284	68.95	23098	76.54
Secondary Zone (3 - 7 Km)	8	35967	87.01	29835	74.03	65802	80.60
Tertiary Zone (7 - 10 Km)	13	76730	89.84	67027	79.40	143757	84.65
Study Area (0-10km)	24	125511	88.38	107146	76.73	232657	82.61

Source: Census of India, 2011

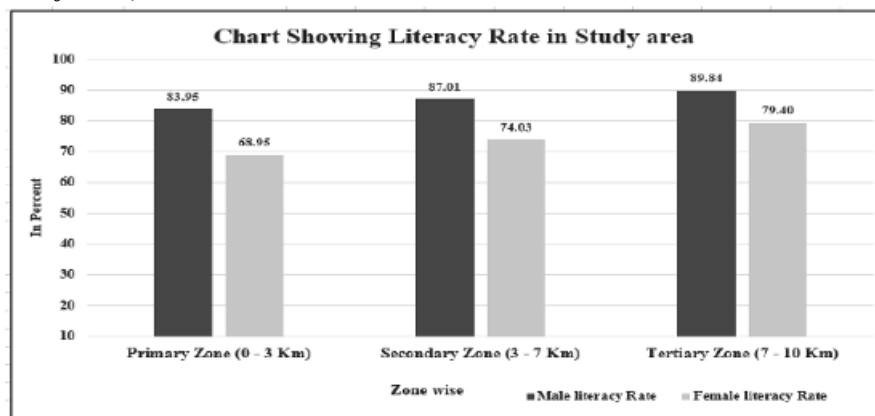


Figure No 3.38 Gender wise Literacy Rate in the study area

3.18 Family Size

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

3.19 Vulnerable Group

While developing an action plan, it is very important to identify the population who fall under the marginalized and vulnerable groups and special attention has to be given towards these groups while making action plans. Special provisions should be made for them. In the observed villages schedule caste (SC) population is 13.04% and Schedule Tribe population 0.08 %, Other Population is 86.88% in total study area.

Table 3.52 vulnerable groups of the study area

Zone	No. of Villages	Vulnerable Groups					
		SC Population	%	ST Population	%	Other Population	%
Primary Zone (0 - 3 Km)	3	5453	16.21	60	0.18	28135	83.62
Secondary Zone (3 - 7 Km)	8	13469	14.82	35	0.04	77408	85.15
Tertiary Zone (7 - 10 Km)	13	22216	11.64	169	0.09	168535	88.28
Total area (10km)	24	41138	13.04	264	0.08	274078	86.88

Source: Census of India, 2011

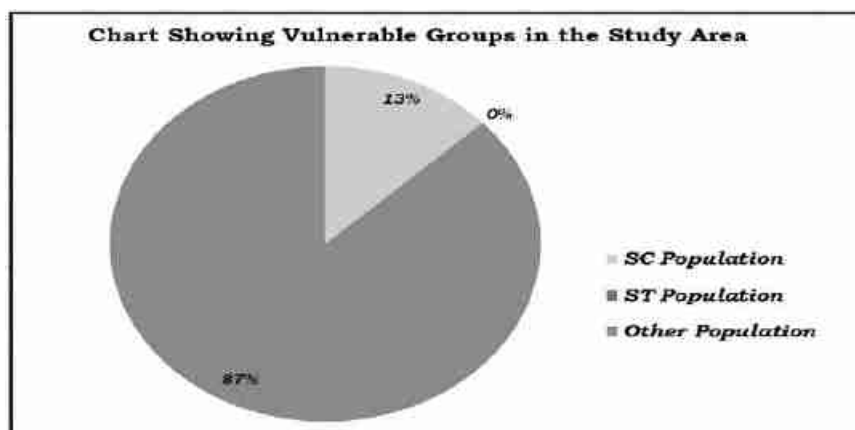


Figure No 3.39 Vulnerable groups

3.20 Economic Activities

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

Table.3.53 Shows the work force of the study area

Zone	No. of Villages	Total Workers	%	Main Workers	%	Marginal Workers	%	Non-Workers	%
Primary Zone (0 - 3 Km)	3	17180	51.06	16218	48.20	962	2.86	16468	48.94
Secondary Zone (3 - 7 Km)	8	43244	47.57	39124	43.04	4120	4.53	47668	52.43
Tertiary Zone (7 - 10 Km)	13	88067	46.13	82285	43.10	5782	3.03	102853	53.87
Study Area (10 Km)	24	148491	47.07	137627	43.62	10864	3.44	166989	52.93

Source: Census of India, 2011

The above table shows that out of the total working population, the percentage of main workers is 43.6 % while 3.44% are marginal workers. Number of working populations is 47.07% and non-working population is 52.9% in the study area. As per the data obtained from the survey (as mentioned previously in occupational structure) most of these people are employed for major period of the year. Also, to mention the natural environment also restricts the people in finding stable business is performed for only certain months. Thus, proposed project will act as possible exposure for them to get enrol and earn sustain livelihood.

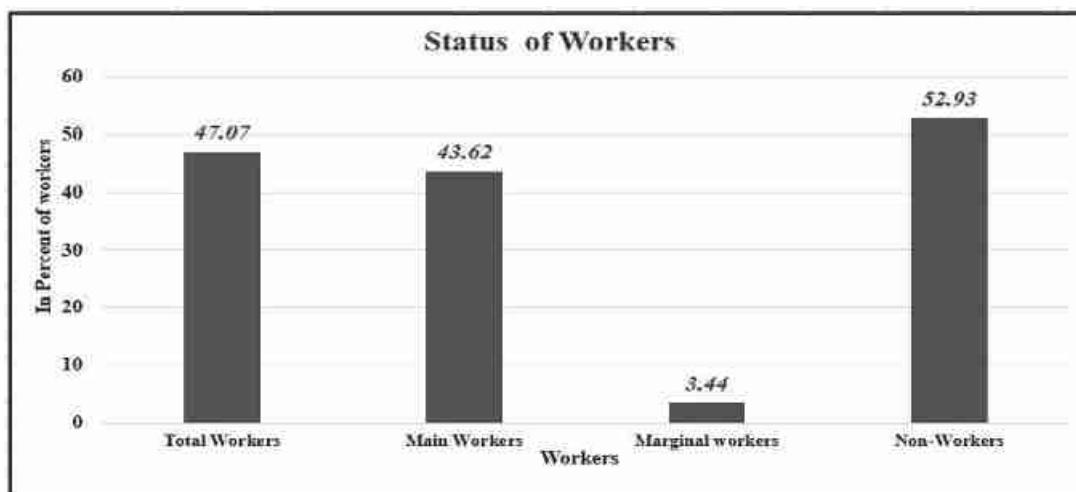


Figure No 3.40. Working population in the study area

3.21 Infrastructure Base

A better network of physical infrastructure facilities (built up and roads, irrigation, power and social infrastructure support, viz. health and Education, water and sanitation are essential for the development of the rural economy.

A review of infrastructural facilities available in the area has been done based on the information from baseline survey & census data of the study area. Infrastructural facilities available in the area are described in the subsequent sections.

- Administrative offices are located in Tamil Nadu, Tiruppur district (16km-NE) from site which by local transport.
- Noyyal River Northern side 2km from mine lease boundary and Samalpuram Lake is 1.5km-Northern side from mine lease boundary.
- Availability of Government high school Karungampalayam Village (NW-1.5km), Government high school Kangeyampalayam Village (SW-6.0km), Government High school, Poomalur village (NE-6km), Government High School, Semmipalayam village (SE-6.3km), Government High School, Naduvelampalayam Village (SE-5.0km) Tiruppur, Palladam and Sular Taluk many Engineering college and Training institute found in study area.
- Health facilities covered in the area Somanur PHC (NW-3.2km), Karumathampatti Urban PHC (6.0km-NW) and Government Primary health centre Mangalam Village (9.5km-NE), Buffer zone area like Government Hospital like Sular and Palladam taluks. Other private clinics and Pharmacy available in the buffer zone.

TABLE 3.54: EDUCATIONAL FACILITIES IN THE STUDY AREA

SI	Village Name	PPS		PS		MS		SS		SSS		DC		EC		MC		MI		PT		VTS		SSD	
		G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P
1	Mangalam (CT)	1	2	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	Andipalayam (CT)	1	2	1	2	1	2	1	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	2	2
3	Iduvai (CT)	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2
4	Muruganpalayam (CT)	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	velampalayam	1	2	1	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	Naranapuram	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	Sukkampalayam	1	2	1	1	1	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2
8	Ichipatti	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9	Kodangipalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2	1	2	2	2	2
10	Anuppatti	1	2	1	1	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	Kasba Ayyampalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	Karadibavi	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	Paruvai	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	Samalapuram (TP)	1	2	1	2	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	Palladam (M)	1	1	1	1	1	1	2	2	2	2	2	1	2	1	2	2	2	2	2	1	2	2	2	2

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

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

TABLE 3.55: MEDICAL FACILITIES IN THE STUDY AREA

SI. No.	Village Name	CHC	PHC	PHSC	MCW	TBC	HA	HAM	D	VH	MHC	FWC	NGM-I/O
1	Mangalam (CT)	1	1	1	0	0	0	0	0	0	0	0	b
2	Andipalayam (CT)	1	1	1	0	0	0	0	0	0	0	0	b
3	Iduvai (CT)	0	1	1	1	1	0	0	1	0	0	1	
4	Muruganpalayam (CT)	0	1	0	0	0	0	0	0	0	0	0	c
5	Velampalayam	0	0	1	0	0	0	0	0	0	0	0	c
6	Naranapuram	0	1	1	0	0	0	0	0	0	0	0	c
7	Sukkampalayam	0	0	1	0	0	0	0	0	0	0	0	a
8	Ichipatti	0	0	0	0	0	0	0	0	0	0	0	b
9	Kodangipalayam	0	1	1	1	1	0	0	1	0	0	1	
10	Anuppatti	0	0	1	1	0	0	0	0	0	0	0	a
11	Kasba Ayyampalayam	0	0	0	0	0	0	0	0	1	0	0	c
12	Karadibavi	0	0	1	0	0	0	0	0	1	0	0	c
13	Paruvai	0	0	1	0	0	0	0	0	1	0	0	c
14	Samalapuram (TP)	0	1	1	0	0	0	0	0	0	0	0	b
15	Palladam (M)	1	1	3	0	0	0	0	0	0	0	0	a

Abbreviations: CHC-Community Health Centre; TBC-TB Clinic; VH- Vetrernity Hospital; PHC-Primary Health Centre; HA-Aallopathic Hospital; FWC-Family Welfare Centre; PHSC-Primary Health Sub Centre; HAM-Alternative Medicine Hospital; MH-Mobile Health Clinic; MCW-Maternity and Child Welfare Centre; D-Dispensary; NGM-I/O-Non-Government Medical Facilities In & Out Patient Note – 1 - Available within the village; 2 -Not available a-facility available at <5kms b-facility available at >10kms,

Source: www.censusindia.gov.in

3.22. Other Issues in the Study Area

1. Deforestation of Land (Cutting Trees or Plant etc.)
2. Agriculture Land decreases
3. Lack of awareness among vulnerable groups for their welfare
4. Medical/Clinic facilities and PHC need for the Core area
5. Environmental clean with solid wastage pin each village.
6. Functioning of Hospital facilities with Sub Health care centers.
7. Need proper drainage system with public toilet men and women separately.
8. Avoid Road damage during carriage by mine vehicles (tipper Lorry).
9. Use sprinkler water when loading mine materials, to avoid water pollution during dust emission.

3.23 Interpretation

Based on the data, following inferences could be drawn:

- Total literacy rate in the study area is 82.61 %.
- The study area had average educational facilities. The overall status depicts that the education is limited to primary and middle level.
- The schedule tribe community forms 0.08% and Scheduled Caste forms 13.04% of the total population of study area.
- The Other Population forms 87% of the total population of study area.
- The study area is well connected by District/Village Road.
- The study area not well health facilities of primary level.
- Considering the above facts, the proposed project will boost the socio-economic development activities in the area and hence will leave positive impact.
- The study area has mobile connectivity.

3.24 Recommendation and Suggestions

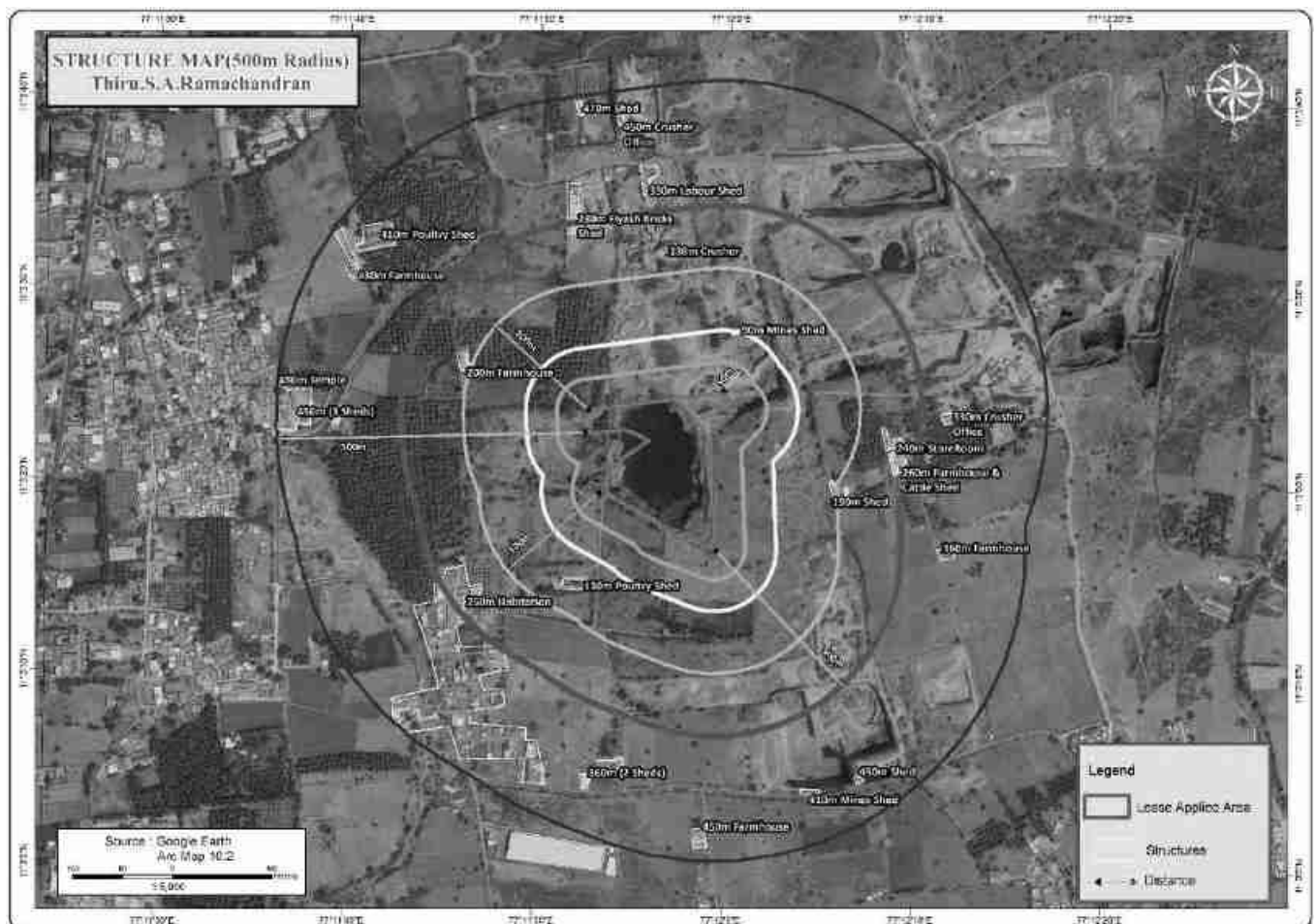
The village development plans are made in consultation with the community through Gram Sabha; these appear to address the needs of the community. However, it may be noted that at the implementation stage these plans often are fraught with problem of inadequate funds, lack of proper planning, corruption,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

- **Women empowerment**– Home based income generation activities, vocational training programs and common education centre for increasing the literacy rate.
- **Education** – Free uniform, construction of common rooms and library, computer education and physical education, additional schools for girls, furniture and equipment in schools, up-gradation of existing school infrastructure.
- **Agriculture/livestock** – Infrastructure such as agricultural practices, electricity connections, assistance with buying improved tools and equipment, capacity building, supply and/or knowledge of better

variety of seeds, pasture land development and trainings on animal husbandry & facility of veterinary doctor.

- **Health** – Improvements in sanitary conditions of villages, assistance with construction of latrines, improvement in drainage system, health camps and awareness campaigns for diseases like Covid-19, malaria, typhoid, tuberculosis, yellow fever and pneumonia. Repairing of PHCs and Anganwadi centers.
- **People with disability** – Establishment of center for special education, sensitization of the community towards disabled and awareness on Government schemes.
- While **Developing an Action Plan**, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.
- **Connectivity** – Transport connectivity to easiness accessibility to the region.

Structure MAP 500m Radius



3.25 Conclusion

To evaluate the impacts of proposed quarry project on the surrounding area, it is vital to assess the baseline status of the environmental quality in the locality of the site. Hence it can be concluded that the present environment status of the study area will not be affected by the project as **Thiru.S.A. Ramachandran Rough Stone and Gravel quarry 12.45.0Ha** will adopt adequate control measures to protect the surrounding environment and will contribute in development of the study areas.

Socio Economic/demographic status of the study area reveals that area further require improvement in the Economy and Infrastructure Development of the area. Hence it can be concluded that the present baseline environment status of the study area will not be affected by the proposed project. The proposed project will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 GENERAL

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

In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans sustainable resource extraction.

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

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

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

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

4.1 LAND ENVIRONMENT:

4.1.2 Anticipated Impact

- 2.70.0 Ha of the land will be under mining since the Permanent or temporary change on land use and land cover will occur
- Movement of heavy vehicles sometimes cause problems to agricultural land, human habitations due to dust, noise and it also causes traffic hazards.
- Due to degradation of land by pitting the aesthetic environment of the core zone may be affected.
- Earthworks during the rainy season increase the potential for soil erosion and sediment laden water entering the water ways.

If no due care is taken wash off from the exposed working area may choke the water course & can also causes the siltation of water course

4.1.2 Mitigation Measures

- The 2.70.0 Ha of the land will be converted into temporary reservoir which will full fill the water scarcity in the drought season and the nearby agriculture land will benefitted by the supply of water
- About 1600 Nos of trees will be planted in the lease area and approach road will retain the ecosystem
- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development in the production
- Construction of garland drains all around the quarry pits and construction of silt trap at strategic location in lower elevations to prevent erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area.
- Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt.
- Thick plantation will be carried out on unutilized area, top benches of mined out pits, on safety barrier, etc.,
- Fencing will be constructed before starting the mining operation and it will be maintained in the conceptual stage Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.1.3 Soil Environment

4.1.4 Impact on Soil Environment

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

4.1.5 Mitigation Measures

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

4.1.6 Waste Dump Management

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

4.2 WATER ENVIRONMENT

4.2.1 Anticipated Impact

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

-
- Abstraction of water may lead to depletion of water table
 - 1.4 KLD water will be utilized for the quarrying operation

4.2.2 Mitigation Measures

- Water for the quarrying operation such as sprinkling on haul roads, Greenbelt development will be sourced from the lower part of the mine pit which is specifically allotted to collect the rain water.
- Garland drain, settling tank will be constructed along the proposed mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface settling tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting system.
- Periodic (every 6 month once) analysis of quarry pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- De-silting will be carried out before and immediately after the monsoon season.

4.3 AIR ENVIRONMENT

4.3.1. Anticipated Impact

- During mining, at various stages activities such as excavation, drilling, blasting, and transportation of materials, particular matter (PM), gases such as Sulphur dioxide, oxides of Nitrogen from vehicular exhaust are the main air pollutants.
- Emissions of noxious gases due to incomplete detonation of explosive may sometimes pollute the air.
- The fugitive dust released from the mining operations may cause effect on the mine workers who are directly exposed to the fugitive dust.
- Simultaneously, the air-borne dust may travel to longer distances and settle in the villages located near the mine lease area.

4.3.1.1. Modelling of Incremental Concentration from all Proposed Projects

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

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

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

AERMOD Software.

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

4.3.2.1 Emission Estimation

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

The general equation for emissions estimation is:

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

Where:

E = emissions;

A = activity rate;

EF = emission factor, and

ER =overall emission reduction efficiency, %

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

4.3.2 Frame work of Computation & Model details

Suspended Particulate Matter (SPM) is the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting (Occasionally), loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

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

TABLE 4.1: ESTIMATED EMISSION RATE

PM ₁₀			
Activity	Source type	Value	Unit
Drilling	Point Source	0.085816323	g/s
Blasting	Point Source	0.001125807	g/s
Mineral Loading	Point Source	0.041990717	g/s
Haul Road	Line Source	0.002491073	g/s/m
Overall Mine	Area Source	0.062836506	g/s
So ₂	Point Source	0.000644729	g/s
Nox	Point Source	0.000044886	g/s

FIGURE 4.1: AERMOD TERRAIN MAP

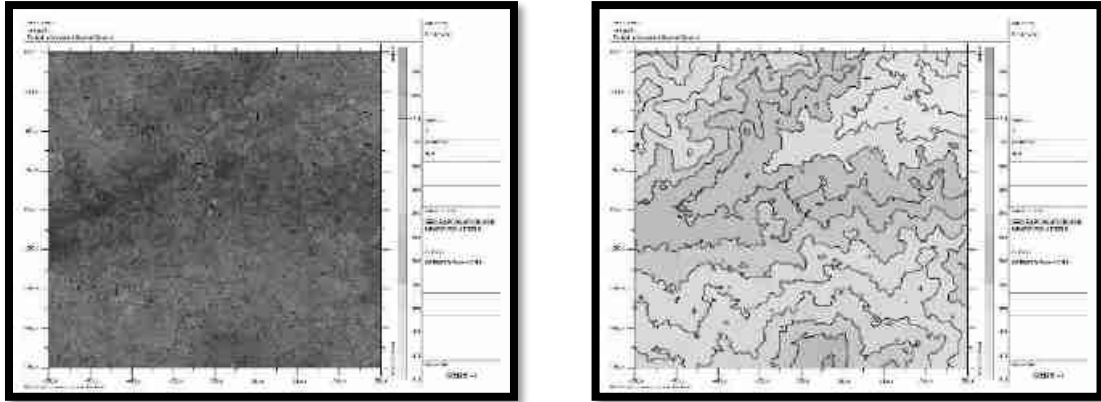


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

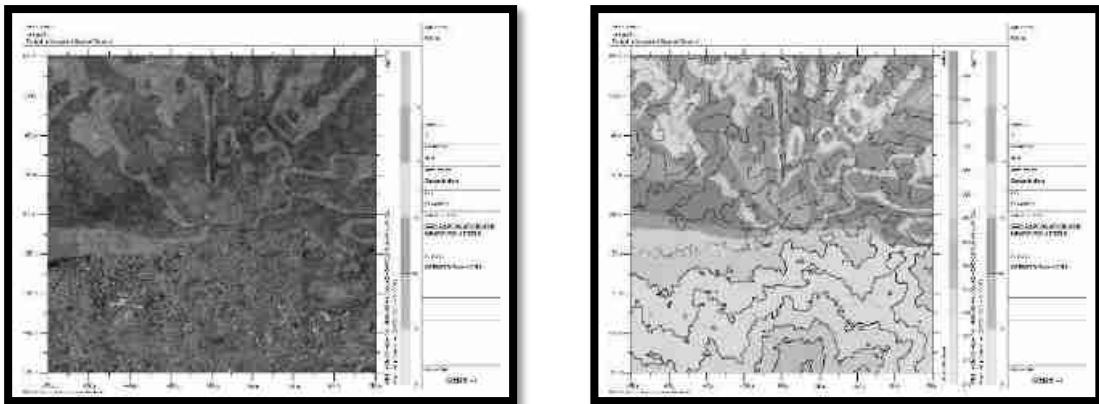


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM_{2.5}

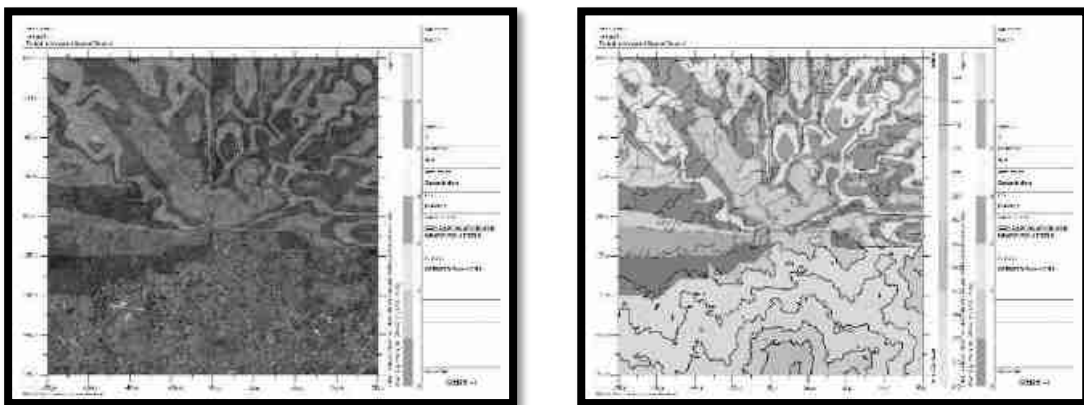


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO_x

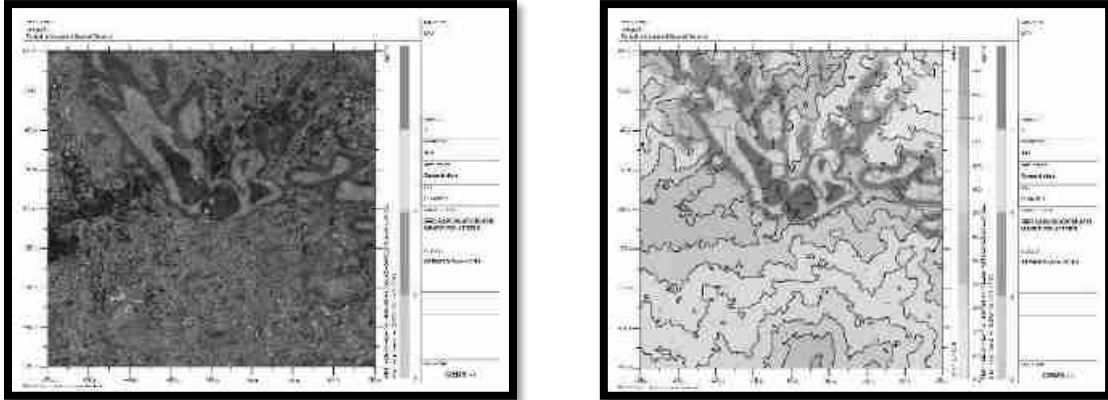


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF So₂

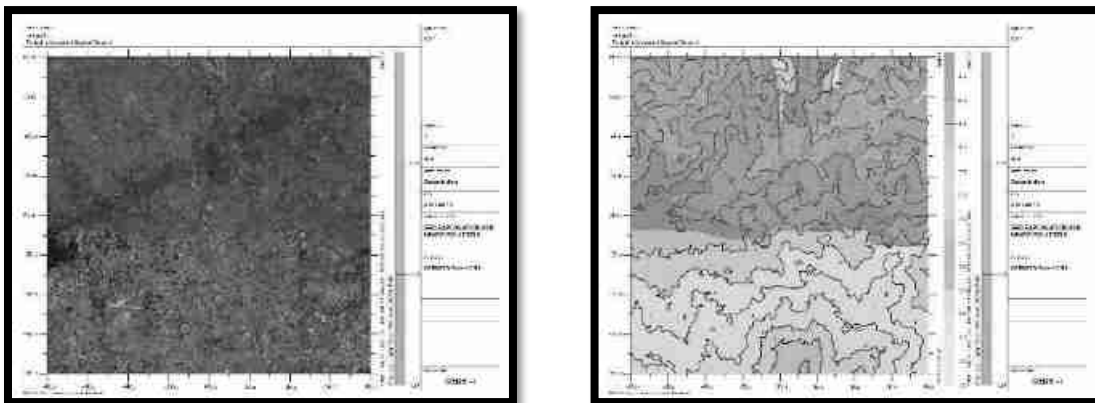
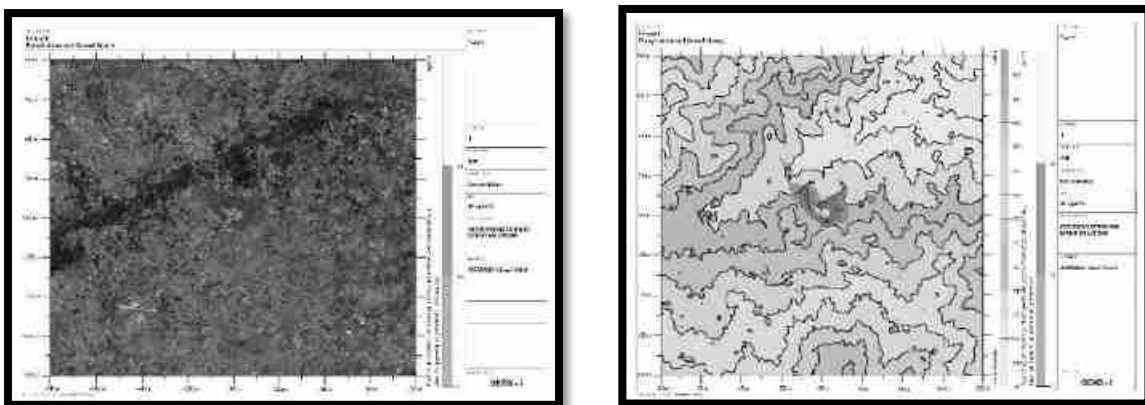


FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST



4.3.2.1 Model Results

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

TABLE 4.2: INCREMENTAL & RESULTANT GLC OF PM₁₀

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ (µg/m ³)	Incremental value of PM ₁₀ due to mining (µg/m ³)	Total PM ₁₀ (µg/m ³)
AAQ1	11° 3'23.26"N 77°11'59.30"E	42	60	44.7	15.80	60.5
AAQ2	11° 3'6.48"N 77°11'51.19"E	-204	-454	47.2	5.00	52.2
AAQ3	11° 4'0.17"N 77°11'33.97"E	-735	1207	45.8	15.25	61.05
AAQ4	11° 2'38.25"N 77°14'29.10"E	4621	-1335	44.8	0	44.8
AAQ5	11° 5'4.08"N 77°12'38.61"E	1245	3188	46.5	2.50	49.0
AAQ6	11° 1'58.03"N 77° 9'53.51"E	-3800	-2576	47.2	0	47.2
AAQ7	11° 0'29.43"N 77°14'2.67"E	3814	-5322	44.6	0	44.6

TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM_{2.5}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM _{2.5} (µg/m ³)	Incremental value of PM _{2.5} due to mining (µg/m ³)	Total PM _{2.5} (µg/m ³)
AAQ1	11° 3'23.26"N 77°11'59.30"E	42	60	19.7	8.76	28.46
AAQ2	11° 3'6.48"N 77°11'51.19"E	-204	-454	21.6	7.00	28.6
AAQ3	11° 4'0.17"N 77°11'33.97"E	-735	1207	22.2	8.30	30.5
AAQ4	11° 2'38.25"N 77°14'29.10"E	4621	-1335	19.9	1.14	21.04
AAQ5	11° 5'4.08"N 77°12'38.61"E	1245	3188	21.1	5.49	26.59
AAQ6	11° 1'58.03"N 77° 9'53.51"E	-3800	-2576	21.9	0.51	22.41
AAQ7	11° 0'29.43"N 77°14'2.67"E	3814	-5322	19.5	0	19.5

TABLE 4.4: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO ₂ (µg/m ³)	Incremental value due to mining (µg/m ³)	Total SO ₂ (µg/m ³)
AAQ1	11° 3'23.26"N 77°11'59.30"E	42	60	7.2	2.27	7.47
AAQ2	11° 3'6.48"N 77°11'51.19"E	-204	-454	6.4	1.00	8.4
AAQ3	11° 4'0.17"N 77°11'33.97"E	-735	1207	6.3	2.20	8.5
AAQ4	11° 2'38.25"N 77°14'29.10"E	4621	-1335	6.6	0	6.6
AAQ5	11° 5'4.08"N 77°12'38.61"E	1245	3188	6.3	0	6.3
AAQ6	11° 1'58.03"N 77° 9'53.51"E	-3800	-2576	6.3	0	6.3
AAQ7	11° 0'29.43"N 77°14'2.67"E	3814	-5322	7.0	0	7.0

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF NO_x

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NO _x (µg/m ³)	Incremental value due to mining (µg/m ³)	Total NO _x (µg/m ³)
AAQ1	11° 3'23.26"N 77°11'59.30"E	42	60	20.9	11.69	32.59
AAQ2	11° 3'6.48"N 77°11'51.19"E	-204	-454	24.1	0	24.1
AAQ3	11° 4'0.17"N 77°11'33.97"E	-735	1207	25.6	11.23	36.83
AAQ4	11° 2'38.25"N 77°14'29.10"E	4621	-1335	25.5	0	25.5
AAQ5	11° 5'4.08"N 77°12'38.61"E	1245	3188	23.2	0	23.2
AAQ6	11° 1'58.03"N 77° 9'53.51"E	-3800	-2576	24.1	0	24.1
AAQ7	11° 0'29.43"N 77°14'2.67"E	3814	-5322	25.2	0	25.2

TABLE 4.6: INCREMENTAL & RESULTANT GLC OF FUGITIVE DUST

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive (µg/m ³)	Incremental value due to mining (µg/m ³)	Total Fugitive Dust (µg/m ³)
AAQ1	11° 3'23.26"N 77°11'59.30"E	42	60	67.32	30	97.32
AAQ2	11° 3'6.48"N 77°11'51.19"E	-204	-454	66.28	0	66.28
AAQ3	11° 4'0.17"N 77°11'33.97"E	-735	1207	66.23	23	89.23
AAQ4	11° 2'38.25"N 77°14'29.10"E	4621	-1335	67.15	0	67.15
AAQ5	11° 5'4.08"N 77°12'38.61"E	1245	3188	65.21	0	65.21
AAQ6	11° 1'58.03"N 77° 9'53.51"E	-3800	-2576	65.08	0	65.08
AAQ7	11° 0'29.43"N 77°14'2.67"E	3814	-5322	65.64	0	65.64

From the resultant of cumulative concentration i.e., Background + Incremental Concentration of pollutant in all the receptor locations without effective mitigation measures are still within the prescribed NAAQ limits of 100, 80 & 80 µg/m³ for PM₁₀, SO₂ & NO_x respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.3.4. Mitigation Measures

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

Advantages of Wet Drilling: -

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

Blasting –

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e. at the time lunch hours, controlled charge per hole as well as charge per round of hole

- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored

Haul Road & Transportation –

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

Green Belt –

- 1600Nos of trees will be planted through this project in the lease area and village roads (Approach Road) to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas

Occupational Health –

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
- Ambient Air Quality Monitoring will be conducted six months once to assess effectiveness of mitigation measures proposed

4.4 NOISE ENVIRONMENT

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. These activities will not cause any problem to the inhabitants of this area because there is no human settlement within 300m radius from the project site. Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities.

Predictions have been carried out to compute the noise level at various distances around the working pit due to these major noise-generating sources. Noise modelling has been carried out to assess the impact on surrounding ambient noise levels.

Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves, which are propagated outwards from the source through the air at a speed of 1,100 ft/sec, with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A).

For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using model based on first principle.

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

Where:

L_{p1} & L_{p2} are sound levels at points located at distances r_1 & r_2 from the source.

$A_{e1, 2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

$$L_{p \text{ total}} = 10 \log \{10^{(L_{p1}/10)} + 10^{(L_{p2}/10)} + 10^{(L_{p3}/10)} + \dots\}$$

4.4.1 Anticipated Impact

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

- Source data
- Receptor data
- Attenuation factor

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

TABLE 4.7: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY

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

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

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

TABLE 4.8: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7
Maximum Monitored Value (Day) dB(A)	49.7	46.2	46.8	45.9	49.8	48.1	47.9
Incremental Value dB(A)	56.6	52.1	43.8	33.9	24.2	25.7	25.3
Total Predicted Noise level dB(A)	54.5	53.1	48.6	46.2	49.8	48.1	47.9

The incremental noise level is found within the range of 56.6 dB (A) in Core Zone and 24.2 to 52.1 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations are within permissible limits of Industrial area (core zone) & Residential area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

4.4.2 Mitigation Measures

The following noise mitigation measures are proposed for control of Noise

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders;

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

4.4.3 Ground Vibrations

Ground vibrations due to the proposed mining activities are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc., However, the major source of ground vibration from the quarry is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the proposed project areas is listed in below table. The ground vibrations due to the blasting in the quarry are calculated using the empirical equation.

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

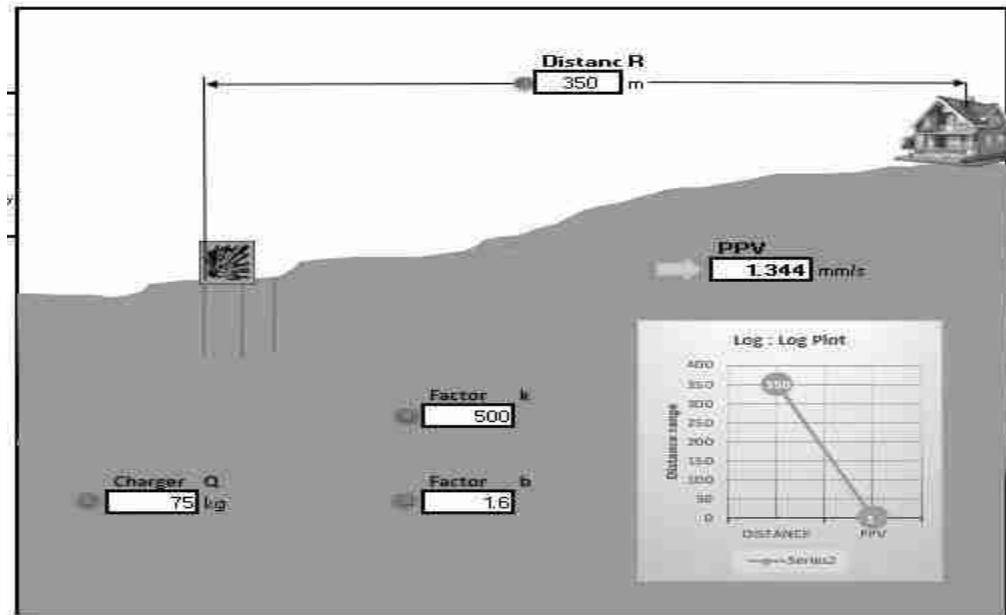
Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

TABLE 4.9: PREDICTED PPV VALUES DUE TO BLASTING

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	75	350-SW	1.344

FIGURE 4.6: GROUND VIBRATION PREDICTION

From the above graph, the charge per blast of 75kg is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. But the all the project proponents ensure that the charge per blast shall be less than 85 kg and carry out blasting twice or thrice a day based on the onsite conditions under the supervision of competent person employed. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3.1 Mitigation Measures

- It is proposed to carry out blasting operation 20kg per round so that the vibration will be minimal
- The mining operation will be carried out without deep hole drilling, 25mm small dia cartridge will be utilized for the blasting
- The blasting operations in the project site without deep hole drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting will be maintained as per DGMS guidelines;
- Blasting shelter will be provided as per DGMS guidelines;
- Blasting operations will be carried out only during day time;
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity will be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed.

-
- A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public.
 - The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used.
 - The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
 - Appropriate blasting techniques shall be adopted such that the predicted peak particle velocity shall not exceed 8 mm/s.
 - Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

4.5 IMPACT ON THE BIOLOGICAL ENVIRONMENT

4.5.1. Anticipated Impact on agricultural land associated with flora

1. Dust particle settle on neighbouring agricultural land & coconut farms it is located about 200m on the east side. Mostly dust emission from nearby crusher unit and during operation and minerals are transported in approach roads.
2. Dust deposition on leaf observed on nearby lease boundary local plant species which may result in decline the rate of photosynthesis and retards the plant growth.

4.5.2. Mitigation Measures

4.5.2.1. General Guidelines for Green Belt Development

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

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

4.5.3.2. Proposed Green Belt

Extensive green belt development will be started during the construction phase, which will continue till the operation of the plant. About 1600 trees will be planted per hectare all around the plant, approach roads, and township premises. Locally available types of trees that are resistant to pollutants will be planted. In addition to the above, all open spaces available within the premises will be developed as nurseries, parks, gardens, and other forms of greenery. 5 m wide greenbelt will be developed along the plant premises, as per land available.

4.5.3.3. Development of Green Belt

The plantation matrix adopted for the green belt development includes pit of 0.3 m x 0.3 m in size with a spacing of 2 m x 2 m. In addition, earth filling and manure may also be required for the proper nutritional balance and nourishment of the sapling. It is also recommended that the plantation has to be taken up randomly and the landscaping aspects could be taken into consideration. Multi-layered plantations comprising of medium height trees (7 m to 10 m) and shrubs (5 m height) are proposed for the green belt.

4.5.3.4. Selection of Plant Species for Green Belt Development

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

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

Table No 4.10. List of plant species proposed for Greenbelt development

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

(*Source: Term of Reference-ToR)

Table No 4.11. Species suitable for abatement of noise and dust pollution

S. No	Botanical name	Common name
1	<i>Azadirachta indica</i>	Vembhu maram

2	Ficus religiosa	Arasan maram
3	Ficus hispida	Aththi maram
4	Bombax ceiba	Mul Elavu
5	Syzygium cumini	Naval maram
6	Tamarindus indica	Puliyamaram
7	Mangifera indica	Manga maram
8	Harwickia binata	Anjan maram
9	Delonix regia	Neruppu Kondrai
10	Cassia Fistula	Sara Kondrai

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

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

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

4.5.4. Anticipated Impact on Fauna

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

4.5.4.1. Measures for protection and conservation of wildlife species

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

4.5.3. Impact on Aquatic Biodiversity

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

Table No. 4.12. Overall Ecological impact assessments of Ichipatti Village, Rough stone Quarry, Palladam Taluk, Tiruppur District and Tamil Nadu.

S.No	Attributes	Assessment
	Activities of the project affect the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in the mining lease site. The fauna sighted mostly migrated from the buffer area.
2	Located near an area populated by rare or endangered species	No Endangered, Critically Endangered, or vulnerable species were sighted in the core mining lease area.
3	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/ coastline/estuary/sea	Nil
4	The proposed project restricts access to waterholes for wildlife	'No '
5	Proposed mining project impact surface water quality that also provides water to wildlife	'No 'scheduled or threatened wildlife animals are sighted regularly core in the core area.
6	Proposed mining project increase siltation that would affect nearby biodiversity areas.	Surface runoff management such as drains is constructed properly so there will be no siltation effect in the nearby mining area.
7	Risk of fall/slip or cause death to wild animals due to project activities.	'No'
8	The project release effluents into a water body that also supplies water to a wildlife.	No water body near to core zone so the chances of water becoming polluted is low.
9	Mining projects affect the forest-based livelihood/ any specific forest product on which local livelihood depended.	'No'
10	The project likely to affect migration routes.	'No 'migration route was observed during the monitoring period.
11	The project is likely to affect the flora of an area, which have medicinal value	'No'
12	Forestland is to be diverted, has carbon high sequestration.	'No 'There was no forest land diverted.
13	The project is likely to affect wetlands, Fish breeding grounds, and marine ecology.	'No'. Wetland was not present in the near core Mining lease area. No breeding and nesting ground is present in the core mining area.

(*Source: EIA Guidance Manual-Mining and Minerals, 2010)

TABLE 4.13: RECOMMENDED SPECIES FOR GREENBELT DEVELOPMENT PLAN

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

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

TABLE 4.14: GREENBELT DEVELOPMENT PLAN

Year	No. of tress proposed to be planted	Area to be covered in m ²	Name of the species
I	1600	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Neem, Pongamia Pinnata etc.,

4.6 SOCIO ECONOMIC

4.6.1 Construction Phase

Anticipated Impacts:

- ♣ No. of people will get employment during the construction stage resulting in the ancillary development and growth. Nearby Local people will be given preference for employment on the basis of their skill and experience.
- ♣ Further due to proposed project, influx of working community will also generate an indirect employment through development of nearby market/ shops, trade centers, activities, transportation etc.
- ♣ Population influx during the construction phase can introduce various water and vector borne diseases which can lead to various unhygienic health problems in the area by disturbing the existing sanitation infrastructure.
- ♣ Rapid diverse population influx at the project site can create unusual behavioural activity such as worker-community conflicts, increase violence such as theft/ stabbing, and increased consumption of drugs/alcohol within the area.
- ♣ Impacts on the health of nearby villagers can be envisaged due to the transportation activities leading to short term exposure of fugitive dust, resulting in various acute diseases such as increased eye irritation, nausea, headache etc.

4.6.2 Mitigation measures:

- ♣ Deploying of mobile toilets or the construction of temporary toilets will be done near to the construction site with the adequate water supply.

- ♣ Awareness programme will be conducted before the monsoon season regarding the spread of water borne/ vector diseases.
- ♣ Mosquito repellents will be provided in the nearby villages and at construction site to avoid the spread of diseases.
- ♣ To overcome behavioural impact, proper site in charge with timely supervision will be done. In advance, facilities with equipped medical and safety services will be provided to take a control over the incident/violence if any caused.
- ♣ To overcome behavioural impact, supervision will be done by site in charge. In advance, emergency cell will be formed with fully equipped communication system, medical and safety services to take control over the incident/violence caused.

4.6.3 Operation Phase:

Anticipated Impacts:

- ♣ Long term exposure to the pollutants such as PM, SO₂ and NO₂ Cement dust have a potential to create health impacts such as risk of cardiovascular and respiratory disease, eye irritation, bronchitis, lung damage, increased heart ailments, etc.
- ♣ Other impacts, associated with the Proposed Rough stone and gravel quarry Project will create a positive impact as it will result in the overall development of the area in respect to the infrastructure development, educational growth, health facilities etc. as a part of the CSR activity.

Mitigation Measures:

- ♣ In order to mitigate the long-term health impacts, efficient Air Pollution Control Equipment (APCE) like Bag House / Bag Filter / ESP will be installed at all major stacks to keep the emissions within the permissible limits. To reduce the gaseous emission, Pyro-process itself acts as a long SO₂ scrubber and De - NO_x system will be installed for fuel burning along with calciner for low NO_x formation. To reduce fugitive emission from vehicles and machineries will be regularly monitored and maintained.
- ♣ For emergency, proposed to develop an occupational health center for its employees and nearby villagers.

4.6.4 Impact Evaluation:

Table 4.15 Impact Evaluation

Impact Evaluation Element	Impact on socio economics due to the Proposed project Thiru. S.A. Ramachandran Rough Stone and Gravel quarry 12.45.0 Ha, Ichipatti Village, Palladam Taluk, Tiruppur District.
Potential Effect/ Concern	Proposed project will provide direct & indirect employment opportunities to the local residents, which will help to increase their earning and better living standard as well as further up-liftment of socio-economic status of the area.
Characteristics of Impacts	

Nature	Positive		Negative	Neutral
	✓			
Type	Direct	Indirect	Cumulative	
Extent	Project area	Local	Zonal	Regional
	✓			
Duration	Short time		Long term	
			✓	
Intensity	Low		Medium	High
			✓	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
				✓
Significance of Impact				
Significance	Insignificant	Minor	Moderate	Major
			✓	

4.7 OCCUPATIONAL HEALTH AND SAFETY

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

- Respiratory hazards
- Noise
- Physical hazards
- Explosive storage and handling

4.7.1 Respiratory Hazards

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

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

4.7.2 Noise

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

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

4.7.3 Physical Hazards

The following measures are proposed for control of physical hazards

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

4.7.4 Occupational Health Survey

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

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

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment. First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

4.8 MINE WASTE MANAGEMENT

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

4.9 MINE CLOSURE

The ultimate depth of the mine is 45m bgl and the life of the mine is 5years, after completion of mining operation the following action will be taken in the project site as a part of Mine closure plan

- The total Mined out land would be around 2.70.0Ha this land will be converted into temporary water reservoir which will facilitate to collect the rain water
- The stagnant water will be supplied to the nearby agriculture land during drought seasons
- Fencing will be re constructed around the pit after closure, the warning/ danger display board will be placed on all the sides of the project site
- The un utilized area and haul roads will be converted as plantation area, fruit bearing trees will be planted to retain the eco system of the area
- Final Mine closure plan will be prepared and submitted to the concerned authority

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

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

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

- To create a productive and sustainable after-use for the site, acceptable to mine owners, regulatory agencies, and the public
-

-
- To protect public health and safety of the surrounding habitation
 - To minimize environmental damage
 - To conserve valuable attributes and aesthetics
 - To overcome adverse socio-economic impacts.

4.9.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

4.9.1.1 Physical Stability

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

4.9.1.2 Chemical Stability

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

4.9.1.3 Biological Stability

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

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

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

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

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 INTRODUCTION

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

5.1 FACTORS BEHIND THE SELECTION OF PROJECT SITE

The surrounding areas already undergone quarrying operation, there are 4-5 Crushers within the radius of 1km. Most of the quarries in the regions are Existing quarries. Hence this quarry will feed the rough stone material to the crushing units.

The Rough Stone and Gravel Quarry Project for excavation of Rough Stone, which is site specific. The proposed mining lease areas have following advantages: -

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

5.2 ANALYSIS OF ALTERNATIVE SITE

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

5.3 FACTORS BEHIND SELECTION OF PROPOSED TECHNOLOGY

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

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working is preferred over underground method
- The material will be loaded with the help of excavators into dumpers / trippers and transported to the needy customers.
- Blasting and availability of drills along with controlled blasting technology gives desired fragmentation so that the mineral is handled safely and used without secondary blasting.
- Semi-skilled labours fit for quarrying operations are easily available around the nearby villages.

5.4 ANALYSIS OF ALTERNATIVE TECHNOLOGY

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

6. ENVIRONMENTAL MONITORING PROGRAMME

6.0 GENERAL

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

6.1 METHODOLOGY OF MONITORING MECHANISM

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

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

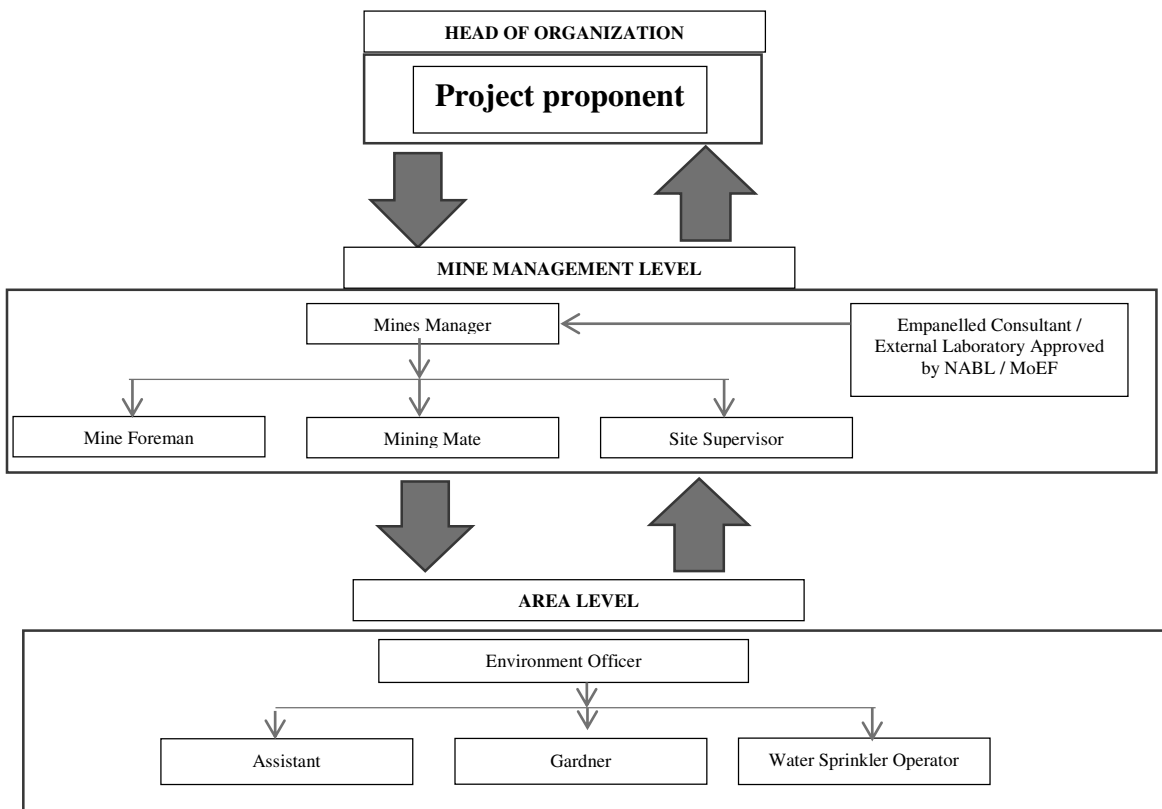
The responsibilities of this cell will be:

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

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

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

FIGURE 6.1: PROPOSED ENVIRONMENTAL MONITORING CELL



6.2 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

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

TABLE 6.1 IMPLEMENTATION SCHEDULE

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

6.3 MONITORING SCHEDULE AND FREQUENCY

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

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

The details of monitoring are detailed in Table 6.2

TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC FOR P1

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 bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	L eq, L max, L min, L eq Day & L eq Night
6	Vibration	At the nearest habitation (in case of reporting)	-	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	-	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

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

6.4 BUDGETARY PROVISION FOR EMP

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

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

TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET

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

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

Source: Approved Mining Plan

6.5 REPORTING SCHEDULES OF MONITORED DATA

The monitored data on air quality, water quality, noise levels and other environmental attributes will be periodically examined by the Cluster Mine Management Coordinator and Respective Head of Organization for taking necessary corrective measures. The monitoring data will be submitted to Tamil Nadu State Pollution Control Board in the Compliance to CTO Conditions & environmental audit statements every year to MoEF & CC and Half-Yearly Compliance Monitoring Reports to MoEF & CC Regional Office and SEIAA.

Periodical reports to be submitted to: -

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

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

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

7. ADDITIONAL STUDIES

7.0 GENERAL

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

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

7.1. PUBLIC CONSULTATION

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

7.2 RISK ASSESSMENT

The methodology for the risk assessment has been based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad, vide Circular No.13 of 2002, dated 31st December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities.

The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad for all proposed projects. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening.

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

TABLE 7.1 RISK ASSESSMENT& CONTROL MEASURES

S. No	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations; Workers will be sent to the Training in the nearby Group Vocational Training Centre Entry of unauthorized persons will be prohibited; Fire-fighting and first-aid provisions in the mine office complex and mining area; Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use

			<p>Working of quarry, as per approved plans and regularly updating the mine plans;</p> <p>Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut;</p> <p>Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager;</p> <p>Maintenance and testing of all mining equipment as per manufacturer 's guidelines.</p>
2	Drilling	<p>Improper and unsafe practices</p> <p>Due to high pressure of compressed air, hoses may burst</p> <p>Drill Rod may break</p>	<p>Safe operating procedure established for drilling (SOP) will be strictly followed.</p> <p>Only trained operators will be deployed.</p> <p>No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places,</p> <p>Drilling shall not be carried on simultaneously on the benches at places directly one above the other.</p> <p>Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual.</p> <p>All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition.</p> <p>Operator shall regularly use all the personal protective equipment.</p>
4	Blasting	<p>Fly rock, ground vibration, Noise and dust.</p> <p>Improper charging, stemming & Blasting/fining of blast holes</p> <p>Vibration due to movement of vehicles</p>	<p>Restrict maximum charge per delay as per regulations and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blasting can be conducted safely.</p> <p>SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation shots are fired during daytime only.</p> <p>All holes charged on any one day shall be fired on the same day. The danger zone will be distinctly demarcated (by means of red flags)</p>
5	Transportation	<p>Potential hazards and unsafe workings contributing to accident and injuries</p> <p>Overloading of material</p> <p>While reversal & overtaking of vehicle</p> <p>Operator of truck leaving his cabin when it is loaded.</p>	<p>Before commencing work, drivers personally check the dumper/truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition.</p> <p>Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle.</p> <p>Concave mirrors should be kept at all corners</p> <p>All vehicles should be fitted with reverse horn with one spotter at every tipping point.</p> <p>Loading according to the vehicle capacity</p> <p>Periodical maintenance of vehicles as per operator manual</p>
6	Natural calamities	Unexpected happenings	<p>Escape Routes will be provided to prevent inundation of storm water</p> <p>Fire Extinguishers & Sand Buckets</p>

7	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.
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Source: Analysed and Proposed by FAE & EC

7.3 DISASTER MANAGEMENT PLAN

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

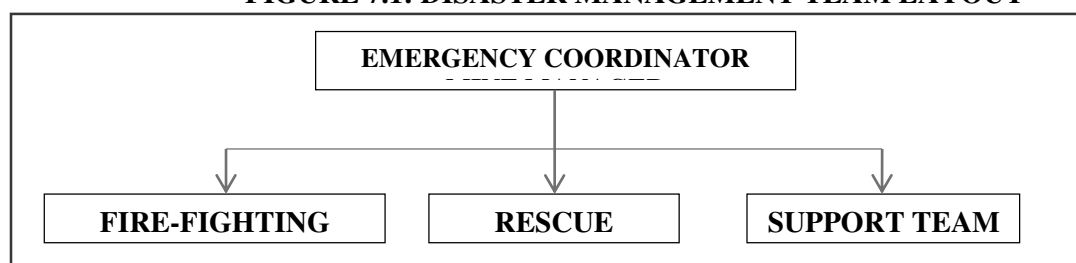
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

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

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

FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT



The emergency organization shall be headed by emergency coordinator who will be qualified competent mine manager. In his absence senior most people available at the mine shall be emergency coordinator till arrival of mine manager. There would be three teams for taking care of emergency situations – Fire-Fighting Team, Rescue Team and Support Team. The proposed composition of the teams is given in Table 7.2.

TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION

DESIGNATION	QUALIFICATION
FIRE-FIGHTING TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member	Mines Foreman
Team Member	Mining Mate

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

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

Roles and responsibilities of emergency team –

(a) Emergency coordinator (EC)

The emergency coordinator shall assume absolute control of site and shall be located at MECR.

(b) Incident controller (IC)

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

(c) Communication and advisory team

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

(d) Roll call coordinator

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

(e) Search and rescue team

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

(f) Emergency security controller

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

Emergency control procedure –

The onset of emergency, will in all probability, commence with a major fire or explosion or collapse of wall along excavation and shall be detected by various safety devices and also by members of operational staff on duty. If located by a staff member on duty, he (as per site emergency procedure of which he is adequately briefed) will go to nearest alarm call point, break glass and trigger off the alarms. He will also try his best to inform about location and nature of accident to the emergency control room. In accordance with work emergency procedure the following key activities will immediately take place to interpret and take control of emergency.

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

Proposed fire extinguishers at different locations –

The following type of fire extinguishers has been proposed at strategic locations within the mine.

TABLE 7.3: PROPOSED FIRE EXTINGUISHERS AT DIFFERENT LOCATIONS

LOCATION	TYPE OF FIRE EXTINGUISHERS
Electrical Equipment's	CO ₂ type, foam type, dry chemical powder type
Fuel Storage Area	CO ₂ type, foam type, dry chemical powder type, Sand bucket
Office Area	Dry chemical type, foam type

Alarm system to be followed during disaster –

On receiving the message of disaster from Site Controller, fire-fighting team, the mine control room attendant will sound siren wailing for 5 minutes. Incident controller will arrange to broadcast disaster message through public address system. On receiving the message of "Emergency Over" from Incident Controller the emergency control room attendant will give "All Clear Signal", by sounding alarm straight for 2 minutes.

7.4 CUMULATIVE IMPACT STUDY

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

TABLE 7.4: LIST OF QUARRIES WITHIN 500 METER RADIUS

PROPOSED QUARRIES					
Code	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru.S. A. Ramachandran	Ichipatti	220/1A, 220/1C& 223/2F	3.21.5	Lr No.SEIAA-T.N/F.No.9652/SEAC/1(a)ToR-1648/2023 Dated:09.01.2024
P2	Thiru.S. A. Ramachandran	Ichipatti	223/2C, 223/2A& 223/1B	1.64.0	Nearby Applied Area
TOTAL EXTENT				4.85.5	
EXISTING QUARRIES					
Code	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	Thiru.M. Thangavel	Ichipatti	208/1,2,3	1.52.0	EC granted Lr.No.SEIAA-TN/F.No.6913/1(a)/EC.No: 4957/2021 dated: 02.02.2022
E-2	Thiru.S.P. Palanisamy	Ichipatti	221/1B, 223/2E2	1.87.5	EC granted Lr.No.SEIAA-TN/F.No.6923/EC.No: 4911/2020 dated: 03.11.2021
E-3	Tmt.R. Gowri @ Baby	Ichipatti	206/1	157.5	EC granted Lr.No.SEIAA-TN/F.No.6924/EC.No: 4958/2020 dated: 28.01.2022
E-4	Thiru.M. Muthu rathinam	Ichipatti	215/4A, 3A	1.81.5	EC granted Lr.No.SEIAA-TN/F.No.7981/EC.No: 4956/2020 dated: 28.01.2022
E-5	Thiru.C. Rakkiappan	Ichipatti	216/2B2	0.81.0	EC granted Lr.No.SEIAA-TN/F.No.7215/EC.No: 4912/2020 dated: 03.11.2021
TOTAL EXTENT				7.59.5	
ABANDONED / EXPIRED QUARRIES					
Code	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
A-1	C. Thangaraj	Ichipatti	207/1A(P)	1.92.0	13.10.2017-12.10.2022

	TOTAL EXTENT	1.92.0	
	TOTAL CLUSTER EXTENT	12.45.0Ha	

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

TABLE 7.5: SALIENT FEATURES OF PROPOSAL “P1”

Name of the Project	Thiru. S.A. Ramachandran Rough stone and Gravel quarry		
S.F. No.	220/1A, 220/1C & 223/2F		
Extent	3.21.5 ha		
Village Taluk and District	Ichipatti Village, Palladam Taluk, Tiruppur District.		
Land Type	Proponent own patta land		
Land Ownership	It is a Patta lands. Registered in the name of the applicant (Thiru. S.A. Ramachandran), vide Patta Nos. 1611 & 1365.		
Existing quarry operation	Lessee Name – Thiru. S. A. Ramachandran Lease Period: 23.09.2016 to 22.09.2021 S.F.Nos: 220/1A & 223/2F Extent: 2.02.5 Ha Rc.No. 430/Mines/2015, Dated: 23.09.2016 Lease Period: 23.09.2016 to 22.09.2021 EC: SEIAA-TN/F.No.5480/1(a)/EC. No:3543/2016, Dated: 10.08.2016 S.F.No: 220/1C Extent: 1.19.0Ha Rc.No. 41/Mines/2016, Dated: 23.09.2016 EC: SEIAA-TN/F.No.5481/1(a)/EC. No:3541/2016, Dated: 10.08.2016		
Explosive certificate	Selva Nandhini Explosives and Chemicals Licence No-E/SC/TN/22/654(E85920)		
Toposheet No	58 - E/04		
Latitude between	11° 03' 16.64"N to 11° 03' 24.76"N		
Longitude between	77° 11' 53.17"E to 77° 12' 00.98"E		
Elevation of the area	355m(Max) AMSL		
Lease period	5 Years		
Mining Plan period	5 years		
Proposed Depth of Mining	45m Bgl		
	Rough Stone in m ³	Weathered Rock in m ³	Gravel m ³
Geological Resources	6,62,765	9,162	6,108
Mineable Reserves	2,57,985	4,611	3,584
Year wise Production	2,57,985	4,611	3,584
Peak Production	53,850	4,611	3,584
Ultimate Pit Dimension	Pit I: 202m(L) x 158m(W) x 45m(D) Bgl Pit II: 65m(L) x 42m(W) x 30m(D) Bgl		
Existing Pit Dimension	Pit I: 202m(L) x 158m(W) x 30m(D) Bgl Pit II: 65m(L) x 42m(W) x 21m(D) Bgl		
Water Level in the region	58-62 m bgl		
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives		
Topography	The lease applied area is exhibits plain topography. The area has gentle sloping towards Northeastern side. The altitude of the area is 355m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation and 3m of Weathered Rock. Massive Charnockite is found after 5m (2m Gravel + 3m Weathered Rock) which is clearly inferred from the existing quarry pits.		
Machinery proposed	Jack Hammer	6 Nos	
	Compressor	2 Nos	

	Excavator with Bucket and Rock Breaker	1 No
	Tippers	3 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	28 Nos	
Project Cost	Rs.70,21,000/-	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs. 74,01,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Odai	320m_NW
	Samalapuram Lake	1.6Km_N
	Noyyal River	2.5Km_NW
	Sulur Lake	7.6Km_SW
	Kowshika River	9.2Km_NE
Greenbelt Development Plan	Proposed to plant 1600Nos of trees considering 500 Nos of trees/ Ha criteria. The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	1.4 KLD	
Nearest Habitation	350m – South West	
Nearest Reserve Forest	Thadagam Block IV R.F – 32.0 km - West	
Nearest Wild Life Sanctuary	Sathiyamangalam Tiger Reserve – 46.0km - NW	

Source: Approved Mining Plan

TABLE 7.6: SALIENT FEATURES OF PROPOSAL “E1”

Name of the Project	Thiru.M. Thangavel Rough stone and Gravel quarry	
EC granted	Lr.No.SEIAA-TN/F.No.6913/l(a)/EC.No: 4957/2021 dated: 02.02.2022	
S.F. No.	208/1,2,3	
Extent	1.52.0 ha	
Village Taluk and District	Ichipatti Village, Palladam Taluk, Tiruppur District.	
Land Type	Proponent own patta land	
Land Ownership	It is a Patta land. Registered in the name of applicant (Thiru. M. Thangavel), vide Patta No.1537	
Existing quarry operation	It is a fresh lease application.	
Toposheet No	58 - E/04	
Latitude between	11°03'25.40"N to 11°03'28.72"N	
Longitude between	77°12'09.91"E to 77°12'17.08"E	
Elevation of the area	358m AMSL	
Lease period	5 Years	
Mining Plan period	5 years	
Depth of Mining	32m	
Production Quantity	125710m ³ of Roughstone and 16510m ³ of Gravel	
Ultimate Pit Dimension	Pit I : 195m(L) x 63m(B) x 37m(D) below ground level	
Water Level in the region	45-50 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is exhibits plain terrain. The area has gentle sloping towards Northeastern side. The altitude of the area is 358m (max) above Mean sea level. The area is covered by the Gravel formation which is about 2m thickness. Massive Charnockite is found after 2m (Gravel) which is clearly inferred from the existing quarry pits.	
Machinery proposed	Jack Hammer	4Nos

	Compressor	1 No
	Excavator with Bucket and Rock Breaker	1Nos
	Tippers	2 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	18 Nos	
Project Cost	Rs.50,35,040/-	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs.54,15,040/-	
CER Cost	Rs. 5,00,000/-	
Greenbelt Development Plan	Proposed to plant 760Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	4.0 KLD	
Nearest Habitation	800m - E	

Source: Approved Mining Plan

TABLE 7.7: SALIENT FEATURES OF PROPOSAL “E2”

Name of the Project	Thiru.S.P. Palanisamy Rough stone and Gravel quarry	
EC granted	Lr.No.SEIAA-TN/F.No.6923/EC.No: 4911/2020 dated: 03.11.2021	
Explosive certificate	Selva Nandhini Explosives and Chemicals Licence No- E/SC/TN/22/654(E85920)	
S.F. No.	221/1B, 223/2E2	
Extent	1.87.5 ha	
Village Taluk and District	Ichipatti Village, Palladam Taluk, Tiruppur District.	
Land Type	Proponent own patta land	
Land Ownership	It is a Patta land. Registered in the name of applicant (S.P. Palanisamy), vide Patta No.1191.	
Existing quarry operation	It is a fresh application; the area has been quarrying in earlier.	
Toposheet No	58 - E/04	
Latitude between	11°03'23.67"N to 11°03'29.41"N	
Longitude between	77°11'55.84"E to 77°12'03.60"E	
Elevation of the area	356m AMSL	
Lease period	5 Years	
Scheme of Mining period	5 years	
Depth of Mining	37m	
	Rough Stone in m ³	Gravel m ³
Approved Quantity	181905m ³	10794m ³
Ultimate Pit Dimension	Pit I : 130m(L) x 16m(B) x 12m(D) below ground level Pit II : 140m(L) x 81m(B) x 42m(D) below ground level	
Water Level in the region	50-45 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is exhibits Plain topography. The area has gentle sloping towards Northeastern side. The altitude of the area is 356m (Max) above Mean sea level. The area is covered by the Gravel formation. The Gravel formation is about 2.0m. Massive charnockite is found after 2.0m (Gravel formation) which is clearly inferred from the existing quarrying pits.	
Machinery proposed	Jack Hammer	4Nos
	Compressor	1 No

	Excavator with Bucket and Rock Breaker	1Nos
	Tipplers	2 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	20Nos	
Project Cost	Rs. 64,36,945	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs. 68,16,945	
CER Cost	Rs. 5,00,000/-	
Greenbelt Development Plan	Proposed to plant 950Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	3.73 KLD	
Nearest Habitation	580m-W	

Source: Approved Mining Plan

TABLE 7.8: SALIENT FEATURES OF PROPOSAL “E3”

Name of the Project	R. Gowri @ Baby Rough stone and Gravel quarry	
EC granted	Lr.No. SEIAA-TN/F.No.6924/EC. No:4958/2020 dated: 28.01.2022	
S.F. No.	206/1	
Extent	1.57.5 ha	
Village Taluk and District	Ichipatti Village, Palladam Taluk, Tiruppur District.	
Land Type	Proponent own patta land	
Land Ownership	It is a Patta land, registered name of the (R. Gowri @ Baby) Vide patta No 1516	
Existing quarry operation	It is a fresh lease application.	
Toposheet No	58 - E/04	
Latitude between	11° 03' 33.50"N to 11° 03' 37.44"N	
Longitude between	77° 12' 01.39"E to 77° 12' 06.81"E	
Elevation of the area	355m AMSL	
Lease period	5 Years	
Mining Plan period	5 years	
Proposed Depth of Mining	48m Bgl (3m gravel +45m Roughstone)	
	Rough Stone in m ³	Gravel m ³
Approved Quantity	13410 m ³	62,167 m ³
Ultimate Pit Dimension	Pit I: 129m(L) x 49m(B) x 22m(D) Bgl	
Water Level in the region	50-45 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is a Plain terrain. The area has gentle sloping towards North-eastern side and altitude of the area is 355m (max) above from Mean Sea level. The area is covered by 2m thickness of Gravel, 3m thickness of weathered rock and followed by Massive Charnockite which is found after 3m(Gravel) which is clearly inferred from the existing quarry pits.	
Machinery proposed	Jack Hammer	2Nos
	Compressor	1 No
	Excavator with Bucket and Rock Breaker	1Nos
	Tipper	1 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	

Proposed Manpower Deployment	14 Nos
Project Cost	Rs. 53,86,825/-
EMP Cost	Rs. 3,80,000/-
Total Project cost	Rs. 57,66,825/-
CER Cost	Rs. 5,00,000/-
Greenbelt Development Plan	Proposed to plant 800Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads
Proposed Water Requirement	3.5 KLD
Nearest Habitation	850m-SW

Source: Approved Mining Plan

TABLE 7.9: SALIENT FEATURES OF PROPOSAL “E4”

Name of the Project	Thiru.M. Muthurathinam Rough stone and Gravel quarry	
EC granted	Lr.No. SEIAA-TN/F.No.7981/EC. No:4956/2020 dated: 28.01.2022	
S.F. No.	215/4A, 3A	
Extent	1.81.5 ha	
Village Taluk and District	Ichipatti Village, Palladam Taluk, Tiruppur District.	
Land Type	Proponent own patta land	
Land Ownership	It is a Patta land, registered name of the (R.Gowri @ Baby) Vide patta No 1516	
Existing quarry operation	It is a fresh lease application but, the applied area has been considered quarrying operation earlier. The quarry lease was first granted in favour of Thiru. M. Muthurathinam, S/o. Mayilsamy, over an extent of 1.81.5 hectares of Patta lands in S.F.No's. 215/4 & 215/3A of Ichipatti village, Palladam Taluk, Tiruppur District vide Rc.No. 751/Mines/2010, dated: 17.12.2010 for the period of five years from 17.12.2010 to 16.12.2015 for quarrying of Rough stone and Gravel. The quarry lease was Second time granted in favour of Thiru. M. Muthurathinam, S/o. Mayilsamy, over an extent of 1.81.5 hectares of Patta lands in S.F.No's. 215/4 & 215/3A of Ichipatti Village, Palladam Taluk, Tiruppur District vide Rc.No.177/Mines/2015, dated 31.12.2015 for the period of five years form 09.01.2016 to 08.01.2021 for quarrying of Rough stone and Gravel. Now the lessee has applied a quarry lease on 23.03.2020 for the period of five years over an extent of 1.81.5ha.	
Toposheet No	58 - E/04	
Latitude between	11°03'04.53"N to 11°03'10.68"N	
Longitude between	77°12'04.89"E to 77°12'10.58"E	
Elevation of the area	363m AMSL	
Lease period	5 Years	
Mining Plan period	5 years	
Proposed Depth of Mining	32m Bgl	
Approved Quantity	Rough Stone in m ³ 59,525 m ³	Gravel m ³ 20,480 m ³
Ultimate Pit Dimension	116m(L) x 108m(B) x 47m(D) Bgl	
Existing Pit Dimension	125m(L) x 90m(B) x 18m(D) Bgl	
Water Level in the region	62-58m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is exhibits Flat topography. The area has gentle sloping towards Eastern side. The altitude of the area is 363m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation. Massive Charnockite is found after 2m (Gravel formation) which is clearly inferred from the existing quarrying pit.	
Machinery proposed	Jack Hammer	2Nos
	Compressor	1 No

	Excavator with Bucket and Rock Breaker	1Nos
	Tipper	1 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	14 Nos	
Project Cost	Rs. 41,59,000/-	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs. 45,39,000/-	
CER Cost	Rs. 5,00,000/-	
Greenbelt Development Plan	Proposed to plant 910 Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	3.73 KLD	
Nearest Habitation	310m-SE	

Source: Approved Mining Plan

TABLE 7.10: SALIENT FEATURES OF PROPOSAL “E5”

Name of the Project	Thiru.C. Rakkiappan Rough stone and Gravel quarry	
EC granted	Lr.No. SEIAA-TN/F.No.7215/EC.No: 4912/2020 dated: 03.11.2021	
S.F. No.	216/2B2	
Extent	0.81.0 ha	
Village Taluk and District	Ichipatti Village, Palladam Taluk, Tiruppur District.	
Land Type	Proponent own patta land	
Land Ownership	It is a Patta land, registered name of the (Thiru.C. Rakkiappan) vide patta No 1866.	
Existing quarry operation	It is a fresh lease application.	
Toposheet No	58 - E/04	
Latitude between	11° 03' 04.01"N to 11° 03' 08.73"N	
Longitude between	77° 12' 02.14"E to 77° 12' 04.27"E	
Elevation of the area	355m AMSL	
Lease period	5 Years	
Mining Plan period	5 years	
Proposed Depth of Mining	22m Bgl	
	Rough Stone in m ³	Gravel m ³
Approved Quantity	40,900 m ³	7,410 m ³
Ultimate Pit Dimension	95m(L) x 39m(B) x 22m(D) Bgl	
Water Level in the region	50-45 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is a Plain terrain. The area has gentle sloping towards North-eastern side and altitude of the area is 362m (max) above from Mean Sea level. The area is covered by 2m thickness of Gravel, 3m thickness of weathered rock and followed by Massive Charnockite which is found after 3m(Gravel) which is clearly inferred from the existing quarry pits.	
Machinery proposed	Jack Hammer	2Nos
	Compressor	1 No
	Excavator with Bucket and Rock Breaker	1Nos
	Tipper	1 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	12Nos	
Project Cost	Rs. 53,86,825/-	

EMP Cost	Rs. 3,80,000/-
Total Project cost	Rs. 57,66,825/-
CER Cost	Rs. 5,00,000/-
Greenbelt Development Plan	Proposed to plant 400Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads.
Proposed Water Requirement	2.3 KLD
Nearest Habitation	365m-SW

Source: Approved Mining Plan

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

Air Environment –

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

TABLE 7.11: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE

Quarry	Production for five-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1	2,57,985	51,597	172	12
Total	2,57,985	51,597	172	12
E1	125710	25142	84	7
E2	181905	36,381	121	10
E3	13410	2,682	9	1
E4	59,525	11,905	40	3
E5	40,900	8,180	27	2
Total	4,21,450	84,290	281	23
Grand Total	6,79,435	1,35,887	453	35

TABLE 7.12: CUMULATIVE PRODUCTION LOAD OF GRAVEL

Quarry	Production for one / three-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1	3,584	3,584	12	1
Total	3,584	3,584	12	1
E1	16,510	5,503	18	2
E2	10,794	3,598	12	1
E3	62,167	20,722	69	6
E4	20,480	6,827	23	2
E5	7,410	2,470	8	1
Total	1,17,361	39,120	130	11
Grand Total	1,20,945	42,704	142	12

TABLE 7.13: CUMULATIVE PRODUCTION LOAD OF WEATHRED ROCK

Quarry	Production for one year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1	4,611	4,611	15	1
Total	4,611	4,611	15	1

On a cumulative basis considering the proposed quarry, it can be seen that the overall production of Rough Stone is 172m³ per day and overall production of Gravel is 12 m³ per day with a capacity of 12rips of Rough Stone per day and 1Trips per day of Gravel from the cluster.

Note: Per day production of Rough Stone is calculated for 5 Years Lease Period and for Gravel and weathered rock production with 1 or 3 years of production period. And the load of existing quarries is covered under existing environment of the cluster.

Based on the above production quantities the emissions due to various activities in all mines includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.14.

TABLE 7.14: EMISSION ESTIMATION FROM CLUSTER QUARRIES WITHIN 500 METER RADIUS

EMISSION ESTIMATION FOR QUARRY “P1”				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.085816323	g/s
	Blasting	Point Source	0.001125807	g/s
	Mineral Loading	Point Source	0.041990717	g/s
	Haul Road	Line Source	0.002491073	g/s/m
	Overall Mine	Area Source	0.062836506	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000644729	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000044886	g/s
EMISSION ESTIMATION FOR QUARRY “E1”				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.070151617	g/s
	Blasting	Point Source	0.000410963	g/s
	Mineral Loading	Point Source	0.040018016	g/s
	Haul Road	Line Source	0.002487668	g/s/m
	Overall Mine	Area Source	0.045925490	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.00036078	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000012684	g/s
EMISSION ESTIMATION FOR QUARRY “E2”				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.079151983	g/s
	Blasting	Point Source	0.000751490	g/s
	Mineral Loading	Point Source	0.041154605	g/s
	Haul Road	Line Source	0.002489449	g/s/m
	Overall Mine	Area Source	0.050311742	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000495456	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000021140	g/s
EMISSION ESTIMATION FOR QUARRY “E3”				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.035535927	g/s
	Blasting	Point Source	0.000013707	g/s
	Mineral Loading	Point Source	0.038682461	g/s
	Haul Road	Line Source	0.002486083	g/s/m
	Overall Mine	Area Source	0.046209504	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000223263	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000008062	g/s
EMISSION ESTIMATION FOR QUARRY “E4”				

	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.060829329	g/s
	Blasting	Point Source	0.000201456	g/s
	Mineral Loading	Point Source	0.038605263	g/s
	Haul Road	Line Source	0.002486005	g/s/m
	Overall Mine	Area Source	0.048980782	g/s
	Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000252885
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000010385	g/s
EMISSION ESTIMATION FOR QUARRY "E5"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.049321908	g/s
	Blasting	Point Source	0.000070601	g/s
	Mineral Loading	Point Source	0.035765516	g/s
	Haul Road	Line Source	0.00248395	g/s/m
	Overall Mine	Area Source	0.035201641	g/s
	Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000110276
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000002180	g/s

Source: Emission Calculation

TABLE 7.15: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM ₁₀ in µg/m ³	
Background	45.8
Incremental	15.25
Resultant	61.05
NAAQ Norms	100 µg/m³
PM _{2.5} in µg/m ³	
Background	22.2
Incremental	8.30
Resultant	30.5
NAAQ Norms	60 µg/ m³
So ₂ in µg/m ³	
Background	6.3
Incremental	2.20
Resultant	8.5
NAAQ Norms	80 µg/ m³
No ₂ in µg/m ³	
Background	25.6
Incremental	11.23
Resultant	36.83
NAAQ Norms	80 µg/ m³

Noise Environment –

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. Cumulative Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities. Predictions have been carried out to compute the noise level at various distances around the different quarries within the 500 m radius.

For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using model based on first principle.

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

Where:

L_{p1} & L_{p2} are sound levels at points located at distances r_1 & r_2 from the source.

$A_{e1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

$$L_{p\text{total}} = 10 \log \{10^{(L_{p1}/10)} + 10^{(L_{p2}/10)} + 10^{(L_{p3}/10)} + \dots\}$$

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

Source data has been computed taking into account of all the machinery and activities used in the mining process.

TABLE 7.16: PREDICTED NOISE INCREMENTAL VALUES FROM QUARRY

Location ID	N1	N2	N3	N4	N5	N6	N7
Maximum Monitored Value (Day) dB(A)	49.7	46.2	46.8	45.9	49.8	48.1	47.9
Incremental Value dB(A)	56.6	52.1	43.8	33.9	24.2	25.7	25.3
Total Predicted Noise level dB(A)	54.5	53.1	48.6	46.2	49.8	48.1	47.9

Source: Lab Monitoring Data

The incremental noise level is found within the range of 24.2 to 52.1 (Buffer zone) – 56.6 dB (A) in Core zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O.123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment(Protection) Act, 1986).

Ground Vibrations

Ground vibrations due to mining activities in the all the 6 Mines within cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from the all the 6 mines is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements nearby the mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from 6 mines respectively are as in below Table 7.17.

TABLE 7.17: NEAREST HABITATION FROM CLUSTER QUARRIES

Location ID	Distance & Direction
Habitation Near P1	350m-SW
Habitation Near E1	800m - E
Habitation Near E2	580m-W
Habitation Near E3	850m-SW
Habitation Near E4	310m-SE
Habitation Near E5	365m-SW

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

TABLE 7.18: GROUND VIBRATIONS AT CLUSTER QUARRIES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	75	350m-SW	1.344
E1	36	800m - E	0.199
E2	53	580m-W	0.454
E3	4	850m-SW	0.031
E4	17	310m-SE	0.498
E5	12	365m-SW	0.290

Source: Blasting Calculations

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

Socio Economic Environment –

The 6 mines shall contribute towards CER and the community shall develop.

TABLE 7.19: SOCIO ECONOMIC BENEFITS FROM CLUSTER QUARRIES

Location ID	Project Cost	CER
P1	Rs.70,21,000/-	Rs.5,00,000
E1	Rs.50,35,040/-	Rs.5,00,000
E2	Rs. 64,36,945/-	Rs.5,00,000
E3	Rs. 53,86,825/-	Rs.5,00,000
E4	Rs. 41,59,000/-	Rs.5,00,000
E5	Rs. 53,86,825/-	Rs.5,00,000
Total	Rs. 3,34,25,635/-	Rs.30,00,000

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

- Proposed Projects shall fund towards CER – Rs 5,00,000/-
- Existing Projects shall fund towards CER- Rs.25,00,000/-

TABLE 7.20: EMPLOYMENT BENEFITS FROM CLUSTER QUARRIES

Description	Employment
P1	28
Total	28
E1	18
E2	20
E3	14
E4	14
E5	12
Total	78
Grand Total	106

A total of 28 people will get employment due to one proposed mines in cluster and 78 people are already employed at existing mines.

TABLE 7.21: GREENBELT DEVELOPMENT BENEFITS FROM CLUSTER QUARRIES

CODE	No of Trees proposed to be planted	Survival %	Area Covered Sq.m	Name of the Species
P1	1600	80%	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development	Neem, Causarina Pongamia, etc.,
Total	1600			
E1	760			
E2	950			
E3	800			
E4	910			
E5	410			
Total	3,830			
G. Total	5,430			

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Causarina etc., in the Cluster at a rate of 5,430 Trees Planted over a period of 5 Years with Survival Rate of 80%.

7.5 PLASTIC WASTE MANAGEMENT PLAN

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

Objective –

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

TABLE 7.22: ACTION PLAN TO MANAGE PLASTIC WASTE

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

Source: Proposed by FAE's and EC

8. PROJECT BENEFITS

8.0 GENERAL

The Proposed Project for Quarrying Rough Stone and gravel at Ichipatti Village aims to produce about 2,57,985m³ Rough Stone over a period of 5 Years and Gravel 3,584m³ and Weathered Rock 4,611 m³ for period of One year. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits.

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

8.1 EMPLOYMENT POTENTIAL

It is proposed to provide employment to about 28 persons for carrying out mining operations and give preference to the local people in providing employment in the one proposed quarry in the cluster. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc. the economic status of the local people will be enhanced due to mining project.

8.2 SOCIO-ECONOMIC WELFARE MEASURES PROPOSED

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

8.3 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

The proposed quarry is located in Ichipatti Village, Palladam Taluk, Tiruppur District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to proposed mine.

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

8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

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

8.5 OTHER TANGIBLE BENEFITS

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

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

CORPORATE SOCIAL RESPONSIBILITY

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

CSR Cost Estimation

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

CORPORATE ENVIRONMENT RESPONSIBILITY

For the existing quarries Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018.

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

TABLE 8.1 CER – ACTION PLAN

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

9. ENVIRONMENTAL COST BENEFIT ANALYSIS

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

10. ENVIRONMENTAL MANAGEMENT PLAN - THIRU. S.A. RAMACHANDRAN

10.0. GENERAL

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

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

10.1. ENVIRONMENTAL POLICY

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

The Proponent Thiru. S.A. Ramachandran will –

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

Description of the Administration and Technical Setup –

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

The said team will be responsible for:

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

- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.2. LAND ENVIRONMENT MANAGEMENT –

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

TABLE 10.1. PROPOSED CONTROLS FOR LAND ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.3. SOIL MANAGEMENT

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

TABLE 10.2. PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Surface run-off from the project boundary via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Mines Manager
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Mines Manager
Test soils for pH, EC, chloride, size & water holding capacity	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

10.4. WATER MANAGEMENT

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

a depth of 45m BGL, the water table in the area is 58m – 62m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

TABLE 10.3. PROPOSED CONTROLS FOR WATER ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.5. AIR QUALITY MANAGEMENT

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

TABLE 10.4. PROPOSED CONTROLS FOR AIR ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.6. NOISE POLLUTION CONTROL

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

TABLE 10.5.: PROPOSED CONTROLS FOR NOISE ENVIRONMENT

CONTROL	RESPONSIBILITY
---------	----------------

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

Source: Proposed by FAE's & EIA Coordinator

10.7. GROUND VIBRATION AND FLY ROCK CONTROL

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

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

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

Source: Proposed by FAE's & EIA Coordinator

10.8. BIOLOGICAL ENVIRONMENT MANAGEMENT

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

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

- Greenbelt development all along the safety barrier of the project area
- It is also proposed to implement the greenbelt development programme and post plantation status will be regularly checked for every season.

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

10.8.1. Green Belt Development Plan

About 1600nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 10.7: PROPOSED GREENBELT ACTIVITIES

Year	No. of trees proposed to be planted	Considering survival rate of 80% additionally 20% of plantation is proposed	Area to be covered in m ²	Name of the species
I	1600	1300	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Neem, Pongamia Pinnata etc.,

Source: Approved Mining plan

The objectives of the greenbelt development plan are –

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

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

10.8.2. Species Recommended for Plantation

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

- Creating of bio-diversity.

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

TABLE 10.8. RECOMMENDED SPECIES FOR THE PLANTSATION

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

Source: Proposed by FAE's & EIA Coordinator

10.9. OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

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

10.9.1. Medical Surveillance and Examinations –

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

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

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

TABLE 10.9. MEDICAL EXAMINATION SCHEDULE

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

3	Medical Camp (Mine Workers & Nearby Villagers)					
4	Training (Mine Workers)					

10.9.2 Proposed Occupational Health and Safety Measures –

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

FIGURE 10.1.: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS



10.9.3: Health and Safety Training Programme

The Proponent will provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centres in the State and engage Environmental Consultants to provide periodical training to all the employees to carry out the mining operation in and eco-friendly manner as per Metalliferous Mines Regulation, 1961.

10.9.4.: Budgetary Provision for Environmental Management –

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.10 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.10: EMP BUDGET FOR PROPOSED PROJECT

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	32150	32150
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance -2 Units	150000	15000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 3 Units	15000	750
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	64300
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000

	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	670761
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	32150	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	643000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 1600Trees - (350Inside Lease Area & 1250 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	70000	10500
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	375000	37500
	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	35100	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	1522112	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 28 Employees	112000	28000
	Health checkup for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	28000

	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	6430
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	160750	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR, 1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
CER	As per MoEF & CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			3050050	1875391

*Marked cost is already discussed in the mining plan hence that is not included in the total Environmental Management plan cost Total Cost for the five years. The EMP has been prepared for the entire **lease period of 5 years** for the peak production capacity of **53,850m³ of Rough stone**.

Year	Total Cost
1 st	₹49,25,441
2 nd	₹19,69,160.6
3 rd	₹20,67,618.6
4 th	₹21,70,999.5
5 th	₹23,14,649.5
Total	₹134 Lakhs

Cost inflation 5% per annum

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

10.10.: CONCLUSION –

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

11. SUMMARY AND CONCLUSION

This EIA & EMP report prepared for the proposed Rough stone and Gravel quarry project located in S.F.No 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District belongs to Thiru. S.A. Ramachandran the Project falls in the Cluster category consist of 2 Proposed, 5 Existing Quarries falls under “B” category as per MoEF & CC Notification S.O. 3977 (E).

Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B-1 and appraised by SEAC/ SEIAA as well as for cluster situation.

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

Environmental monitoring and audit mechanism have been recommended before and after commencement of the project, where necessary, to verify the accuracy of the EIA predictions and the effectiveness of recommended mitigation measures.

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the months March-May2024 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

The project proponent ensures to obtain necessary clearances and quarrying will be carried out as per rules and regulations. The Mining Activity will be carried out in a phased manner as per the approved mining plan after obtaining EC, CTO from TNPCB, execution of lease deed and obtaining DGMS Permission and working will be carried out under the supervision of Competent Persons employed. Overall, the EIA report has predicted that the project will comply with all environment standards and legislation after commencement of the project and operational stage mitigation measures are implemented.

Mining operations has positive impact on environment and socio economy such as landscape improvement, water as by-product, economy development and better public services, providing and supply of Rough Stone as per market demand. Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 28 people directly in the proposed projects and indirectly around 50 people.

As discussed, it is safe to say that the proposed quarries are not likely to cause any significant impact to the ecology of the area, as adequate preventive measures will be adopted to keep the various pollutants within the permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigate technique, as well as to serve as biological indicators for the pollutants released from the Thiru. S.A. Ramachandran Rough stone and Gravel quarry (Extent – 3.21.5ha).

12. DISCLOSURE OF CONSULTANT

M/s Geo Exploration and Mining Solutions, an Accredited Organization under Quality Council of India – National Accreditation Board for Education & Training, New Delhi, for carrying out the EIA Study as per the ToR Issued for the proposed project.

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004

Tamil Nadu, India

Email: infogeoexploration@gmail.com

Web: www.gemssalem.com

Phone: 0427 2431989.

The Accredited Experts and associated members who were engaged for this EIA study as given below –

Sl.No.	Name of the expert	In house/ Empanelled	EIA Coordinator		FAE	
			Sector	Category	Sector	Category
1	Dr. M. Ifthikhar Ahmed	In-house	1	A	WP GEO SC	B A A
2	Dr. P. Thangaraju	In-house	-	-	HG GEO	A A
3	Mr. A. Jagannathan	In-house	-	-	AP NV SHW	B A B
4	Mr. N. Senthilkumar	Empanelled	38 28	B B	AQ WP RH	B B A
5	Mrs. Jisha parameswaran	In-house	-	-	SW	B
6	Mr. Govindasamy	In-house	-	-	WP	B
7	Mrs. K. Anitha	In-house	-	-	SE	A
8	Mrs. Amirtham	In-house	-	-	EB	B
9	Mr. Alagappa Moses	Empanelled	-	-	EB	A
10	Mr. A. Allimuthu	In-house	-	-	LU	B
11	Mr. S. Pavel	Empanelled	-	-	RH	B
12	Mr. J. R. Vikram Krishna	Empanelled	-	-	SHW RH	A A

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

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

This EIA/EMP for Thiru. S.A. Ramachandran Rough stone and Gravel quarry over an Extent of 3.21.5ha in Ichipatti Village, Palladam Taluk, Tiruppur District of Tamil Nadu is prepared as per the Generic Structure of EIA Guidelines manual. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge.

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

Name: **Dr. M. Ifthikhar Ahmed**

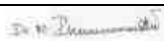
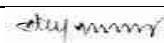
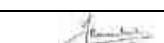
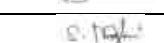


Designation: **EIA Coordinator**

Date & Signature:





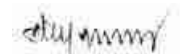




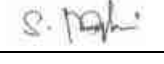
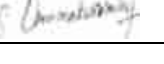

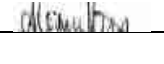
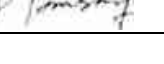



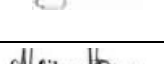
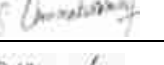




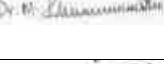

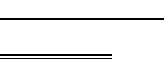
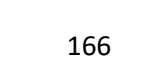
Period of Involvement: **January 2019 to till date**

EIA COORDINATORS IN THE ORGANIZATION


Sno	Name	Sector	Cate A/B	Signature
1	Dr. M. Ifthikhar Ahmed	1, 38	A	
2	Dr. P. Thangaraju	1	A	
3	Mr. Vikram Krishna JR	1	A	
4	Mr. S. Nagamani	1	B	
5	Mr. N. Senthilkumar	28, 38 & 31	B	
6	Mr. Vikram Krishna JR	38	B	

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	<ul style="list-style-type: none"> ▪ Identification of different sources of air pollution due to the proposed mine activity ▪ Prediction of air pollution and propose mitigation measures / control measures 	Mr. A. Jagannathan	
2	WP	<ul style="list-style-type: none"> ▪ Suggesting water treatment systems, drainage facilities ▪ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures. 	Dr. M. Ifthikhar Ahmed	
			Mr. N. Senthilkumar	
			Mr. P. Govindasamy	
3	HG	<ul style="list-style-type: none"> ▪ Interpretation of ground water table and predict impact and propose mitigation measures. ▪ Analysis and description of aquifer Characteristics 	Dr. P. Thangaraju	
4	GEO	<ul style="list-style-type: none"> ▪ Field Survey for assessing the regional and local geology of the area. 	Dr. M. Ifthikhar Ahmed	

		<ul style="list-style-type: none"> ▪ Preparation of mineral and geological maps. ▪ Geology and Geo morphological analysis/description and Stratigraphy/Lithology. 	Dr. P. Thangaraju	
			Mr. S. Nagamani	
			Mr.V.Balasubramanian	
			Mr.A. Natarajan	
			Mr. M. Abdul Nissar	
			Mr.S. Umamaheswaran	
			Mr.M.Santhoshkumar	
5	SE	<ul style="list-style-type: none"> ▪ Revision in secondary data as per Census of India, 2011. ▪ Impact Assessment & Preventive Management Plan ▪ Corporate Environment Responsibility. 	Mrs. K. Anitha	
			Mrs.T.Sasikala	
			Mr.A.Allimuthu	
6	EB	<ul style="list-style-type: none"> ▪ Collection of Baseline data of Flora and Fauna. ▪ Identification of species labelled as Rare, Endangered and threatened as per IUCN list. ▪ Impact of the project on flora and fauna. ▪ Suggesting species for greenbelt development. 	Mr..D.Devanathan	
			Mr.P. Panneer Selvam	
			Mr. Alagappa Moses	
7	RH	<ul style="list-style-type: none"> ▪ Identification of hazards and hazardous substances ▪ Risks and consequences analysis ▪ Vulnerability assessment ▪ Preparation of Emergency Preparedness Plan ▪ Management plan for safety. 	Mr. N. Senthilkumar	
			Mr. S. Pavel	
			Mr. J. R. Vikram Krishna	
8	LU	<ul style="list-style-type: none"> ▪ Construction of Land use Map ▪ Impact of project on surrounding land use ▪ Suggesting post closure sustainable land use and mitigative measures. 	Mr. A. Allimuthu	
			Mr.S. Umamaheswaran	
			Mr.P. Viwanathan	
			Mr.S.IIavarasan	
9	NV	<ul style="list-style-type: none"> ▪ Identify impacts due to noise and vibrations ▪ Suggesting appropriate mitigation measures for EMP. 	Mr. A. Jagannathan	
10	AQ	<ul style="list-style-type: none"> ▪ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. ▪ Recommending mitigations measures for EMP 	Mr. N. Senthilkumar	
11	SC	<ul style="list-style-type: none"> ▪ Assessing the impact on soil environment and proposed mitigation measures for soil conservation 	Dr. M. Ifthikhar Ahmed	
12	SHW	<ul style="list-style-type: none"> ▪ Identify source of generation of non-hazardous solid waste and hazardous waste. ▪ Suggesting measures for minimization of generation of waste and how it can be reused or recycled. 	Mr. A. Jagannathan	
			Mr. J. R. Vikram Krishna	

LIST OF TEAM MEMBERS AS FUNCTIONAL AREA EXPERT

Sl.No.	Name	Functional Area Proposed	FAE /Mentor	Involvement	Signature
1	Mrs.Nathiya T	EB	Mr. A.Alagappa Moses	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	
2	Mr. R. Sakthivel	LU	Mr.A. Allimuthu	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assisting FAE in preparation of land use maps ▪ identifying impacts Assisting FAE in preparation of land use maps 	
3	Mr. M Abdul Niyaas.	GEO	Mr. S.Umamahesvaran	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs on Geological Aspects ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan 	

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, Dr. M. Ifthikhar Ahmed, Managing Partner, Geo Exploration and Mining Solutions, hereby, confirm that the above-mentioned Functional Area Experts and Team Members prepared the Cluster EIA/EMP for Thiru. S.A. Ramachandran Rough stone and Gravel quarry over an Extent of 3.21.5ha in Ichipatti Village, Palladam Taluk, Tiruppur District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge.

Signature& Date:



Name:

Dr. M. Ifthikhar Ahmed

Designation:

Managing Partner

Name of the EIA Consultant Organization:

M/s. Geo Exploration and Mining Solutions

NABET Certificate No & Issue Date:

NABET/EIA/2225/RA 0276 Dated: 20-2-2023

Validity:

Valid till 06.08.2025

ANNEXURE

THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY

S.F.Nos. 220/1A, 220/1C & 223/2F

Ichipatti Village, Palladam Taluk, Tiruppur District

EXTENT = 3.21.5Ha

ToR obtained

Lr No. SEIAA-TN/F.No.9652/SEAC/1(a)ToR-1648/2023 Dated:09.01.2024

Project Proponent

Thiru. S. A. Ramachandran

S/o. Arumugam,

Earanthottam, Chengadurai,

Sulur Taluk,

Coimbatore District – 641 401

LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NOS
P1- THIRU. S. A. RAMACHANDRAN,	COPY OF TERMS OF REFERENCE	1A - 23A
	COPY OF MINING PLAN APPROVED & 500M RADIUS QUARRIES DETAILS LETTER	24A - 27A
	COPY OF APPROVED MINING PLAN WITH PLATES	28A - 106A
	COPY OF HYDROGEOLOGICAL REPORT	107A - 116A
	COPY OF EXPLOSIVES LETTER	117A – 118A
	COPY OF 300m LETTER	119A
E1 – THIRU.M. THANGAVEL	COPY OF ENVIRONMENTAL CLEARANCE	120A – 137A
E2 – THIRU.S.P. PALANISAMY	COPY OF ENVIRONMENTAL CLEARANCE	138A – 158A
E3 – TMT.R. GOWRI @ BABY	COPY OF ENVIRONMENTAL CLEARANCE	159A – 178A
E4 – THIRU.M. MUTHURATHINAM	COPY OF ENVIRONMENTAL CLEARANCE	179A – 199A
E5 – THIRU.C. RAKKIAPPAN	COPY OF ENVIRONMENTAL CLEARANCE	200A – 218A
	COPY OF BASE LINE MONITORING DATA	219A - 260A
	COPY OF NABET CERTIFICATE	261A



THIRU.DEEPAK S. BILGI, I.F.S.
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr.No.SEIAA-TN/F.No.9652/SEAC/I(a)ToR- 1648/2023 Dated: 09.01.2024.

To

Thiru. S.A. Ramachandran,
S/o. Arumugam,
Earanthottam, Chengadurai,
Sulur Taluk,
Coimbatore District – 641 401.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Proposed Rough stone & gravel over an extent of 3.21.5 Ha at S.F.Nos. 220/1A, 1C & 223/2F Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu by Thiru. S.A. Ramachandran - under project category – “B1” and Schedule S.No.1 (a) “Mining of Minerals Projects” – **ToR issued along with Public Hearing** - preparation of EIA report – Regarding.

- Ref:**
1. Online proposal No.SIA/TN/MIN/410467/2022, dated: 15.12.2022.
 2. Your application submitted for Terms of Reference dated: 20.12.2022.
 3. Minutes of the 347th SEAC meeting held on 13.01.2023.
 4. Minutes of the 430th SEAC meeting held on 14.12.2023.
 5. Minutes of the 687th SEIAA meeting held on 09.01.2024.

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


MEMBER SECRETARY
SEIAA-TN

The proponent, Thiru. S.A. Ramachandran has submitted an application for Terms of Reference (ToR) on 20.12.2022, for the Proposed Rough stone & gravel over an extent of 3.21.5 Ha at S.F.Nos. 220/1A, 1C & 223/2F Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

The proposal was placed in 430th SEAC meeting held on 14.12.2023. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent Thiru. S.A. Ramachandran has applied for Terms of Reference for the Proposed Rough stone & gravel over an extent of 3.21.5 Ha at S.F.Nos. 220/1A, 1C & 223/2F Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. As per mining plan, the lease period is 5 years and the proposed mining plan for Five years & the production should not exceed 2,57,985m³ of Rough Stone & 3,584 m³ of Gravel. The Annual peak production 53,850m³ of Rough Stone & 3,584 m³ of Gravel. The ultimate depth is 45 metres below ground level.
4. Earlier, the proposal was placed in 347th SEAC meeting held on 13.01.2023. Based on the presentation made by the proponent, SEAC decided to call for the following additional details.
 1. The proponent shall submit Certified Compliance Report.
 2. The proponent shall submit Slope Stability Action Plan for the existing quarry.
 3. The proponent shall complete the Fencing activities and carry out the Green Belt development activities around the boundary of the lease and shall submit Photo and video of the same.

Now, the proposal was placed in the 430th SEAC meeting held on 14.12.2023. Based on the presentation made by the proponent SEAC recommended grant of Terms of Reference (TOR) with Public Hearing as per the **annexure I** of this minute, subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The proponent 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


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- 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.
2. Since the existing depth of quarry has already reached 30 m, for the safety of the persons employed in the quarry, the PP shall carry out the scientific studies and to furnish the report with assessing the slope stability of the working benches and existing quarry walls **for evaluating the slope stabilization & protective measures while designing the proposed benches**, 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. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance without any deviation.
 3. The project proponent shall furnish Certified Compliance Report (CCR) obtained from IRO(SZ), MoEF&CC and with mitigation measures along with the budgetary allocation for the non-compliance stated therein.

ANNEXURE I

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
 - (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.


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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.


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11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
14. Quantity of minerals mined out.
 - Highest production achieved in any one year
 - Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.


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


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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.


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38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.


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Appendix - I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	விவம்
2	<i>Adenanthera pavonina</i>	Manjadi	மஞ்சளா ஆனைக்குன்றிமணி
3	<i>Albizia lebeck</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usai	உசை
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathu	ஆதூ
7	<i>Bauhinia tomentosa</i>	Iravathu	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	கட்டுமர
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புனை
13	<i>Cassia fistula</i>	Sarakondrai	சர்க்கொண்டை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொண்டை
15	<i>Chloroxylon swietenia</i>	Purasamaram	புரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvu	நருவூ
18	<i>Croton adansonii</i>	Mavalingum	மாலைங்கும
19	<i>Dillenia indica</i>	Uva, Uza	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சீறு உசா
21	<i>Diospyro sebemum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகளை
23	<i>Ficus amplissima</i>	Kalitchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆத்ரூபூவரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயி மரம், ஆயில்
27	<i>Launea coronandehica</i>	Othiam	ஒதிம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lapisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	வில்லா மரம்
31	<i>Litsea glutinos</i>	Pisarpattai	பிசுமரம், பிச்சைபட்டை
32	<i>Madhuca longifolia</i>	Iluppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Minuosops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுனை
37	<i>Morinda citrifolia</i>	Vellai Nuna	வேளைமரம் நுனை
38	<i>Phoenix sylvestre</i>	Eechai	சச்சைமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்

40	<i>Premna mollissima</i>	Munvai	முன்னை
41	<i>Premna serratifolia</i>	Narumunrai	நறு முன்னை
42	<i>Premna tomentosa</i>	Malaipoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Vanru maram	வன்னி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வெண்ணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	புலவு
47	<i>Puthranjiva roxburghii</i>	Karipala	கறிபாலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Maripungan, Soapukai	மணிப்புங்கை சோப்புக்காய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Streblus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	எட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தான் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாண்டி
56	<i>Terminalia arjuna</i>	Ven marudhu	வெண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தன வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valvura	வால்கரா
60	<i>Wrightia tinctoria</i>	Veppalai	வெப்பாலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காப்புளி

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Discussion by SEIAA and the Remarks:-

The subject was placed in 687th Authority meeting held on 09.01.2024. The authority noted that the subject was appraised in 430th SEAC meeting held on 14.12.2023.

Based on the presentation and documents furnished by the project proponent, SEAC after detailed deliberations, decided to **recommend the proposal for the grant of Terms of Reference (ToR).**

After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the following conditions and the conditions mentioned in 'Annexure B' of this minute:

Annexure 'B'**Cluster Management Committee**

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


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8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & soil biological, physical land chemical features .
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - d) Possibilities of water contamination and impact on aquatic ecosystem health.
 - e) Agriculture, Forestry & Traditional practices.
 - f) Hydrothermal/Geothermal effect due to destruction in the Environment.
 - g) Bio-geochemical processes and its foot prints including environmental stress.
 - h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

13. Impact on surrounding agricultural fields around the proposed mining Area.
14. Impact on soil flora & vegetation around the project site.
15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.


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Forests

19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.


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Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

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

Risk Assessment

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/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.

Others

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.


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40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, 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


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hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.

- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study


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area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the


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sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers


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present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

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


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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


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August, 2009, which are available on the website of this Ministry, should be followed.

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

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

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

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


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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


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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.


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- The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.


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Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
5. The District Collector, Tiruppur District.
6. The Assistant Director, Department of Geology & Mining, Tiruppur District.
7. Stock File.

From

Dr. K.L.K. Vallal,
Assistant Director,
Dept. of Geology and Mining,
Tiruppur.

To

Thiru. S.A. Ramachandran,
S/o. Arumugam,
Earanthottam,
Chengadurai, Suler Taluk,
Coimbatore District.

R.c. No. 1595/Mines/2020, Dated : 14.10.2022.

Sub: Mines and Minerals – Minor Mineral – Rough Stone – Tiruppur District – Palladam Taluk – Ichipatti village – S.F. No. 220/1C (1.19.0), 220/1A (0.74.0) and 223/2F (1.28.5) – over an extent of 3.21.5 Hectares – Quarry lease application preferred by Thiru. S.A. Ramachandran, S/o. Arumugam – Precise area communicated – Draft mining plan submitted – Approval of mining plan – Regarding

- Ref: 1. Thiru. S.A. Ramachandran, S/o. Arumugam, Earanthottam, Chengadurai, Suler Taluk, Coimbatore District quarry lease application dated: 09.12.2020.
2. The Assistant Director, Geology and Mining, Tiruppur letter R.C. No. 1595/Mines/2020, dated 26.09.2022.
3. Mining Plan submitted by Thiru. S.A. Ramachandran, S/o. Arumugam letter dated 12.10.2022.

Thiru. S.A. Ramachandran, S/o. Arumugam has preferred an application for the grant of Rough Stone and Gravel quarry lease in Patta land, over an extent of 3.21.5 Hect. in S.F.No. 220/1C (1.19.0), 220/1A (0.74.0) and 223/2F (1.28.5) in Ichipatti Village, Palladam Taluk, Tiruppur District.

2. Based on recommendations of the Tahsildar, Palladam, Revenue Divisional Officer, Tiruppur and the Assistant Director, Geology and Mining, Tiruppur and records available, precise area has been communicated to the applicant with a direction to submit mining plan and also to submit

environmental clearance as stipulated under rule 41 and 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 vide memo dated 26.09.2022.

3. Accordingly, Thiru. S.A. Ramachandran, S/o. Arumugam submitted the Draft Mining Plan and the same has been examined in detail and it is found correct. Therefore, in exercise of the powers delegated under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959, and as per the guidelines / instructions issued by the Commissioner of Geology and Mining, Chennai vide letter Roc.No.3868/LC/2012 dated 19.11.2012, the mining plan submitted by Thiru. S.A. Ramachandran, S/o. Arumugam in respect of the subject area is hereby approved subject to the following conditions:

- (i). That the mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
- (ii). This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884(Central Act IV of 1884) and the rules made there under the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii). That the mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv). Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (v). If anything is found to be concealed as required by the Mines Act in the contents of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- (vi). Safety distances mentioned in the precise area has to be maintained for the entire duration of the lease period.

- (vii). Waste material should be dumped within the lease granted area as earmarked in the Mining Plan.
- (viii). Necessary Environmental Clearance has to be obtained by the applicant from the competent authority before the grant of quarry lease as per the rules.
- (ix). Quarrying operations and production shall be carried out as per the approved Mining Plan and the applicant shall be liable to pay the cost of mineral if there is any deviation in the quantum indicated in the approved year wise quantum of production and any such cases as on date are to be dealt with as per Court direction.
- (x). If any violation is found during quarrying operation, the penal provisions of Tamil Nadu Minor Mineral Concession Rules shall attract.
- (xi). The applicant should strictly adhere to the statutory and safety requirements.

The details of quarry leases located within 500 meter radius from the proposed Rough Stone and Gravel is given as follows.

a. Existing quarries

S. No	Name of the lessee	Village	S.F. No	Extent Hect.	Collector's proceedings No. & Date	Lease period
1	M. Thangavel	Ichipatti	208/1,2,3	1.52.0	114/2018/Mines Dated 11.05.2022	11.05.2022 - 10.05.2027
2	S.P. Palanisamy	Ichipatti	221/1B, 223/2E2	1.87.5	R.C. 972/2017/ Mines dated 07.03.2022	07.03.2022 - 06.03.2027
3	R. Gowri @ Baby	Ichipatti	206/1,	1.57.5	R.C. 1462/2017/ Mines dated 04.03.2022	04.03.2022 - 03.03.2027
4	M. Muthu rathinam	Ichipatti	215/4, 3A	1.81.5	R.C. 311/2020 /Mines dated 28.02.2022	28.02.2022 - 27.02.2027
5	C. Rakki appan	Ichipatti	216/2B2	0.81.0 HECT	R.C. 1390/2018/ Mines dated 16.12.2021	16.12.2021 - 15.12.2026

**MINING PLAN AND PROGRESSIVE QUARRY
CLOSURE PLAN FOR ICHIPATTI
ROUGH STONE AND GRAVEL QUARRY**



(PREPARED UNDER RULES 41 & 42 AS AMENDED IN TAMILNADU MINOR MINERAL CONCESSION RULES, 1959)

Patta Lands / Lease Period = Five Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 3.21.5ha
S.F.NOS : 220/1A, 1C & 223/2F
VILLAGE : ICHIPATTI
TALUK : PALLADAM
DISTRICT : TIRUPPUR
STATE : TAMIL NADU

FOR

APPLICANT

Thiru. S.A. Ramachandran,

S/o. Arumugam,
Earanthottam, Chengadurai,
Sulur Taluk, Coimbatore District,
Tamil Nadu State – 641 401.

PREPARED BY

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

Qualified Person

Regd. Off. No.17, Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.
E-mail: infogeoexploration@gmail.com



S.A. Ramachandran,
S/o. Arumugam,
Earanthottam, Chengadurai,
Sulur Taluk, Coimbatore District,
Tamil Nadu State – 641 401.

CONSENT LETTER FROM APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Ichipatti Rough stone and Gravel Quarry in S.F.Nos.220/1A, 1C & 223/2F over an extent of 3.21.5ha of Patta lands in Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State has been prepared by

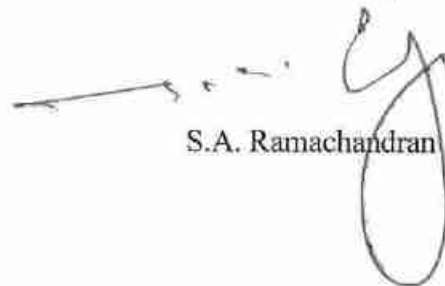
Dr. P. Thangaraju, M.Sc., Ph.D.,
Qualified Person

I request to the Assistant Director, Department of Geology and Mining, Tiruppur District to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

Dr. P. Thangaraju, M.Sc., Ph.D.,
Regd. Off. No. 17,
Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539

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

Signature of the Applicant


S.A. Ramachandran

Place: Coimbatore

Date: 27.09.2022



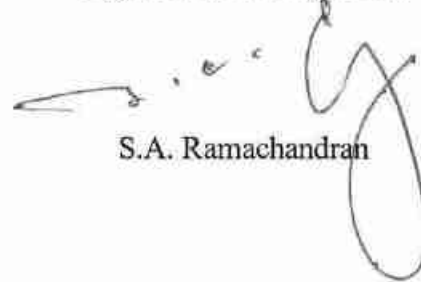
S.A. Ramachandran,
S/o. Arumugam,
Earanthottam, Chengadurai,
Sulur Taluk, Coimbatore District,
Tamil Nadu State – 641 401.

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Ichipatti Rough stone and Gravel Quarry in S.F.Nos.220/1A, 1C & 223/2F over an extent of 3.21.5ha of Patta lands in Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State has been prepared in full consultation with me.

I have understood its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to Quarry.

Signature of the Applicant



S.A. Ramachandran

Place: Coimbatore

Date: 27.09.2022




CERTIFICATE

Certified that I am, **Dr. P. THANGARAJU, M.Sc., Ph.D.**, having an office at Regd. Off. No. 17, Advaita Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate Degree in Geology (M.Sc. Geology) from Madras University, Chennai and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 stipulates the eligibility for preparing Mining plans as “(I)(a) a post graduate degree in Geology granted by a university established” and (I)(b) “Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree”. Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly, I am preparing this Mining Plan and Progressive Quarry Closure Plan in Respect of Ichipatti Rough stone and Gravel Quarry in S.F.Nos.220/1A, 1C & 223/2F over an extent of 3.21.5ha of Patta lands in Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State for **Thiru. S.A. Ramachandran**, S/o. Arumugam, Earanthottam, Chengalur, Suler Taluk, Coimbatore District, Tamil Nadu State – 641 401. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person


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

Place: Salem

Date: 29.09.2022



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

Regd. Off. No. 17,

Advaitha Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539

CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Ichipatti Rough stone and Gravel Quarry in S.F.Nos.220/1A, 1C & 223/2F over an extent of 3.21.5ha of Patta lands in Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State has been prepared for

Thiru. S.A. Ramachandran,

S/o. Arumugam,

Earanthottam, Chengadurai,


Sulur Taluk, Coimbatore District,

Tamil Nadu State – 641 401.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the Assistant Director, Department of Geology and Mining, Tiruppur District, Tamil Nadu for such permissions/ exemptions/ relaxations and approvals.

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

Signature of the Qualified Person


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

Place: Salem

Date: 29.09.2022



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

Regd. Off. No. 17,

Advaita Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations and Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Ichipatti Rough stone and Gravel Quarry in S.F.Nos.220/1A, 1C & 223/2F over an extent of 3.21.5ha of Patta lands in Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State has been prepared for

Thiru. S.A. Ramachandran,

S/o. Arumugam,

Earanthottam, Chengadurai,

Sulur Taluk, Coimbatore District,

Tamil Nadu State – 641 401.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of Director General of Mines Safety (DGMS), No.5, II Street, Block-AA, Anna Nagar, Chennai-40, Tamil Nadu for such permissions / exemptions / relaxations and approvals.

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

Signature of the Qualified Person

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

Place: Salem

Date: 29.09.2022



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**MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR
ICHIPATTI ROUGH STONE AND GRAVEL QUARRY OVER AN EXTENT OF
3.21.5ha IN ICHIPATTI VILLAGE, PALLADAM TALUK, TIRUPPUR
DISTRICT, TAMIL NADU STATE.**

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERAL
CONCESSION RULES, 1959)

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

This Mining Plan and Environment Management Plan are prepared for **Thiru.S.A.Ramachandran**, S/o. Arumugam, Earanthottam, Chengadurai, Sulur Taluk, Coimbatore District, Tamil Nadu State – 641 401.

The applicant applied for Rough stone and Gravel quarry over an extent of 3.21.5ha of Patta lands in S.F.Nos.220/1A, 1C & 223/2F of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.

The application was processed by the Assistant Director, Department of Geology and Mining, Tiruppur District and passed a Precise Area Communication letter vide **Rc.No.1595/Mines/2020, Dated:26.09.2022** to submit Mining Plan for the approval in Department of Geology and Mining, Tiruppur District and obtain Environmental Clearance from the Competent Authority, Tamil Nadu State, with the conditions to provide:

1. Quarrying should be left a safety distance of 7.5m to the adjacent Patta lands.
2. Quarrying should be left a safety distance of 10m to the government land situated on the West side of applied area.

(Please refer Annexure No – I).

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12.13.2011 in Special Leave Petition SLP (C) No 19628-19629/2009, it has been now decided that all mining projects of minor minerals including their renewal irrespective of sizes of the lease would hence forth require prior environmental clearance mining project within the lease applied area up to less than 100ha including projects or minor mineral with lease applied area less than 5ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state notified by MoEF as prescribed procedure under EIA notification 2006.

This Mining Plan is approved subject to the Conditions Indicated in the Mining Plan approved Letter No.1595/Mines/2020 Dated 14.10.2022.

This Mining Plan is approved as per the Powers conferred under rule 41(2) of Tamil Nadu Minor Mineral Concession Rules, 1959

[Signature]
ASSISTANT DIRECTOR
Geology and Mining
TIRUPPUR



In the above circumstances the applicant through his consultant is hereby preparing the Mining Plan, Environmental Management Plan and Progressive Quarry Closure Plan for approval and subsequent submission of Form-I, Form-IM and Pre feasibility report to obtain environmental clearance from the Competent Authority, Tamil Nadu State, Rough stone and Gravel quarry. This mining plan is prepared by considering the Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent Amendment and judgments till 2022.

Short Notes of Mining Plan:

- a. Village Panchayat - Ichipatti
- b. Panchayat Union - Palladam
- c. The Geological Resources are **6,62,765m³** of Rough stone, **9,162m³** of Weathered Rock and **6,108m³** of Gravel formation in the entire area.
- d. The Total Mineable Reserves are **2,57,985m³** of Rough stone, **4,611m³** of Weathered Rock and **3,584m³** of Gravel in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are **2,57,985m³** of Rough stone for five years, stone, **4,611m³** of Weathered Rock and **3,584m³** of Gravel for three years in the entire area.
- f. Total extent of the lease applied area = 3.21.5ha
- g. Topography of the area = The area exhibits plain topography
- h. Proposed Depth of mining = 45m (2m Gravel + 3m Weathered Rock + 40m Rough stone) below ground level
- i. This Mining Plan period = Five years
- j. It is a fresh lease application but, the applied area has been considered quarrying operation earlier. The quarry lease was previously granted in the favour of **Thiru.S.A.Ramachandran, Coimbatore District**, over an extent of 2.02.5hectares of Patta lands in S.F.Nos.220/1A & 223/2F of Ichipatti Village, Palladam Taluk, Tiruppur District vide **Rc.No.430/Mines/2015, Dated: 23.09.2016** for the period of five years from 23.09.2016 to 22.09.2021 and the applicant has obtained Environmental Clearance from the SEIAA, Tamil Nadu vide **Lr. No. SEIAA-TN/F.No.5480/1(a)/EC.No:3543/2016, Dated: 10.08.2016** and the same applicant has previously granted another quarry, over an extent of 1.19.0hectares of Patta land in S.F.No.220/1C of Ichipatti Village, Palladam Taluk, Tiruppur District vide **Rc.No.41/Mines/2016, Dated: 23.09.2016** for the period of five years from 23.09.2016 to 22.09.2021 and the applicant has obtained Environmental Clearance from the SEIAA, Tamil



Nadu vide Lr. No. SEIAA-TN/F.No.5481/1(a)/EC.No:3541/2016, Dated: 10.08.2016 for quarrying of Rough stone and Gravel (Please refer Annexure No. IA). As the lease granted vide Rc.No.430/Mines/2015, Dated: 23.09.2016 and Rc.No.41/Mines/2016, Dated: 23.09.2016 was expired, the applicant has once again applied a quarry lease on 09.12.2020 for over an extent of 3.21.5ha of Patta lands in S.F.Nos.220/1A, 1C & 223/2F of Ichipatti Village, Palladam Taluk, Tiruppur District for the period of five years. The application was meritoriously processed by the Assistant Director, Department of Geology and Mining, Tiruppur District and recommended the quarry lease for the period of five years. The maximum dimension of the **existing quarry pit** is given table below (Refer Plate No. II).

Pits	Length (m) (max)	Width (m) (max)	Depth (m) (max)
I	202	158	30
II	65	42	21

- k. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.
- l. Type of machineries proposed in the quarrying operation is given below:
Excavators attached with rock breaker (Rental Basis).
Jack hammer, Compressor (Diesel drive) (4 Jack Hammer capacity) (Rental Basis).
- m. No trees will be uprooted due to this quarrying operation.
- n. The existing road from the main road to quarry is in good condition. The same will be maintained and utilized for Transportation of quarry materials and machineries.
- o. There is No Export of this Rough stone and Gravel.
- p. Topo sketch covering 10km and 1km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archaeological importance, places of worships is marked and enclosed as Plate Nos. IA & IB.
- q. The lease applied area is about 3.21.5ha bounded by fifteen corners; the corners are designated as 1-15 Clockwise from the Western corner the Co – ordinates for the all the corners are clearly marked in the Quarry Lease and Surface Plan enclosed as Plate No. II.
- r. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are enclosed as Plate Nos. III and IV.



- s. General conditions will not be applicable for the proposed area. The area applied for lease is 10Km away from the,
- i) *Interstate Boundary,*
 - ii) *Protected area under wild life protection ACT, 1972,*
 - iii) *Critically polluted areas as identified by CPCB,*
 - iv) *Notified Eco sensitive areas.*
- t. There is no waste anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- u. Around 28 employees are deploying in the quarrying operation.
- v. Total Cost of the project is about **Rs.75,50,000/-**.
- w. Infrastructures around the lease applied area given below in the table:

TABLE-1

Particulars	Location	Approximate aerial distance and direction from lease applied area
Nearest Post Office	Somanur	4km – Northwest
Nearest School	Karugampalayam	1km – Northwest
Nearest Dispensary	Somanur	4km – Northwest
Nearest Town	Sulur	9km – Southwest
Nearest Police Station	Karumathampatty	5km – Northeast
Nearest Hospital	Somanur	4km – Northwest
Nearest D.S.P. Office	Karumathampatty	5km – Northeast
Nearest Railway Station	Somanur	4km – Northwest
Nearest Airport	Coimbatore	27km – Southwest
Nearest Seaport	Kochi	161km – Southwest
District Head quarters	Tiruppur	17km – Northeast

**2.0 GENERAL INFORMATION**

2.1 a) Name of the Applicant : Thiru. S.A. Ramachandran,
S/o. Arumugam,

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

Address : Earanthottam, Chengadurai,
Sulur Taluk, Coimbatore District.

Pin Code : 641 401

Mobile No : +91 98658 99551

Aadhaar No : 6829 1425 2729

Email ID : prathiencrusher@gmail.com

c) Status of the Applicant (Individual / Company / Firm):

The applicant is an Individual.

2.2 a) Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough stone and Gravel only.

b) Precise area communication letter details received from the Competent Authority of the Government:

The precise area communication letter was received from the Assistant Director, Department of Geology and Mining, Tiruppur District vide **Rc.No.1595/Mines/2020, Dated: 26.09.2022** to submit approved mining plan and to obtain Environmental Clearance from the Competent Authority, Tamil Nadu State.

c) Period of permission / lease to be granted:

The applicant has applied for five years, the Assistant Director, Department of Geology and Mining, Tiruppur District has recommended for five years for Rough stone and Gravel.

d) Name and address of the Qualified Person who preparing the Mining Plan:

Name : **Dr. P. Thangaraju, M.Sc., Ph.D.,**
Qualified Person

Address : Reg. No.17,
Advaita Ashram Road,
Alagapuram, Salem District – 636 004.

Telephone : 0427- 2431989 (Office)

Cell No : +91 94422 78601 & 94433 56539

Email : infogeoexploration@gmail.com

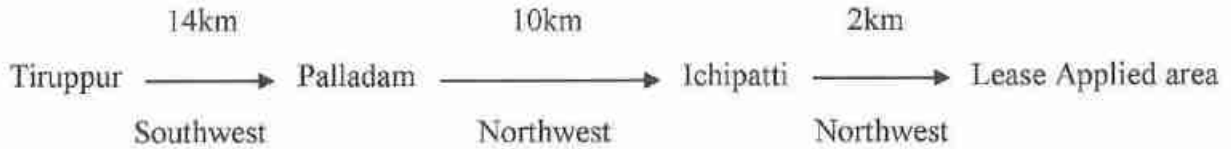
(Refer Annexure Nos. VIII and IX).



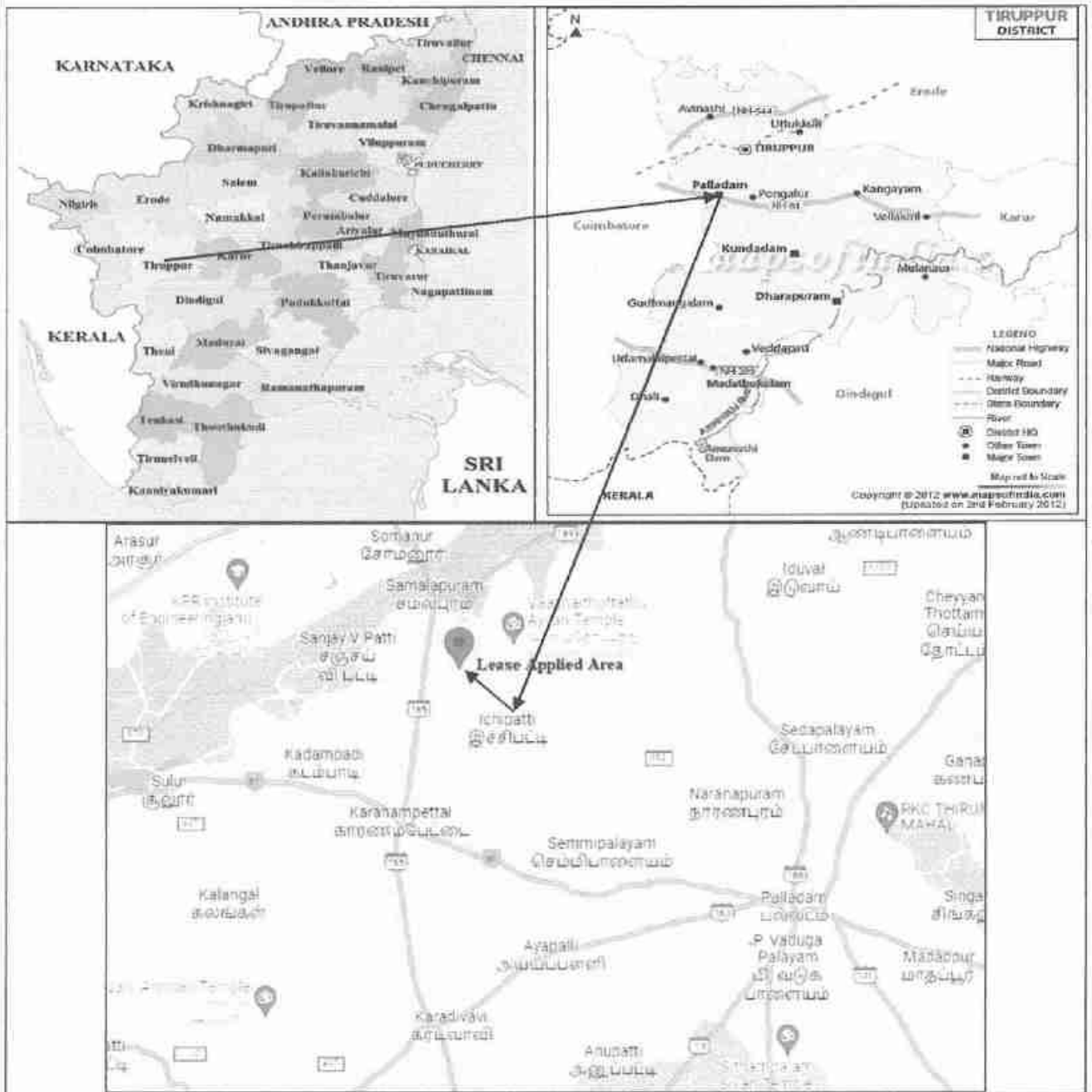
3.0 LOCATION

a) Details of the area with location map:

The lease applied area is about 17km Southwestern side of Tiruppur town and 12km Northwestern side of Palladam town, the lease applied area located along Ichipatti Village at a distance of 2km Northwestern side.



Location Map of the Lease Applied Area



LOS



TABLE-2

District	Taluk	Village	S.F. Nos.	Lease Applied Area in ha.	Patta No.
Tiruppur	Palladam	Ichipatti	220/1A	0.74.0	1611
			220/1C	1.19.0	1611
			223/2F	1.28.5	1365
Total Extent				3.21.5ha	

b) Classification of the area (Ryotwari/ Poramboke / others):

It is a Patta lands classified as Punjai (Barren land) which is not fit for vegetation/ Cultivation.

c) Ownership / Occupancy of the applied area (surface right):

It is a Patta lands. Registered in the name of the applicant (**Thiru. S.A. Ramachandran**), vide Patta Nos. 1611 & 1365. Refer Annexure No. IV.

d) Topo sheet No. with latitude and longitude:

The lease applied area falls in the Topo sheet No: 58 - E/04 Latitude between: $11^{\circ} 03' 16.64''N$ to $11^{\circ} 03' 24.76''N$ and Longitude between: $77^{\circ} 11' 53.17''E$ to $77^{\circ} 12' 00.98''E$ on WGS datum-1984. Please refer the Plate Nos. I to II.

e) Existence of public road / Railway line, if any nearby and approximate distance:

The approach (metal) road is situated on the Northern side which connects the Cart Track at a distance 40m from the applied area.

Multiple road access is available from the quarry to state highways and National Highway, no villages are enrooted hence the traffic density is not much more due to the transportation of Rough stone.

The approach road from the quarry is already in existence, the same will be utilized for haulage and maintained during the entire lease period, tree sapling will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

The Nearest Railway line is Coimbatore – Erode which is about 4m on the Northwestern side of the lease applied area.

PART – A



4.0 GEOLOGY AND MINERAL RESERVES

4.1 Brief description of the Topography and general Geology of the area (with plans):

The lease applied area exhibits plain topography. The area has gentle sloping towards Northeastern side. The altitude of the area is 355m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation and 3m of Weathered Rock. Massive Charnockite is found after 5m (2m Gravel + 3m Weathered Rock) which is clearly inferred from the existing quarry pits.

The Water table is found at a depth of 62m in summer and at 58m in rainy seasons. Average annual rainfall is about 607mm.

Topographical View of lease applied area



Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale of the Charnockite body is N30°E – S30°W with dipping towards SE60°.

The general geological sequences of the rocks in this area are given below:

AGE	FORMATION
Recent	- Quaternary Formation (Gravel + Weathered Rock)
-----Unconformity-----	
Archaean	- Charnockite Peninsular Gneiss complex

lot

**4.2 Details of exploration already carried out if any:**

State Geology and Mining Dept, Govt. of Tamil Nadu, has carried out the Regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping in Tiruppur District. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area. The Rough stone formation is clearly inferred from the existing quarry pits.

4.3 Estimation of Reserves:**a) Geological reserves with geological sections on a scale of 1:1000 / 1:2000**

As far as Rough stone (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough stone within the field and careful evaluation of body luster, physical properties, engineering properties and commercial aspects etc.,

Totally four sections have been drawn, two sections are drawn Length wise as (X-Y) & (X1-Y1), and other two cross sections are drawn Width wise as (A-B) & (C-D) to cover the maximum area considered for lease.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in 1:1000 scale (please refer the Geological plan and sections Plate No. III). As the sale of Rough stone is in terms of cubic meters (Volume) only and not in terms of tonnage.

Geological Resources (Plate No. III):

The Geological Resources of Rough stone and Gravel are calculated up to a maximum depth of 45m (2m Gravel + 3m Weathered Rock + 40m Rough stone) below ground level. **The total Geological resources are calculated by sectional method and the resources are estimated after depletion of existing quarry pit.** The total available geological resources are given below:



TABLE-3

GEOLOGICAL RESOURCES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Geological Resources in Rough stone (m ³)	Weathered Rock (m ³)	Gravel Formation (m ³)
XY-AB	I	1	9	2	-	-	18
	II	1	9	3	-	27	-
	III	1	9	5	45	-	-
	IV	1	10	5	50	-	-
	V	1	10	3	30	-	-
	V	1	35	2	70	-	-
	VI	1	35	5	175	-	-
	VII	1	35	5	175	-	-
	VIII	68	156	5	53040	-	-
	IX	68	156	5	53040	-	-
	X	68	156	5	53040	-	-
Total					159665	27	18
XY-CD	I	11	11	2	-	-	242
	II	11	11	3	-	363	-
	III	11	11	5	605	-	-
	IV	11	11	5	605	-	-
	V	11	11	5	605	-	-
	VI	11	11	5	605	-	-
	VII	11	11	5	605	-	-
	VIII	141	164	5	115620	-	-
	IX	141	164	5	115620	-	-
	X	141	164	5	115620	-	-
	Total					349885	363
XIYI-AB	I	43	68	2	-	-	5848
	II	43	68	3	-	8772	-
	III	43	68	5	14620	-	-
	IV	44	68	5	14960	-	-
	V	44	68	5	14960	-	-
	VI	63	69	5	21735	-	-
	VII	63	69	5	21735	-	-
	VIII	63	69	5	21735	-	-
	IX	63	69	5	21735	-	-
	X	63	69	5	21735	-	-
	Total					153215	8772
Grand Total					662765	9162	6108

Total Geological Resources of Gravel formation : 6,108m³
 Total Geological Resources of Weathered Rock : 9,162m³
 Total Geological Resources of Rough stone : 6,62,765m³

**Existing Pit Dimension:**

The lease applied area has been quarried in earlier the existing pits dimensions are follows:

TABLE-4

Pits	Length (m) (max)	Width (m) (max)	Depth (m) (max)
I	202	158	30
II	65	42	21

Available Mineable Reserves:

The available Mineable reserves are calculated after leaving the safety distance and bench loss to a maximum depth of 45m below ground level.

TABLE-5

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Mineable Reserves in Rough stone (m ³)	Weathered Rock (m ³)	Gravel (m ³)
XY-AB	VIII	51	70	5	17850	-	-
	IX	46	60	5	13800	-	-
	X	41	50	5	10250	-	-
	Total				41900	-	-
XY-CD	VIII	120	123	5	73800	-	-
	IX	115	113	5	64975	-	-
	X	110	103	5	56650	-	-
	Total				195425	-	-
X1Y1-AB	I	32	56	2	-	-	3584
	II	29	53	3	-	4611	-
	III	26	50	5	6500	-	-
	IV	21	45	5	4725	-	-
	V	16	41	5	3280	-	-
	VI	23	36	5	4140	-	-
	VII	13	31	5	2015	-	-
	Total				20660	4611	3584
Grand Total					257985	4611	3584

The mineable reserves have been computed as **2,57,985m³** of Rough stone, **4,611m³** of Weathered Rock and **3,584m³** of Gravel at the rate of 100% recovery upto a maximum depth of 45m below ground level for a period of five years.



5.0 MINING

5.1 Method of mining (opencast / underground):

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

However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act - 1952.

5.2 Mode of working (mechanized, semi mechanized, manual):

The Rough stone is proposed to quarry at 5m bench height & width with conventional Opencast Mechanized Method.

The quarry operation involves shallow jack hammer drilling, slurry explosives in blasting, excavation, loading and transportation of Rough stone to the needy crusher.

The production of Rough stone in this quarry involves the following method which is typical for Rough stone quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and slurry explosives blasting, hydraulic excavators are used for loading the Rough stone from pithead to the needy crushers.

Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast mechanized method of mining.

5.3 Proposed Bench Height and Width:

The Charnockite is hard and compact rock, the bench height is proposed 5.0 meter vertical bench the width of the bench is not less than the Height.

5.4 Indicate the overburden / mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.):

The overburden in the form of Gravel and Weathered Rock, the Gravel and Weathered Rock already removed during previous quarry lease period. The excavated Rough stone will be directly loaded into tipper to the needy customers. The Composite year wise Development and production plan and sections indicating the Pit lay out, Green belt development are shown in Plate No. III.



Year wise development and Production

TABLE-6

YEARWISE PRODUCTION DETAILS								
Years	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserves in Rough stone (m ³)	Weathered Rock (m ³)	Gravel (m ³)
I	X1Y1-AB	I	32	56	2	-	-	3584
		II	29	53	3	-	4611	-
		III	26	50	5	6500	-	-
		IV	21	45	5	4725	-	-
		V	16	41	5	3280	-	-
		VI	23	36	5	4140	-	-
		VII	13	31	5	2015	-	-
	XY-AB	VIII	51	70	5	17850	-	-
		IX	30	60	5	9000	-	-
		Total				47510	4611	3584
II	XY-AB	IX	16	60	5	4800	-	-
		X	41	50	5	10250	-	-
	XY-CD	VIII	60	123	5	36900	-	-
		Total				51950	-	-
III	XY-CD	VIII	60	123	5	36900	-	-
		IX	30	113	5	16950	-	-
		Total				53850	-	-
IV	XY-CD	IX	85	113	5	48025	-	-
		X	10	103	5	5150	-	-
		Total				53175	-	-
V	XY-CD	X	100	103	5	51500	-	-
		Total				51500	-	-
Grand Total						257985	4611	3584

The Recoverable reserves have been computed as 2,57,985m³ of Rough stone, 4,611m³ of Weathered Rock and 3,584m³ of Gravel of 100% recovery for five years upto depth of 45m below ground level for a mining period.

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

Mining Plan and PQCP

Ichipatti Rough stone and Gravel Quarry



One lorry load	=	6m ³ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in this five years plan period	=	2,57,985m ³
Hence total lorry loads per day	=	2,57,985m ³ /6m ³
	=	42998 lorry loads
	=	42998/5 years
	=	8600/300 Days
Rough stone	=	28-29 lorry loads per day
Total quantity to be removed in this three years plan period	=	8,195m ³
Hence total lorry loads per day	=	8,195m ³ /6m ³
	=	1366 lorry loads
	=	1366/3 years
	=	455/300 Days
Gravel & Weathered Rock	=	1-2 lorry loads per day
Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 pm lunch break)		

5.5 Machineries to be used:

For Mining:

The following machineries are utilized on rental basis for the development and production work at this quarry.

TABLE-7

I. DRILLING MACHINE:

S. No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	6	30-35	1.2m to 2.0m	Compressed air
2	Compressor	2	-	400 psi	Diesel Drive

II. EXCAVATION & LOADING EQUIPMENT:

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

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

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



5.6 Disposal of Overburden/Waste:

The overburden in the form of Gravel and Weathered Rock, the Gravel and Weathered Rock already removed during previous quarry lease period. The excavated Rough stone (100%) will be directly loaded into Tipper to the needy customers. There is no Waste anticipated during this plan period hence, disposal of waste does not arise.

5.7 Brief note on conceptual mining plan for the entire lease period base on the geological, mining and Environment considerations:

Conceptual mining plan is prepared with an object of long term systematic development of benches, layouts, selection of permanent structures, depth of quarrying and ultimate pit dimensions, selection of sites for construction of infrastructure, etc.,

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

As the applicant has applied quarry lease for five years, the ultimate pit limit (dimension) at the end of this mining plan period is given below:

TABLE-8

Pits	Length (m) (max)	Width (m) (max)	Depth (m) (max)
I	202	158	45m below ground level
II	65	42	30m below ground level

Greenbelt has proposed on the safety zone by planting Neem, Pongamia Pinnata, Casuarina, etc., trees of native species. All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out every year as per the MoEF&CC Norms. Please refer Plate Nos. III & IV.

It is propose to engage any local institution to monitor the EIA and EMP during the course of quarrying operation after the grant of quarry lease.

There is no waste anticipated during the entire life of quarry. Hence, backfilling is not possible in this quarry. After completion of quarry operation, the quarry pit will be allowed to collect the seepage and rainwater, the water storage will be kept as temporary reservoir for charging the nearby wells and the storage water will be used for afforestation purpose. The quarry pit will be fenced with barbed wire fencing to prevent inadvertent entry of public and cattle (Refer Plate No. IV).



6.0 BLASTING

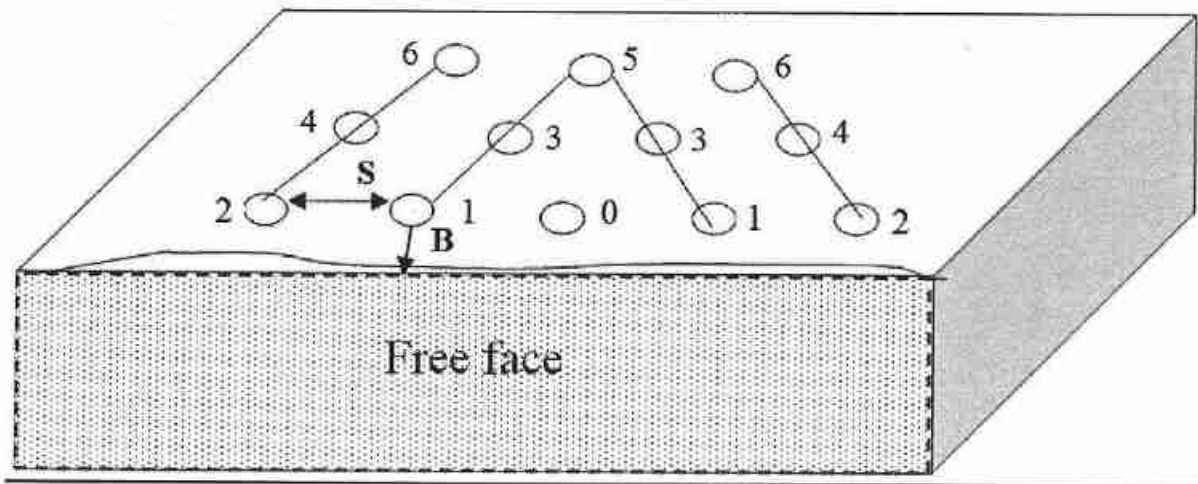
6.1 Blasting pattern:

The quarrying operation is proposed to be carried out by Mechanized Opencast Method in conjunction with conventional method of mining using jack hammer drilling and slurry blasting of shattering effect for loosening the Rough stone.

Drilling and blasting parameters are as follows:

Depth of Each hole	:	1.5m
Diameter of hole	:	30-32mm
Spacing between holes	:	1.2m
Burden for hole	:	1.0m
Pattern of hole	:	Zigzag - Multi-rows
Inclination of holes	:	80° from horizontal
Use of delay detonators	:	25millisecond relays
Detonating fuse	:	"Detonating" Cord

BLASTING PATTERN DRAWING



Staggered "V" Pattern of Blasting Design

Spacing	=	1.2m
Burden	=	1.0m
Depth of the hole	=	1.5m
No of holes proposed per day	=	150 Holes

Handwritten signature or initials.

**6.2 Type of explosives to be used:**

Small Dia. 25mm slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. No deep hole drilling or primary blasting is proposed.

6.3 Measures proposed to minimize ground vibration due to blasting:

The quarry is situated more than 300m from the nearby villages, Controlled blasting measures is being adopt for minimizing ground vibration and fly rock.

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

Delay detonators:

Delay blasting (millisecond delays) permits to divide the shot in to smaller charges, which are detonated in a predetermined millisecond sequence at specific time intervals.

The major advantages of delay blasting are:

- Reduction of ground vibration.
- Reduction in air blast.
- Reduction in over break.
- Improved fragmentation.
- Better control of fly-rock.

Blasting program for the production per day:

No of Holes	= 150 Holes
Yield	= 447 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 75 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30p.m (whenever required)

6.4 Storage and safety measures to be taken while blasting:

The applicant will engage authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/Permit Mines Manager. The explosives agencies should be have the valid Blaster certificate. He will blast holes in the quarry site. After the completion of Blasting the Explosives Agencies will take it out back the remaining quantity of Explosives. The magazine is available at the quarry site to temporarily store the explosives.



7.0 MINE DRAINAGE

7.1 Depth of water table (based on nearby wells and water bodies):

The Water Table in the area is 62m in summer season and 58m in rainy season which is observed from the nearby bore wells and the data obtained from existing private boreholes. The lease area is fully covered by Massive Charnockite formation. Hence the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt.

TABLE-9

Type	Distance & Direction	Location
Bore Well	350m Southwestern side	11°03'12.64"N 77°11'45.23"E

7.2 Arrangements and places where the mine water is finally proposed to be discharged:

Quarry operations are confined well above the water table during the entire lease period. If water is encountered due to rain water and seepage, the same will be pumped out by 5HP water pumps to the Greenbelt development areas. Besides, the water will also be used for dust suppression on haul roads during Haulage of machineries.

**8.0 OTHER PERMANENT STRUCTURES (also shown in the map)****8.1 Habitations/ Villages natham:**

There is no approved habitation within 300m radius from the lease applied area.

8.2 Power Lines (HT/LT):

There is no Housing area, EB line (HT & LT Line) within the radius of 50m from the lease applied area.

8.3 Water bodies (river, ponds, lake, odai, canal, etc.):

There is no River, Pond, Lake, Odai, Canal located within 50m radius of the lease applied area.

8.4 Archaeological / historical monuments:

There is no Archaeological / historical monuments within 500m radius from the lease applied area.

8.5 Road (NH, SH, others):

The Nearest National Highway (NH-81) Coimbatore – Trichy is situated about 4km on the Southwestern side of the lease applied area.

The State Highway (SH-165) Kamanaikenpalayam – Annur Road is situated about 1km on the Western side of the lease applied area.

The Major District (MD-882) Palladam – Boomalur Road is situated about 4km on the Eastern side of the lease applied area.

8.6 Places of worships:

There is no place of worships within the radius of 300m from the lease applied area.

8.7 Reserved forest / forest / social forest / wild life sanctuary etc.:

There is no reserved forest / forest / social forest / wild life sanctuary etc., within radius of 1km of the lease applied area.



SALIENT FEATURES

S. No.	Salient Features Present around site	Prescribed safety distance	If any present within Prescribed distance it's actual distance and direction from the area																	
1.	Railways, Highways, Reservoirs or Canal	50m	None of the above situated within 50m radius.																	
2.	Village Road	10m	There is no village road situated within 10m radius of the lease applied area.																	
3.	Habitation / Village	300m	There is no approved habitation within 300m radius from the lease applied area (Refer Plate No. I-B).																	
4.	Adjacent Patta lands / Govt. Land	7.5m/10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>East</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>South</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td rowspan="2">West</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>Govt. land</td> <td>10m</td> </tr> </tbody> </table> <p>(Refer Plate No. II).</p>	Direction	Classification	Safety Distance	North	Patta land	7.5m	East	Patta land	7.5m	South	Patta land	7.5m	West	Patta land	7.5m	Govt. land	10m
Direction	Classification	Safety Distance																		
North	Patta land	7.5m																		
East	Patta land	7.5m																		
South	Patta land	7.5m																		
West	Patta land	7.5m																		
	Govt. land	10m																		
5.	Housing area, EB line (HT & LT Line)	50m	There is no Housing area, EB line (HT & LT Line) within the radius of 50m from the lease applied area.																	
6.	Boundaries of the permitted area	7.5m/10m	<p>The boundaries of the permitted areas is as follows:</p> <p>North – S.F.Nos.223/2E1 & 223/2E2</p> <p>East – S.F.Nos.221 & 220/2A</p> <p>South – S.F.Nos.229, 220/1B, 217 & 218</p> <p>West – S.F.Nos.224 & 227</p> <p>(Refer Plate No. II).</p>																	
7.	Reserve forest	1km	There is no reserved forest located within the radius of 1km from the lease applied area. (Refer Plate No. IA and IB).																	
8.	Protected area / ECO sensitive area/Wild Life Sanctuary	10km	There is no ECO sensitive Zone/ Wild Life Sanctuary/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area. (Refer Plate No. IA).																	



9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES

9.1 Employment potential (skilled, semi skilled, un skilled):

The following manpower's are proposed in the mining plan to carry out the day-to-day quarrying activities, the same employment is maintaining aimed at the proposed production target and also to comply with the statutory provisions of the Metalliferous Mines Regulations, 1961.

a. Skilled labour:

Mine Foreman	:	1
Blaster/mate	:	1
Excavator – Operator & Driver	:	4
Jack hammer operator	:	12

b. Semi-skilled:

Security	:	1
----------	---	---

c. Unskilled:

Labour & Helper	:	4
Co-operator and Cleaner	:	5
Total	:	28

The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations. It is been ensured that the labour will not be employed less than 18 years, **No child labour** will engaged or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period.

9.2 Welfare Measures:

a. **Drinking Water:**

Packaged drinking water is available from the nearby approved water vendors in Ichipatti which is about 2km on the Southeastern side of the lease applied area.

b. **Sanitary Facilities:**

Hygienic modern Sanitary Facilities will be constructed as semi permanent structure and it will be maintained periodically as hygienic.



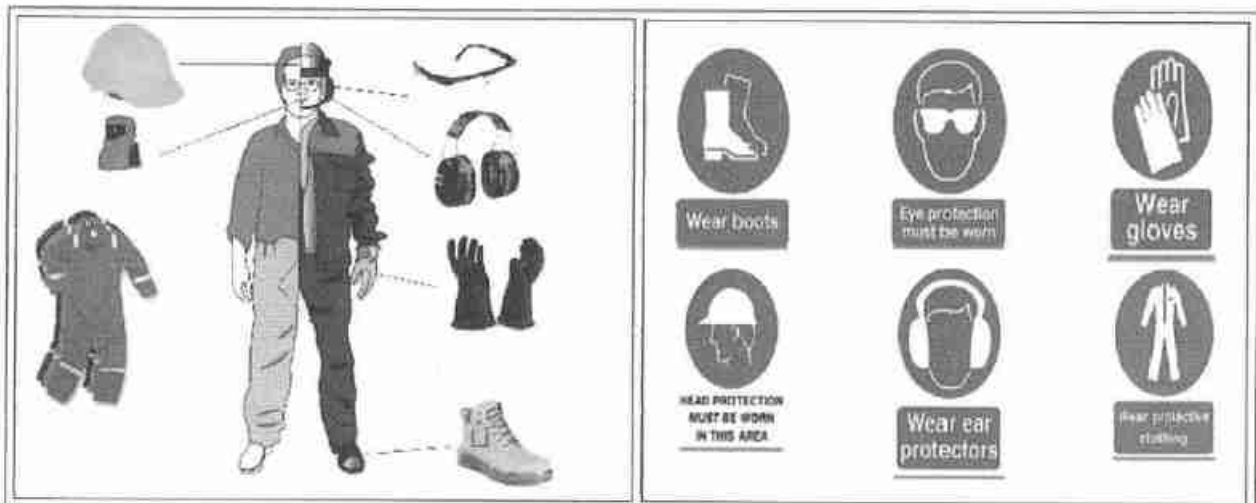
c. First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in charge of first aid and injured person will be taken to the hospital by the applicant vehicle. Hospital is available in Somanur located at a distance of 4km on the Northwestern side.

d. Labour Health:

Periodically medical check-up related to occupational health safety will be conducted to all the workers in applicant own cost.

e. Precautionary safety measures to the labourers:



- Helmets,
- Mine Goggles,
- Ear plugs,
- Ear muffs,
- Dust mask,
- Reflector jackets,
- Safety Shoes

All personnel protective devices will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men and machinery and to create awareness about conventional opencast quarrying operations.

**PART - B****10.0 ENVIRONMENT MANAGEMENT PLAN****10.1 Existing Land use pattern:**

The quarry lease applied area exhibits plain topography. The area is a dry barren land devoid of Agriculture and Habitations. The lease applied area has utilized only for quarry operation in earlier.

LAND USE TABLE-10

Description	Present area in (ha)	Area at the end of this quarrying period (ha)
Quarrying Pit	2.70.0	2.70.0
Infrastructure	Nil	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.15.0
Unutilized Area	0.49.5	0.33.5
Grand Total	3.21.5	3.21.5






10.2 Water Regime:

It is a simple opencast quarry operation. The quality of water will not be affected due to this quarrying operation. However, mitigation measures will be carried out like Garland drains constructed on all sides of quarry pit to avoid surface run-off rain water entering into the pit.







The waste water discharged to water bodies will be met the standard prescribed under the Environment (Protection) Act – 1986 by The Ministry of Environment, Forest and Climate change.

10.3 Flora and Fauna:

TABLE-11

S.No.	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Thespesia populnea</i>	Indian Tulip Tree	Poovarasu	Tree	
2.	<i>Tamarindus indica</i>	Caesalpinaceae	Puli	Tree	
3.	<i>Pongamia pinnata</i>	Fabaceae	Pungai	Tree	
4.	<i>Cassia auriculata</i>	Fabaceae	Aavarampoo	Shurb	
5.	<i>Ziziphus oenopia</i>	Rhamnaceae	Suraimullu, Surai ilantai	Shurb	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	<i>Capra hircus</i>	Goat	
2.	<i>Boigaspp</i>	Cat snake	
3.	<i>Athene brama</i>	Spotted owlet	
4.	<i>Passer domesticus</i>	House sparrow	
5.	<i>Precis hierta</i>	Yellow pansy	
6.	<i>Funambulus palmarum</i>	Indian palm squirrel	



10.4 Climatic Conditions:

The area receives rainfall of about 607mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 23°C.

10.5 Human settlement:

There are few villages located in this area within 5km radius; the approximate distance and population are given below:

TABLE-12

S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Kalipalayam	3km – Northeast	4,800
2.	Ichipatti	2km – Southeast	9,600
3.	Samalapuram	2km – Northwest	3,300

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Sular located at a distance of 9km on the Southwestern side of the area.

10.6 Plan for air, dust suppression:

The air quality will be affected by the Suspended Particulate Matter (SPM) generated by the slurry blasting, jack hammer drilling, loading and unloading during the Rough stone quarry operation. The following Mitigations measures will be carried out:

- Mist Water spraying will be carried out by means of water sprinklers to suppress the dust emission in the Haul roads.
- Vegetations will be formed on the non quarrying area.
- Avoiding spillages during the transportation.

Air quality will be monitored periodically as per Norms and Mitigative measures carried out to prevent dust and Air propagation in to air. The estimated budget for dust suppression would be around **Rs.52,000/year**.

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**10.7 Plan for Noise level control:**

The noise level increased due to the Drilling, Blasting, Excavation and Transportation.

Engineering Noise control:

Noise will be created due to the usage of Machineries and Vehicles. The Noise will be controlled in the following manner.

- Selection of new low – noise equipment's is proposed to be deployed for the Rough stone quarry operation.
- Modifications of older equipments.
- Implementation of effective preventive maintenance which reduces noise more than 50%.
- Developing Green belts which act as Acoustic barrier, pollution absorbent and noise controller.
- The drivers will be strictly instructed to move the vehicle during the transportation not exceed 40km per hour.
- Sentries with flags & whistle will posted in village road junction and populated area to control and regulate traffic.

Shallow holes of 32mm diameter and maximum depth of 1.5m will be drilled and conventional low power explosives such as slurry explosives, ordinary safety fuse will be used for Rough stone. Hence, ground vibration and noise pollution i.e., minimal and restricted within the quarry working area.

Noise level monitoring and other Mitigation measures will be carried out to reduce Noise and Vibration. The estimated budget for Noise level monitoring would be around **Rs.2,000/Year**.

10.8 Environment impact assessment statement describing impact of mining on the next five years:

In the mining plan proposed for a production of Rough stone does not involve deep hole drilling and blasting. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the Environment impact studies will be conducted as per EIA notification issued by MoEF&CC. It is B2 Category mine. The estimated budget would be around **Rs.3,80,000/-**.

10.9 Proposal for waste management:

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

**10.10 Proposal for reclamation of land affected during mining activities and at the end of mining****(refilling / fencing etc.):**

In the mining plan proposed only to a maximum depth of 45m below ground level has been envisaged as workable depth for safe & economic mining during entire lease applied area. There is no waste generated hence, backfilling is not possible. Hence, the quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. The barbed wire fencing cost would be around **Rs.1,29,000/-**.

10.11 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):

The safety zone all along the boundary barrier has been identified to be utilized for Greenbelt development. Appropriate native species of Neem, Pongamia Pinnata, Casuarina, etc., trees will be planted in a phased manner as described below.

TABLE-13

Year	No. of trees proposed to be planted	Survival %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	30	80	300	Neem, Pongamia Pinnata, Casuarina, etc.,	24
II	30	80	300		24
III	30	80	300		24
IV	30	80	300		24
V	30	80	300		24

Nearly 1,500sq.m area is proposed to use under Greenbelt by planting 30 Number of tree saplings during every year with an anticipated survival rate of 80% (Please refer Plate No. III). The estimated budget for plantation and maintenance of Greenbelt development would be around **Rs.15,000/-** for the period of five years.

**10.12 Proposed financial estimate / budget for (EMP) environment management:**

Budget Provision for the entire quarrying period:

TABLE-14

S. No	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year
1	Ambient air quality monitoring	6500	4	26000	52000
2	Noise level monitoring	250	4	1000	2000
3	Ground vibration monitoring	1000	2	2000	4000
4	Water sampling and analysis	9000	1	9000	18000
Total EMP Cost/ year					76,000

The EMP cost would be around Rs.3,80,000/- for the period of five years.

A. Project / investment / Operational cost

i) Land cost	The Land value as per the Government Guideline land cost is about, <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>S.F. Nos.</th> <th>Extent</th> <th>Cost/Ha</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>220/1A</td> <td>0.74.0</td> <td>1325000</td> <td>980500</td> </tr> <tr> <td>220/1C</td> <td>1.19.0</td> <td>1325000</td> <td>1576750</td> </tr> <tr> <td>223/2F</td> <td>1.28.5</td> <td>828000</td> <td>10663980</td> </tr> <tr> <td>Total</td> <td>3.21.5</td> <td></td> <td>3621230</td> </tr> </tbody> </table> i.e., Rs.36,22,000/- (source : https://tnreginet.gov.in/portal/)	S.F. Nos.	Extent	Cost/Ha	Total	220/1A	0.74.0	1325000	980500	220/1C	1.19.0	1325000	1576750	223/2F	1.28.5	828000	10663980	Total	3.21.5		3621230	= Rs.36,22,000/-
S.F. Nos.	Extent	Cost/Ha	Total																			
220/1A	0.74.0	1325000	980500																			
220/1C	1.19.0	1325000	1576750																			
223/2F	1.28.5	828000	10663980																			
Total	3.21.5		3621230																			
ii) Machinery to be used	The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tippers, Tractor mounted compressor with jack hammer and loose tools (Rental Basis)	= Rs.25,00,000/-																				
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattles cost would be around	= Rs.1,29,000/-																				
iv) Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost would be around	= Rs.1,00,000/-																				



Mining Plan and PQCP

Ichipatti Rough stone and Gravel Quarry

v) Sanitary facility	Adequate latrine and urinal accommodation shall be provided at conveniently accessible places the cost would be around	= Rs.80,000/-
vi) Others items	First aid room & accessories	= Rs.70,000/-
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	= Rs.1,25,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	= Rs.70,000/-
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	= Rs.70,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	= Rs.1,50,000/-
xi) Garland drains Construction	Construction of garland drains to divert surface runoff from virgin area away from mining area	= Rs.90,000/-
xii) Greenbelt etc.	Greenbelt program will be carried out in the boundary barriers the cost would be around	= Rs.15,000/-
	Total Operational Cost	= Rs.70,21,000/-



B. EMP Cost: (Per year)	
Air Quality monitoring	Rs.52,000/-
Water Quality Sampling	Rs.18,000/-
Noise Monitoring	Rs. 2,000/-
Ground Vibration test	Rs. 4,000/-
Total Cost	Rs.76,000/-
Total EMP Cost for the five years period is Rs.3,80,000/-	
Description	Amount (Rs.)
A. Operational Cost	70,21,000
B. EMP Cost	3,80,000
Total Project Cost (A+ B)	74,01,000
The applicant indents to involve corporate environment responsibilities (CER) activity like Water Purifier and Medicine Storage rack facilities to the Dispensary and Water Purifier to the nearby Govt. School at 2.0% from the total project cost. The Cost would be around Rs.1,49,000/- .	1,49,000
Total Cost	75,50,000/-
The Total cost would be around seventy five lakhs and fifty thousands only.	

**11.0 PROGRESSIVE QUARRY CLOSURE PLAN****11.1 Introduction:**

The Progressive Quarry Closure Plan for Rough stone and Gravel quarry over an extent of 3.21.5ha of Patta lands in S.F.Nos.220/1A, 1C & 223/2F of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State has been prepared for **Thiru. S.A. Ramachandran**, S/o.Arumugam, Earanthottam, Chengadurai, Sulur Taluk, Coimbatore District, Tamil Nadu State – 641 401.

11.2 Present Land use pattern:LAND USE TABLE-15

Description	Present area in (ha)
Quarrying Pit	2.70.0
Infrastructure	Nil
Roads	0.02.0
Green Belt	Nil
Unutilized Area	0.49.5
Grand Total	3.21.5

11.3 Method of Mining:

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

However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act – 1952.

11.4 Mineral Processing Operations:

The quarried out Rough stone will be transported by the 20tons capacity Tipper to the needy crushers. Splitting of rock mass of considerable volume from the parent rock mass by jack hammer drilling and blasting, hydraulic excavators are used for loading the Rough stone from pithead to the needy crushers.

**11.5 Reasons for closure:**

As the mineral is not going to be exhausted during the proposed plan period no immediate closure is planned and sufficient reserves are available to carry on the activities. The reason for closure will be discussed in the ensuing mining plan.

11.6 Statutory obligations:

The applicant ensures to comply all the conditions were imposed while granting the precise area communication letter before the execution of lease deed and during the course of quarry operations.

11.7 Progressive quarry closure plan preparation:

Name and address of the Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Name	:	Dr. P. Thangaraju, M.Sc., Ph.D., Qualified Person
Address	:	Regd. off. No.17, Advaita Ashram Road, Alagapuram, Salem - 636 004.
Tele Fax	:	0427- 2431989 (Office)
Cell No	:	+91 94422 78601 & 94433 56539

Applicant will himself implement the closure plan; no outside agency will be involved.

11.8 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

There is no waste generated during entire life of quarry, hence backfilling is not possible in the quarried out pit. The entire quarry area is an active also no proposal given for Progressive quarry closure plan in the previous mining plan hence, the applicant has not taken any action for progressive quarry closure. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure plan during this plan period, it will be discuss in the ensuing Mining Plan.

**11.9 Closure Plan:****(i) Mined Out Land:**

At the end of mining plan period, about 2.70.0ha of area will be mined out. Land use at various stages is given in the table below:

LAND USE TABLE-16

Description	Present area in (ha)	Area at the end of this quarrying period (ha)
Quarrying Pit	2.70.0	2.70.0
Infrastructure	Nil	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.15.0
Unutilized Area	0.49.5	0.33.5
Grand Total	3.21.5	3.21.5

(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:

- Construction of garland drains to divert surface run-off from virgin area away from mining area.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- The quarried out pit will be allowed to collect rain and seepage water which will act as a reservoir for storage. This water storage will enhance the static level and ground water recharge of nearby wells and it will be used for agriculture purpose to the nearby agriculture lands.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.



(iii) Air Quality Management:

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face-mask, earplug/ muffs.

For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

(iv) Top Soil and Waste Management:

There is no topsoil or waste generated during the proposed plan period. The entire quarried out Rough stone and Gravel is utilized (100%). Hence, waste management does not arise.

(v) Disposal of mining machinery:

All the machineries will be engage on rental basis. Hence, disposal or decommissioning of mining machinery does not arise.

(vi) Safety & Security:

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

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be provide before blasting time to prevent any accident.



- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

(vii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete quarrying operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.

(viii) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.



- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:
- Quarry roads and approach roads,
 - Fencing on approach roads,
 - Checking and maintenance of machines and equipment,
 - Drinking water arrangements,
 - Quarry office, first aid stations etc.
- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, quarrying operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The Quarry Lease is granted for a period of maximum five years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

(x) Time Scheduling for Abandonment:

The lease applied area has enormous potential for continuance of operations even after the expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final closure plan.

**(xi) Abandonment Cost:**

As at present mining is not going to be closed so abandonment cost could not be assessed. However based on the progressive quarry closure activities during the plan period, cost is assessed as given below:

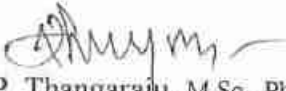
LAND USE TABLE-17

ACTIVITY		YEARS					RATE	AMOUNT (INR)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	30	30	30	30	30	@100 Rs Per sapling	Rs.15,000/-
	Cost	3000	3000	3000	3000	3000		
Wire Fencing (In Mtrs) 430 Mtrs		129000	-	-	-	-	@300 Rs Per Meter	Rs.1,29,000/-
Garland drain (In Mtrs) 300 Mtrs		90000	-	-	-	-	@300 Rs Per Meter	Rs.90,000/-
TOTAL								Rs.2,34,000/-

12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

This Mining Plan for Rough stone (Charnockite) and Gravel is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Concerned Department.

Prepared by


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

Place: Salem

Date: 29.09.2022


DONATE RED

SPREAD GREEN

SAVE BLUE

This Mining Plan is approved subject
to the Conditions Indicated in the
Mining Plan approved Letter
No. 1595/mines/2022
Dated 14.10.2022.

This Mining Plan is approved as per the
Powers conferred under rule 41(2) of Tamil
Nadu Minor Mineral Concession Rules, 1959


ASSISTANT DIRECTOR
Geology and Mining
TIRUPPUR





உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.

ந.க. 1595/கனிமம்/2020

நாள்: 26.09.2022.

குறிப்பாணை

பொருள் : கனிமங்களும் சுரங்கங்களும் - சிறு கனிமம் - திருப்பூர் மாவட்டம் - திருப்பூர் மாவட்டம் - பல்லடம் வட்டம் - இச்சிப்பட்டி கிராமம் - பட்டா புல எண்கள். 220/1C (1.19.0), 220/1A (0.74.0) and 223/2F (1.28.5) ஆகியவற்றில் மொத்தம் 3.21.5 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண்குவாரி குத்தகை உரிமம் கோரி திரு. எஸ்.ஏ. ராமச்சந்திரன், த/பெ.ஆறுமுகம் என்பவர் விண்ணப்பம் அளித்தது - அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் சுற்றுச் சூழல் ஒப்புதல் பெற்று அளிக்க கோருதல் - தொடர்பாக.

- பார்வை :
1. திரு. எஸ்.ஏ. ராமச்சந்திரன், த/பெ. ஆறுமுகம், ஏறந்தோட்டம், செங்கந்துறை, சூலூர் என்பவரின் விண்ணப்பம் நாள்: 09.12.2020.
 2. இவ்வலுவலக ந.க.எண். 1595/2020/கனிமம் நாள்: 12.12.2020.
 3. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை ந.க. 1870/எம்.எம்.1/2020 நாள்: 10.08.2020 கடிதத்துடன் அரசாணை (பல்வகை) எண். 169, தொழில் (எம்எம்.சி-1) துறை நாள்: 04.08.2020 இணைத்து வரப்பெற்றுள்ளது. (தமிழ்நாடு அரசிதழ் சிறப்பு வெளியீடு எண். 315 நாள்: 04.08.2020).
 4. வட்டாட்சியர், பல்லடம் கடிதம் ந.க. 4192/2020/ஆ4, நாள்: 29.05.2021.
 5. வருவாய் கோட்டாட்சியர், திருப்பூர் கடிதம் ந.க. 3510/2020/ஈ1, நாள்: 11.06.2021.
 6. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, திருப்பூர் புலத்தணிக்கை அறிக்கை நாள்: 23.09.2022.
 7. மற்றும் உரிய ஆவணங்கள்

திருப்பூர் மாவட்டம், பல்லடம் வட்டம், இச்சிப்பட்டி கிராமம், புல எண்கள். 220/1C (1.19.0), 220/1A (0.74.0) and 223/2F (1.28.5) ஆகியவற்றில் மொத்தம் 3.21.5 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் குவாரிக் குத்தகை உரிமம் வழங்க கோரி திரு. எஸ்.ஏ. ராமச்சந்திரன், த/பெ.ஆறுமுகம் என்பவர் பார்வை 1-ல் கண்டுள்ளபடி உரிய ஆவணங்களுடன் விண்ணப்பம் அளித்துள்ளார்.


2. மேற்படி விண்ணப்பம் தொடர்பாக, பல்லடம் வட்டாட்சியர், திருப்பூர் வருவாய் கோட்டாட்சியர், மற்றும் திருப்பூர், புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர்



ஆகியோர் புலத்தணிக்கை மேற்கொண்டு திருப்பூர் மாவட்டம், பல்லடம் வட்டம், இச்சிப்பட்டி கிராமம், புல எண்கள். 220/1C (1.19.0), 220/1A (0.74.0) and 223/2F (1.28.5) ஆகியவற்றில் மொத்தம் 3.21.5 ஹெக்டர் பரப்பில் திரு. எஸ்.ஏ. ராமச்சந்திரன், த/பெ.ஆறுமுகம் என்பவருக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் குவாரி உரிமம் வழங்க கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

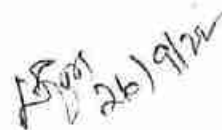
- புலத்தை சுற்றி அமைந்துள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரி பணிபுரிய வேண்டும்.
- விண்ணப்பப் புலத்தின் மேற்குப் பகுதியில் அமைந்துள்ள புறம்போக்கு நிலத்திற்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி அளித்து குவாரிப்பணி புரிய வேண்டும்.

எனவே, பல்லடம் வட்டாட்சியர், திருப்பூர் வருவாய் கோட்டாட்சியர், மற்றும் திருப்பூர், புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோர்களின் பரிந்துரைகளின் அடிப்படையில் திரு. எஸ்.ஏ. ராமச்சந்திரன், த/பெ.ஆறுமுகம் என்பவருக்கு திருப்பூர் மாவட்டம், பல்லடம் வட்டம், இச்சிப்பட்டி கிராமம், புல எண்கள். 220/1C (1.19.0), 220/1A (0.74.0) and 223/2F (1.28.5) ஆகியவற்றில் மொத்தம் 3.21.5 ஹெக்டர் பரப்பில் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959-இன் விதி எண். 19 (1) (b), 20 மற்றும் 22-ன்படி குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றப்பட்ட நாளிலிருந்து 5 ஆண்டுகளுக்கு சாதாரண கற்கற் மற்றும் கிராவல் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக மேற்காணும் நிபந்தனைகளுக்கு உட்பட்டு திருப்பூர் உதவி இயக்குநரால் ஏற்பளிக்கப்பட்ட சுரங்கத் திட்டம் மற்றும் மாநில சுற்றுச் சூழல் அமைப்பிடம் இருந்து பெறப்பட்ட சுற்றுச்சூழல் ஒப்புதல் ஆகியன உரிய காலத்திற்குள் விண்ணப்பதாரால் பெற்றளிக்கப்பட வேண்டும் என தெரிவிக்கப்படுகிறது.


உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.

பெறுநர்

திரு. எஸ்.ஏ. ராமச்சந்திரன், த/பெ. ஆறுமுகம்,
எறந்தோட்டம், செங்கந்துறை, குலூர்


26/9/22



Dr. S. KALYANASUNDARAM ,I.F.S.(Retd.)
CHAIRMAN

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1 Jeenis Road, Saidapet,
Chennai-15.
Phone No.044-24359974
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.5480/1(a)/ EC.No:3543/2016 dated: 10.08.2016

To
Thiru. S. A. Ramachandran
No.2/130, Chengadurai
Sulur Taluk
Coimbatore - 641658



Sir,

Sub: SEIAA-TN – Proposed Rough Stone & Gravel quarry located at S.F.No 220/1A & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District- issue of Environmental Clearance – Reg.

Ref: 1. Your Application for Environmental Clearance dt: 30.06.2016
2. Minutes of the 79th SEAC held on 06.08.2016 & 08.08.2016
3. Minutes of the SEIAA meeting held on 10.08.2016

Details of Minor Mineral Activity:-

This has reference to your application first cited. The proposal is for obtaining environmental clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.

1	Name of Project Proponent and address	Thiru. S. A. Ramachandran No.2/130, Chengadurai Sulur Taluk Coimbatore - 641658
2	Location of the Proposed Activity	
	Survey Number	220/1A & 223/2F
	Latitude and Longitude	11°03'24.62"N to 11°03'18.14"N 77°12'00.71"E to 77°11'52.94"E
	Village	Ichipatti
	Taluk	Palladam

Kalyan Sundaram
CHAIRMAN
SEIAA-TN
12/8/16
140

	District	Tiruppur
3	Proposed Activity	
	i. Minor mineral	Rough Stone & Gravel
	ii. Mining Lease Area	2.02.5 Ha
	iii. Approved quantity	78099.5 cu.m of Rough Stone & 73755 cu.m of Gravel
	iv. Depth of Mining	35 m
	v. Type of mining	Opencast Semi Mechanized Method
	vi. Category(B1/B2)	B2
	vii. Precise area communication	Rc.No.430/Mines/2015 dated 15.06.2016
	viii. Mining plan approval	Deputy Director Rc.No.430/Mines/2015 dated 24.06.2016
	ix. Mining lease period	5 Years
4	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-	Not attracted. Affidavit furnished
5	Man Power requirement per day:	12 Employees
6	Utilities	
	i. Source of Water :	Water vendors/Borehole
	ii. Quantity of Water Requirement in KLD:	
	a. Domestic	0.3KLD
	b. Industrial	} 0.7KLD
	c. Green Belt & Dust Suppression	
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	74770 Litres of HSD
7	Cost	
	i. Project Cost	Rs.49.65 Lakhs
	ii. EMP Cost	Rs.7.60 Lakhs
8	Public Consultation:-	Not required as per O.M. dated 24.12.2013 of MoEF, Gol.
9	Date of Appraisal by SEAC:- Agenda No:	06.08.2016 & 08.08.2016 79-22
10	Date of Review/Discussion by SEIAA and the Remarks:-	The proposal was placed before the SEIAA in its 186 th Meeting held on 10.08.2016 and the Authority after careful consideration, decided to grant environmental clearance to the said project Mining of Rough Stone & Gravel subject to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.
11	Validity:	The Environmental Clearance will be coterminous with the mine lease period or limited to a maximum period of 5 Years from the date of issue whichever is earlier.



Conditions to be Complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - I. The project has been accorded Environmental Clearance.
 - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - III. Environmental Clearance may also be seen on the website of the SEIAA.
 - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.

15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
19. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
20. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
21. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
22. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
23. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
24. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.
25. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
26. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
27. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
28. The following measures are to be adopted to control erosion of dumps:-
 - i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.



29. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
30. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
31. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
32. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
33. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
34. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
35. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
36. It shall be ensured that the total extent of nearby quarries (existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.
37. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site
38. Ground water quality monitoring should be conducted once in 3 Months
39. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
40. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
41. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI..
42. Bunds to be provided at the boundary of the project site.
43. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.

44. At least 10 Neem trees should be planted around the boundary of the quarry site.
45. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
46. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
47. The Project Proponent shall provide solar lighting system to the nearby villages
48. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
49. Rainwater shall be pumped out Via Settling Tank only
50. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
51. As per MoEF&CC, Gol, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from standing committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
52. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
53. Safety equipments to be provided to all the employees.
54. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
55. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
56. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
57. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
58. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
59. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
60. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.



General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non-judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.

16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the Interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA,TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments; draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied
23. Any appeal against this environmental clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.


CHAIRMAN
SEIAA-TN


 10/12/16

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary, Environment and Forests Department, Government of Tamil Nadu, Tamil Nadu.
3. The Additional Chief Secretary, Industries Department, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Tiruppur District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.



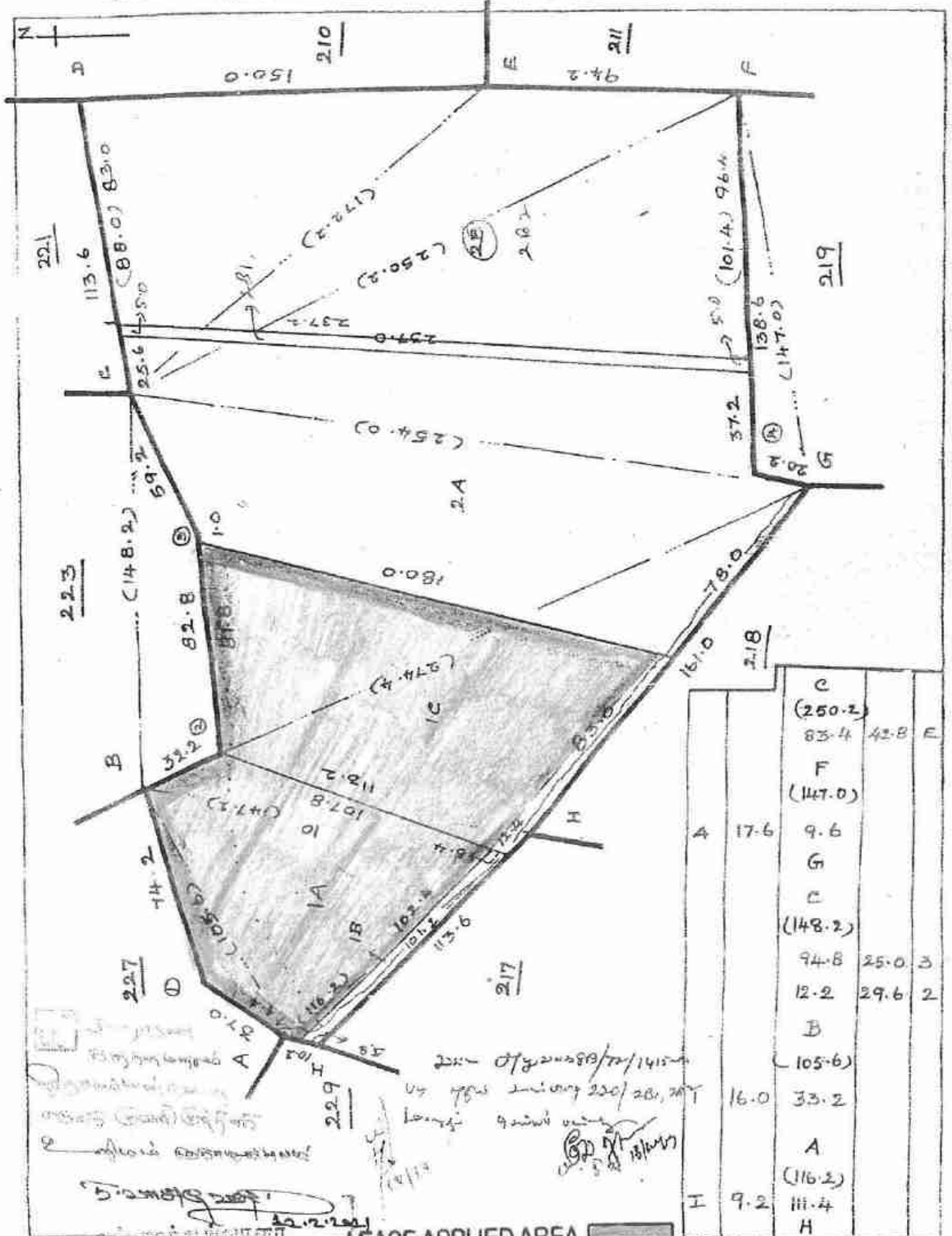
பெயர்: சிவசுந்தர்
மாண்புமிகு: சிவசுந்தர்

வட்டம்: பரமபுரம்

புறநகர்: 220

புறநகர்: வெள்ளை

6. எண். 32.0



LEASE APPLIED AREA

84 A

தேதி: 1. 2000

சுயநிர்வகிப்பு

சுயநிர்வகிப்பு

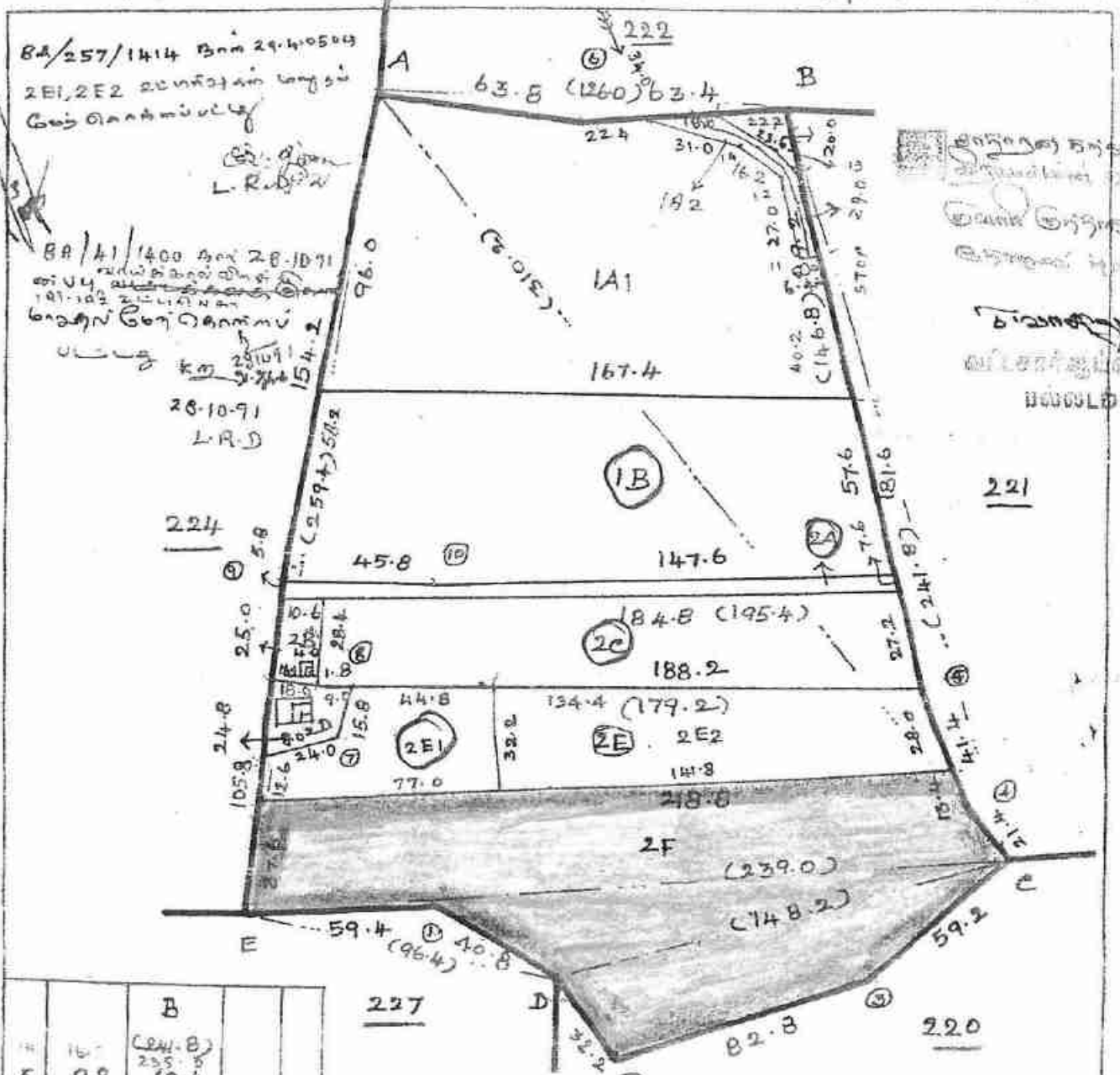
மாவட்டம். கோயம்புத்தூர்
 திருப்பூர்
 வட்டம். பஸ்கொட்டை

எண். 33
 கிராமம்
 பெயர். கி.சி.சிப்பாட்டி



புல எண். 223

பரப்பு: ஹெக்டேர் 4. ஏர். 91.5



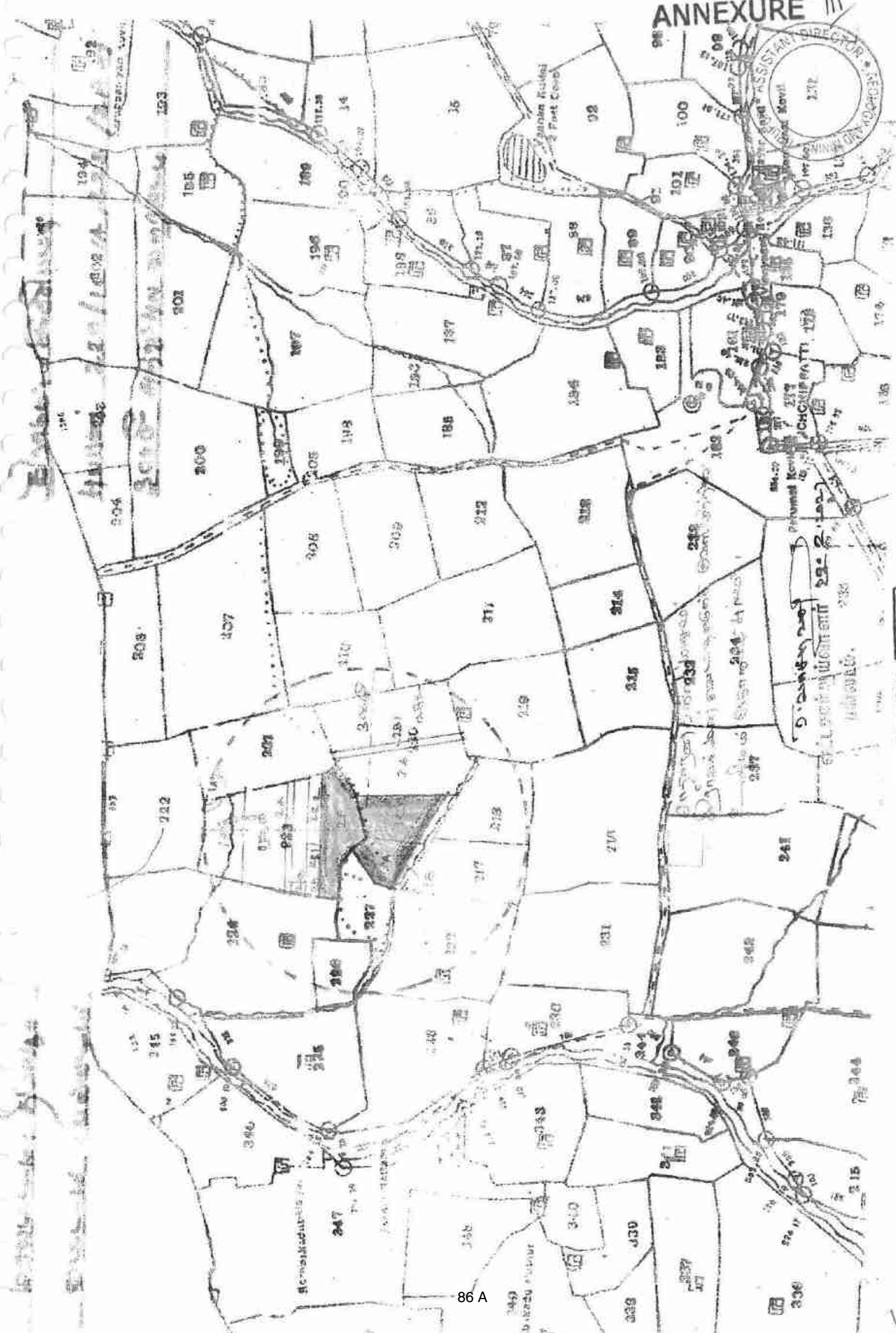
14	16	B	(259.4)																	
8	8.8	235.8																		
13	6.2	60.4																		
4	9.2	231.0																		
17	6.2	19.0																		
11	8.6	201.0																		
		104.0																		
		C	(148.2)																	
		94.8	25.0	3	D	26.4	145.8													
		12.2	29.6	2			C													
		D	(96.4)				A													
1	13.6	57.8			6	8.4	62.8													
		E					B													

திருப்பூர்
 பஸ்கொட்டை
 தி.சி.சி

அளவு 185,000

உதயசிங்கம்
 தி.சி.சி
 தி.சி.சி

ANNEXURE III



LEASE APPLIED AREA



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருப்பூர்

வட்டம் : பல்லடம்

வருவாய் கிராமம் : இச்சிப்பட்டி

பட்டா எண் : 1611

உரிமையாளர்கள் பெயர்

1. ஆறுமுகம் மகன் ராமச்சந்திரன்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
220	1A	0 - 74.00	1.48	--	--	--	--	R14/0400--- -- 02-02-2001
220	1C	1 - 19.00	2.41	--	--	--	--	R14/0400--- -- 02-02-2001
226	1	0 - 37.50	1.55	--	--	--	--	R14/0400--- -- 14-12-2001
		2 - 30.50	5.44					

குறிப்பு2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 32/03/002/01611/30249 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 27-11-2020 அன்று 11:31:05 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருப்பூர்

வட்டம் : பல்லடம்

வருவாய் கிராமம் : இச்சிப்பட்டி

பட்டா எண் : 1365

உரிமையாளர்கள் பெயர்

1. (லேட்) எஸ்.ஆர்.ஆறுமுகம்

மகன்

ராமச்சந்திரன்

புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
223	2F	1 - 28.50	2.60	--	--	--	--	R14/0400D--- -- 02-02-2001
		1 - 28.50	2.60					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 32/03/002/01365/30285 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 27-11-2020 அன்று 11:29:09 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



பிடிபெற்றுள்ள நிலங்களின் பட்டியல்

(1) பிடிபெற்றுள்ள நிலங்களின் பட்டியல்	(2) அளவு	(3) ஏக்கர்	(4) சதுர மீட்டர்	(5) பிடிபெற்றுள்ள நிலங்களின் பட்டியல்	பிரதம பிரதமம்				
					(6) சதுர மீட்டர்	(7) ஏக்கர்	(8) ஏக்கர்	(9) ஏக்கர்	(10) ஏக்கர்
220 1A 0119 048 1611	1611			பிரதம பிரதமம்					
223 2F 08 260 1965	1965			பிரதம பிரதமம்					

386/73-R.F. III-A-10-20,00,000 Cpr.-GBR.-Mod.-7.-2017.

169

பிடிபெற்றுள்ள நிலங்களின் பட்டியல்

(1) பிடிபெற்றுள்ள நிலங்களின் பட்டியல்	(2) அளவு	(3) ஏக்கர்	(4) சதுர மீட்டர்	பிரதம பிரதமம்				
				(5) சதுர மீட்டர்	(6) ஏக்கர்	(7) ஏக்கர்	(8) ஏக்கர்	(9) ஏக்கர்
220 1A 0119 048 1611	1611			பிரதம பிரதமம்				
223 2F 08 260 1965	1965			பிரதம பிரதமம்				

386/73-R.F. III-A-10-20,00,000 Cpr.-GBR.-Mod.-7.-2017.

169

(1) தேர்வு எண்	(2) தேர்வு விவரம்	(3) தேர்வு தேதி	(4) தேர்வு இடம்	(5) தேர்வு நேரம்	(6) தேர்வு விவரம்	பிரச்சினைகள்					
						(7) தேர்வு விவரம்	(8) தேர்வு விவரம்	(9) தேர்வு விவரம்	(10) தேர்வு விவரம்	(11) தேர்வு விவரம்	(12) தேர்வு விவரம்
320	IC 1190241611	2017			செயல்பாட்டு விவரம்						

(1) தேர்வு எண்	(2) தேர்வு விவரம்	(3) தேர்வு தேதி	(4) தேர்வு இடம்	(5) தேர்வு நேரம்	பிரச்சினைகள்					
					(6) தேர்வு விவரம்	(7) தேர்வு விவரம்	(8) தேர்வு விவரம்	(9) தேர்வு விவரம்	(10) தேர்வு விவரம்	



Handwritten number 40

இ. எண். 83. இச்சிப்பட்டி.

Handwritten notes on the left margin including '1428 500' and '18'.



	3	4	5	6	7	8	9	10	11
						கு. ஊப.	விநா.சார்ல.	கு. ஊப.	
1B	ர	4	...	8-3	5	2 00	0 43.5	0 87	371 க. பழனி சாமி.
1B	ர	4	...	8-3	5	2 00	0 49.0	0 98	34 க. ஆறுமுகம்.
1B	ர	4	...	8-3	5	2 00	0 87.5	1 76	523 மா. ராமசாமி கவுண்டர்.
1B	ர	4	...	8-3	5	2 00	1 48.0	2 98	72 க. கருணாசாமி மாள்.
1B	ர	4	...	8-3	5	2 00	1 18.0	3 64	73 கு. கணபதி கவுண்டர்.
							6 10.0	12 25	
1B	ர	4	...	8-3	5	2 00	2 08.5	4 19	74 ரா. கணபதி கவுண்டர்.
1B	ர	4	...	8-3	5	2 00	0 03.0	0 06	669 ரா. சுப்பா கவுண்டர் (1), ரா. கணபதி கவுண்டர் (2).
1B	ர	4	...	8-3	5	2 00	1 91.5	3 81	242 ரா. சுப்பா கவுண்டர்.
							3 94.5	3 87	
1B	ர	4	...	8-3	5	2 00	1 81.0	3 62	372 க. பழனி கவுண்டர்.
1B	ர	4	...	8-3	5	2 00	0 02.0	0 06	670 வே. பழனிசா கார் (1), ப. வள்ளியம் மாள் (2).
1B	ர	4	...	8-3	5	2 00	1 90.5	3 82	553 ப. வள்ளியம் மாள்.
							3 73.5	7 50	
1A 220-1	ர	4	...	8-3	5	2 00	0 74.0	1 48	176 த. சிவசுந்தரி கவுண்டர்.
1B	ர	4	...	8-3	5	2 00	0 05.5	0 11	669 ரா. சுப்பா கவுண்டர் (2), ரா. கணபதி கவுண்டர் (2).

கிணறு -1.
கட்டுக் கிணறு-1.
கட்டுக் கிணறு-1.

1A
1B

Handwritten signature and date: '29/11/2015'.



இ. என். 33. இச்சிப்படி.

94

1	2	3	4	5	6	7	8	9	10	11	
220	1C	220-1பா	ர	4	...	8-3	5	2 00	1 19-0	2 41	571 பெ. இ. நாடாள்(1), பழனிசாமி என்கிற ராசாக் கவுண்டர்(2)
	2A	-2பா	ர	4	...	8-3	5	2 00	2 05.0	4 11	242 ரா. சுப்பல கவுண்டர்.
	(2B)	-2பா	ர	4	...	8-3	5	2 00	2 28.5	4 58	74 ரா. கணபதி கவுண்டர்.
									6 32.0	12 69	
221	(1)	221-பா	ர	4	...	8-4	6	1 38	2 28.0	3 15	672 செ. சுப்பல தாள்(1), ந. பழனி கவுண்டர்(2)
	2	-பா	ர	4	...	8-4	6	1 38	0 70.5	0 97	673 மு. கருப்ப தாள்(2) இ. முருக சாமி(2).
									2 98.5	4 12	
222	1	122-பா	ர	4	...	8-3	5	2 00	0 09.0	0 18	332 வை. நாள் முத்து கவுண்டர்
	1	-பா	ர	4	...	8-3	5	2 00	0 01-0	0 06	244 செ. சுப்ப. தாள்.
	(3)	-பா	ர	4	...	8-3	5	2 00	0 21-0	0 42	674 வை. நரசு முத்து கவுண்டர் செ. சுப்ப தாள் (2).
		-பா	ர	4	...	8-3	5	2 00	0 18.5	0 37	332 வை. நரசு முத்துக் கவுண்டர்
		-பா	ர	4	...	8-3	5	2 00	0 39-0	0 78	244 செ. சுப். தாள்.
		-பா	ர	4	...	8-3	5	2 00	1 07.0	2 13	801 க. சுப்பல கவுண்டர் ப. பழனி சாமி (2)

Handwritten signature and notes:
 2020
 க. சிவசுப்பிரமணியன்
 இ. என். 33. இச்சிப்படி



	3	4	5	6	7	8	9	10	11
						கு. ஈய.	கொ. ஏர்ஸ்	கு. ஈய.	
222-புர	ர	4	...	8-3	5	2 00	0 99-0	1 99	244 செ. சுப்பாந் தரன்.
-புர	ர	4	...	8-3	5	2 00	0 79.5	1 59	75 மு. கருப் பாந்தரன்.
-புர	ர	4	...	8-3	5	2 00	0 14.5	0 29	456 வி. முருகசாமி.
-புர	ர	4	...	8-3	5	2 00	0 07.5	0 15	332 வை. நாக்.சி. முத்து கவுண்டர்.
-புர	ர	4	...	8-3	5	2 00	0 05.0	0 10	244 செ. சுப்பாந் தரன்.
-புர	ர	4	...	8-3	5	2 00	0 01.5	0 06	801 க. சுப்பாந் கவுண்டர் (1), க. பழனிச் சாமி (2).
							4 03-0	8 12	
223-புர	ர	4	...	8-3	5	2 00	1 29-0	2 59	1003 க. நாமசாமி மற்றும் ஐந்து பேர்களும்.
200-புர	ர	4	...	8-3	5	2 00	1 05-0	2 10	802 த. சின்ன சின்னிய கவுண்டர் (1), பெ. சி. தஞ்சம் மாள் (2), பெ. சி. பழனி சாமி என்.சி.ராசா கவுண்டர் (3).
200-புர	ர	4	...	8-3	5	2 00	0 07-0	0 14	802 த. சின்ன சின்னிய கவுண்டர் (1), பெ. சி. தஞ்சம் மாள் (2), பெ. சி. பழனி சாமி என்.சி.ராசா கவுண்டர் (3).
200-புர	ர	4	...	8-3	5	2 00	0 05.5	0 07	809 த. சின்ன சின்னிய கவுண்டர் மற்றும் ஐந்து பேர்களும்.
200-புர	ர	4	...	8-3	5	2 00	0 02-0	0 06	332 வை. நாக்.சி. முத்து கவுண்டர்.

கட்டிடக் கொழு.
P. Srinivasan
 20.11.2020



1	2	3	4	5	6	7	8	9	10	11		
								கு. பை.	தொ. ஏர்ஸ்	கு. பை.		
223	2D	223-2பா	ர	4	...	8-3	5	2 00	0 05.5	0 11	1009 வை. கப்பண கவுண்டர் மற்றும் ஐந்து பேர்களும். *	கூடு
	(2E)	-2பா	ர	4	...	8-3	5	2 00	0 61.0	1 22	206 வை. கப்பண கவுண்டர்.	
	2F	-2பா	ர	4	...	8-3	5	2 00	1 28.5	2 60	242 ரா. கப்பண கவுண்டர்.	
									4 91.5	9 87		
224	1	224-பா	ர	4	...	7-1	2	4 17	0 06.0	0 25	964 தா. ராயம் மாள் மற்றும் நான்கு பேர்களும். *	கூடு வந்திட
	2	-பா	ர	4	...	7-1	2	4 17	2 05.5	8 55	887 தா. ராயம் மாள் மற்றும் மூன்று பேர்களும். *	
	3	-பா	ர	4	...	7-1	2	4 17	0 60.0	2 50	388 டி. க. பால தண்டாயுத பாணி.	
	(4)	-பா	ர	4	...	7-1	2	4 17	0 30.5	1 27	1111 தா. ராயம் மாள் மற்றும் பதினொரு பேர்களும். *	நிலை வாக
	5	-பா	ர	4	...	7-1	2	4 17	0 32.5	1 36	887 தா. ராயம் மாள் மற்றும் மூன்று பேர்களும். *	
	6	-பா	ர	4	...	7-1	2	4 17	0 68.0	2 84	1037 க. பழனி யம்மாள் மற்றும் ஆறு பேர்களும். *	
	7	-பா	ர	4	...	7-1	2	4 17	0 24.5	1 02	439 சி. க. மொக கவுண்டர்.	
	8	-பா	ர	4	...	7-1	2	4 17	1 12.0	4 67	388 டி. க. பால தண்டாயுத பாணி.	
		-பா	ர	4	...	7-1	2	4 17	0 04.5	0 19	1103 தா. ராயம் மாள் மற்றும் மூன்று பேர்களும். *	கூடு வந்திட
		-பா	ர	4	...	7-1	2	4 17	0 09.0	0 38	1117 தா. ராயம் மாள் மற்றும் மூன்று பேர்களும். *	கூடு வந்திட

Logyan
செய்தல்

(4)
Logyan

செய்தல்
27.11.2020
தமிழ்நாடு அரசு
மாநில பால் துறை
கூடுகளைக் கட்டுவது
பற்றிய விவரம்

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இந்திய அரசு
 Government of India

ராமச்சந்திரன் சி ஆ
 Ramachandran S A
 பிறந்த நாள் / DOB: 18/04/1977
 ஆண்கள் / Male


6829 1425 2729

ஆதார் - சாதாரண மனிதனின் அதிகாரம்


Unique Identification Authority of India
 முகவரி
 தலைநகர் / தலை நகரம்
 ஆளுமையம், 6-A, 1^{ம்} பி. கே. நகர்
 54^{ம்} 40^{ம்} வீதி, சூலூர்
 சென்னை-600 042
 PIN: 600 042

Address:
 S/O Anuragern, GA, G K S
 NAGAR, 4TH VEETHI, Suloor (TP),
 Coimbatore, Suloor, Tamil Nadu,
 641402

6829 1425 2729

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 www.uidai.gov.in

153



आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

SA RAMACHANDRAN
RAMASAMYGOUNDER ARUMUGAM

19/04/1977
Permanent Account Number

AHCPR0378K

Signature

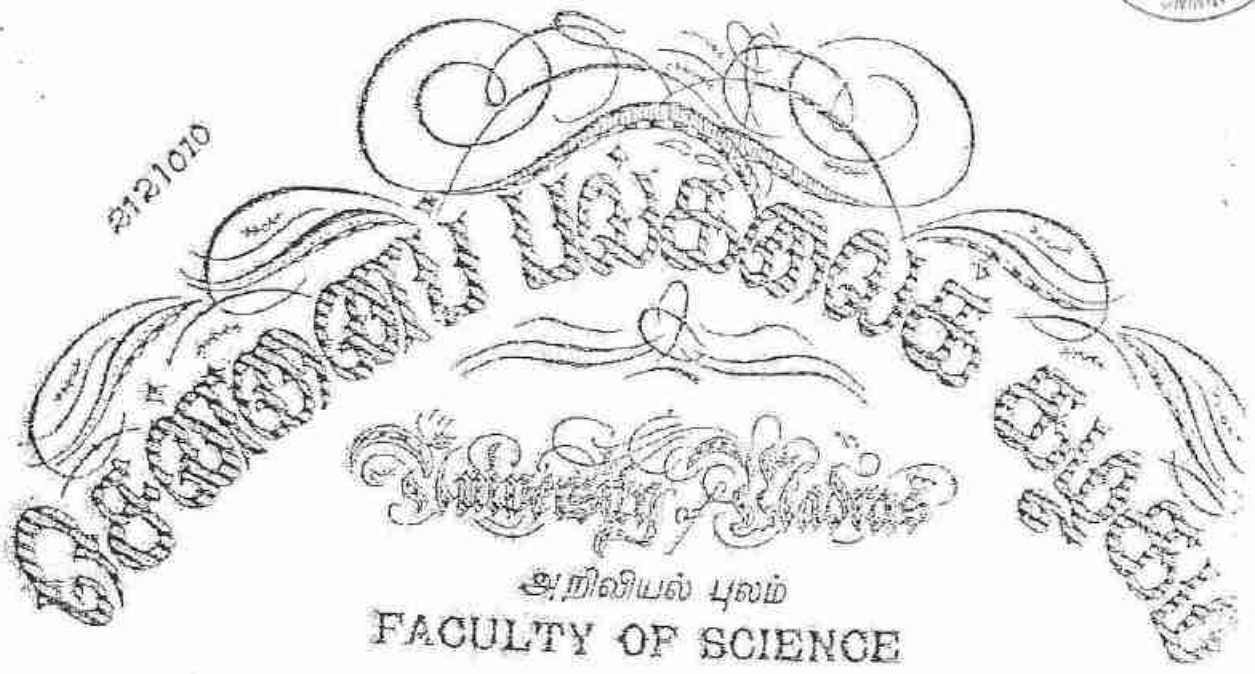


In case this card is lost/ found, kindly inform / return to
Income Tax PAN Services Unit, UTISI,
Plot No. 3, Sector 11, CBZ, Bellapur,
Navi Mumbai - 400 614.

आयकर विभाग से खोया पाया जाने पर कृपया सूचित करें/ वापस करें।
आयकर सेवा केंद्र, UTISI,
प्लॉट नं. 3, सेक्टर 11, सी.बी.जे. बेलपुर,
नवी मुंबई - 400 614



2121070



சென்னைப் பல்கலைக் கழகம் *Madras* 1934

சுற்று... அப்பல்... மதம்... கதிமலியம்...
 வி. சங்கராசு... எம்.பி.டி...
 இவ்வறிவு உடனடியாக உடனடியாக உடனடியாக அறிவிக்கப்பட்டுள்ளதால் அறிவிக்கப்பட்டுள்ளதால் அறிவிக்கப்பட்டுள்ளதால்

The Senate of the UNIVERSITY OF MADRAS hereby makes known that... *P. Sranganaga*... has been admitted to the Degree of Master of Science, in *Geology* having been certified by duly appointed Examiners to be qualified to receive the same in... *First*... Class, at the Examination held in April 1934.



Given under the seal of the University

Secretary, University of Madras

P. T. N. Srinivasan

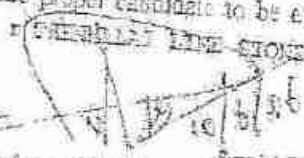


MINISTRY OF LABOUR AND EMPLOYMENT
OFFICE OF THE DIRECTOR GENERAL OF MINES SAFETY

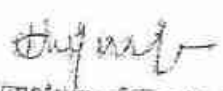
Certificate of Practical experience granted by the Employer - candidate for a Mine Agents
Surveyor's / Foreman's / Overman's / Sirdar's / Miner's / Shot-Fire's / Blaster's Certificate of
competency (Restricted) examination under the Metalliferous Mines Regulations 1961

I T.VENKATARAJAGOPALAN being the Mines Agent of M/S.LIMENAPPE
CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thermal
Limestone Mine) do hereby certify that Thiru P.THANGARAJU, son of
S PERIASAMY (whose signature is appended) worked as a Geologist in the above mine
from 02.05.1994 to 30.12.1999. During his term of work aforesaid, he has obtained practical
experience as detailed overleaf. The duties connected with his work have involved constant
attendance at the mine and have been efficiently performed by him.

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


(Signature with date and official Seal)
T.VENKATARAJAGOPALAN

Mines Agent:
P.O. : ARUKANGULAM
District : TIRUNELVELI
State : TAMIL NADU


(Signature of Candidate)

(State name of Mineral) : LIMESTONE



INDEX

Q.L.APPLIED AREA : ●
 TOPO SHEET NO. : 58 E/04

LATITUDE : 11°03'16.64"N to 11°03'24.76"N
 LONGITUDE : 77°11'53.17"E to 77°12'00.98"E

APPLICANT :

Thiru. S.A. RAMACHANDRAN,
 S/o. ARUMUGAM,
 ERANTHOTTAM,
 CHENGADURAI,
 SULUR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF Q.L. APPLIED AREA:

S.F.Nos : 220/ 1C, 1A & 223/ 2F.
 EXTENT : 3.21.5 Ha.
 VILLAGE : ICHIPATTI,
 TALUK : PALLADAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMILNADU.

PLATE NO - I

DATE OF SURVEY : 28.09.2022

LOCATION PLAN

SCALE: 1:24,00,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE BASED UPON THE LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT

(Signature)
 Dr.P.THANGARAJU, M.Sc., Ph.D.,
 QUALIFIED PERSON

109

11°03'24.76"N

11°03'16.64"N

99 A

LEGEND

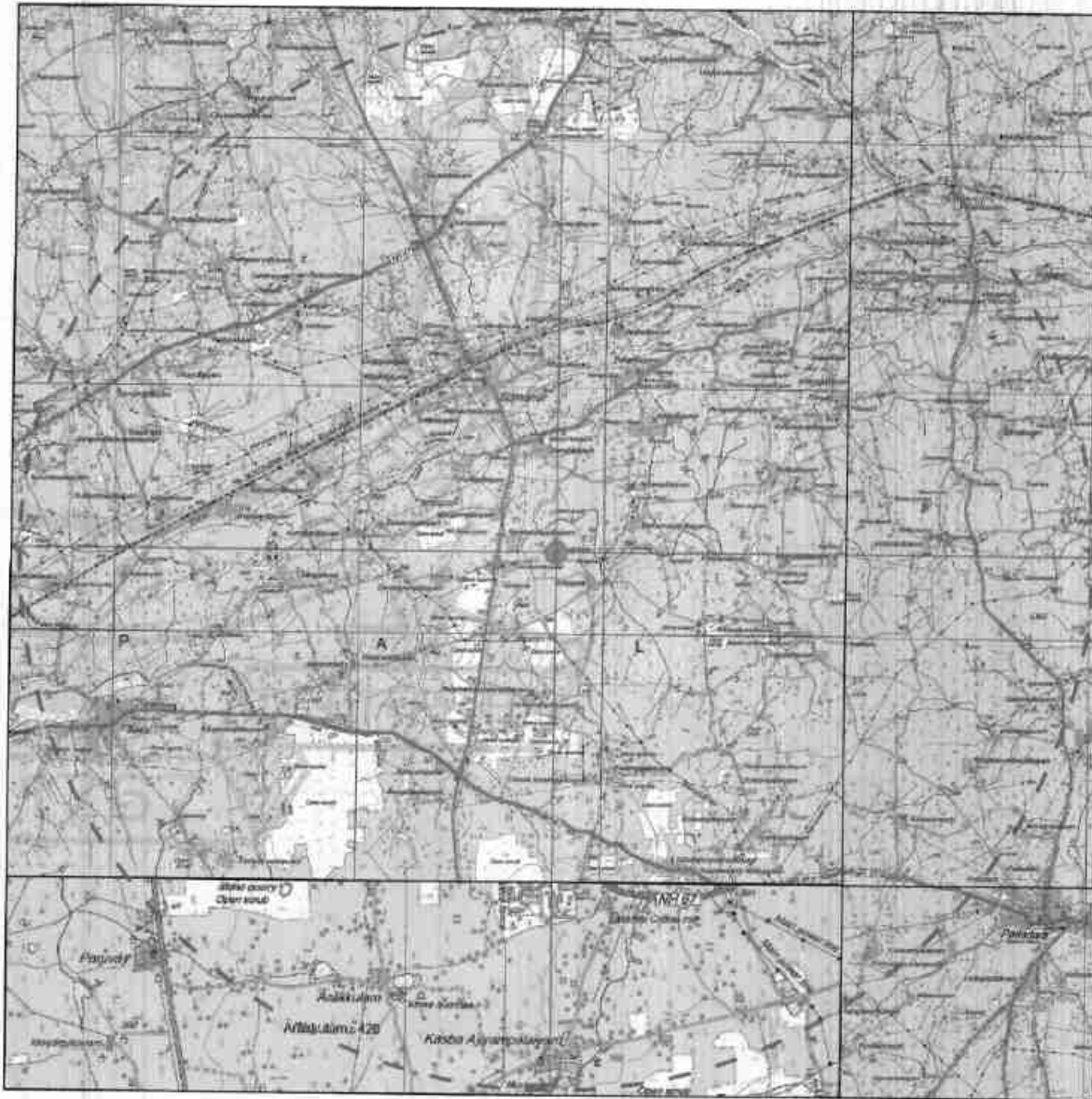
- State Boundary
- District Boundary
- National Highway with no.
- Major Roads
- Railwa Line
- State Capital
- Union Territory Capital
- District Headquarters
- Other towns
- Tourist Places
- Airport
- Seaport

INDEX



11° 08' 50.10"N

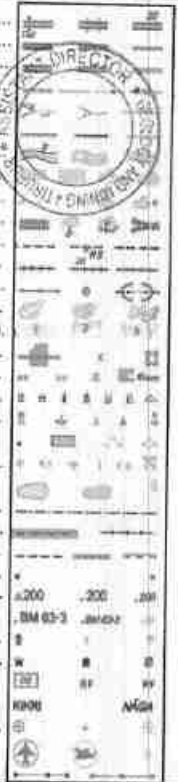
77° 06' 23.80"E



10° 57' 51.29"N

77° 17' 30.32"E

- Express highway: with toll; with bridge; with distance stone.....
- Roads metalled: according to importance.....
- Roads, double carriageway: according to importance.....
- Unmetalled road. Cart-track. Pack-track with pass. Foot-path.....
- Streams: with track in bed; undefined. Canal.....
- Dams: masonry or rock-filled; earthwork. Weir.....
- River, dry with water channel; with island & rocks. Tidal river.....
- Submerged rocks. Shoal. Swamp. Reeds.....
- Wells: lined; unlined. Tubewell. Spring. Tanks: perennial; dry.....
- Embankments: road or rail; tank. Broken ground.....
- Railways, broad gauge: double; single with station; under constrn.....
- Railways, other gauges: double; single with distance stone; do.....
- Mineral line or tramway. Kin. Cutting with tunnel.....
- Contours with sub-features. Rocky slopes. Cliffs.....
- Sand features: (1)flat. (2)sand-hills(permanent). (3)dunes(shifting).....
- Towns or Villages: inhabited; deserted. Fort.....
- Huts: permanent; temporary. Tower. Antiquities.....
- Temple. Chhatra. Church. Mosque. Idgah. Tomb. Graves.....
- Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage.....
- Mine. Vine on trellis. Grass. Scrub.....
- Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees.....
- Areas: cultivated; Wooded. Surveyed trees.....
- Boundary, international.....
- Boundary, state: demarcated; undemarcated.....
- Boundary, district; subdivision; tahsil or taluk; forest.....
- Boundary pillars: surveyed; unlocated.....
- Heights: triangulated; station: point; approximate.....
- Bench-mark: geodetic; tertiary; canal.....
- Post office. Telegraph office. Overhead tank.....
- Rest house or inspection bungalow. Circuit house. Police station.....
- Camping Ground. Forest: reserved; protected.....
- Spaces names: administrative; locality or tribal.....
- Hospital. Dispensary. Veterinary: Hospital/Dispensary.....
- Aerodrome. Helipad. Tourist site.....
- Powerline: with pylons surveyed; with poles unsurveyed.....



APPLICANT :

Thiru. S.A. RAMACHANDRAN,
S/o. ARUMUGAM,
ERANTHOTTAM, CHENGADURAI,
SULUR TALUK,
COIMBATORE DISTRICT.

LOCATION OF Q.L. APPLIED AREA:

S.F.Nos : 220/ 1C, 1A & 223/ 2F.
EXTENT : 3.21.5 Ha.
VILLAGE : ICHIPATTI,
TALUK : PALLADAM,
DISTRICT : TIRUPPUR,
STATE : TAMILNADU.

PLATE NO - I-A

DATE OF SURVEY : 28.09.2022

**TOPO SKETCH OF QUARRY LEASE
APPLIED AREA FOR 10km RADIUS**

SCALE. 1:1,00,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

(Signature)
Dr.P.THANGARAJU, M.Sc., Ph.D.,
QUALIFIED PERSON

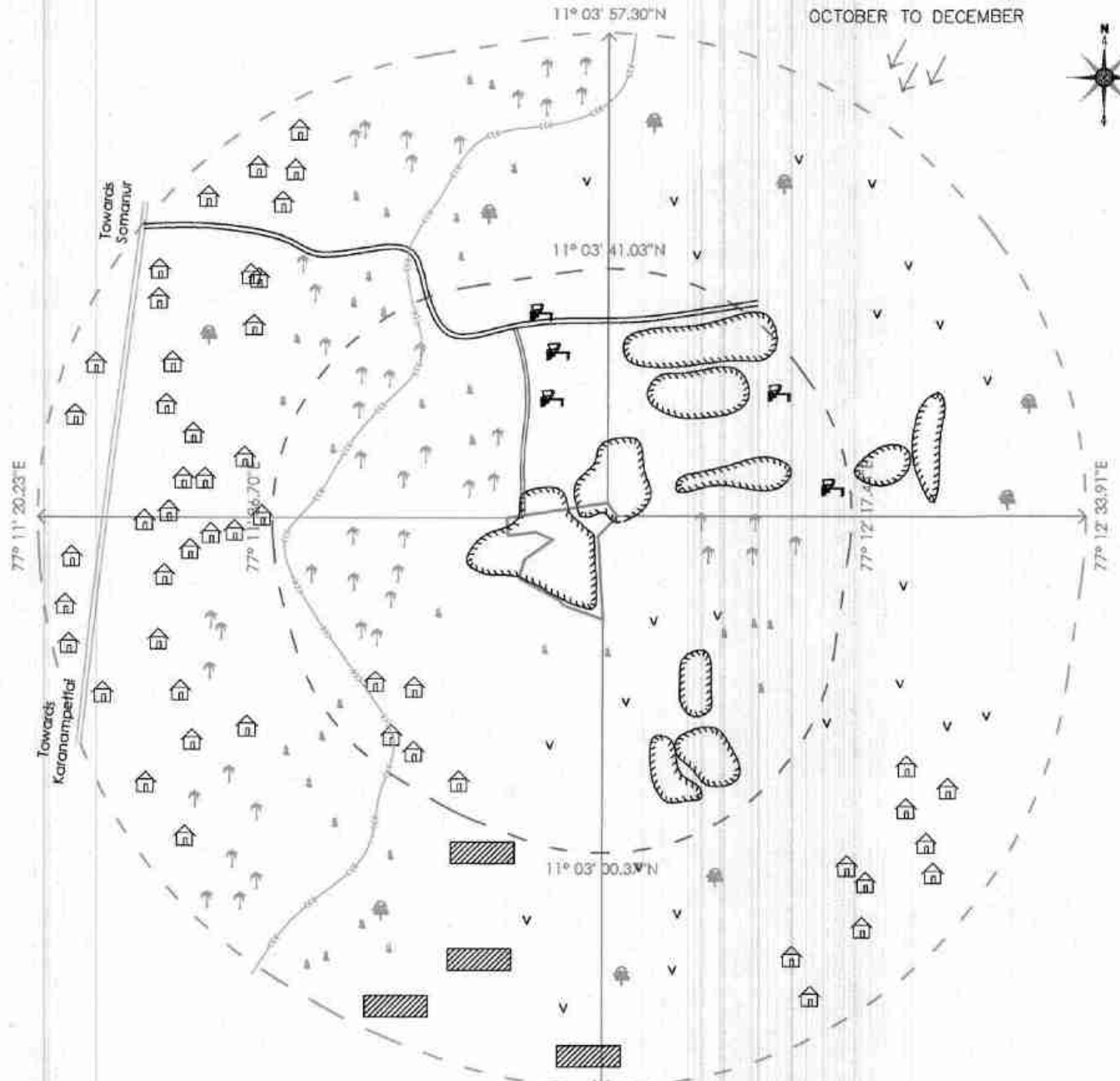
160

TOPO SHEET NO. : 58 E/04

LATITUDE : 11°03'16.64"N to 11°03'24.76"N
LONGITUDE : 77°11'53.17"E to 77°12'00.98"E

10km RADIUS :

Q.L. APPLIED AREA 100 A :



JULY TO SEPTEMBER

TOPO SHEET NO. : 58 E/04
 LATITUDE : 11°03'16.64"N to 11°03'24.76"N
 LONGITUDE : 77°11'53.17"E to 77°12'00.98"E

OCTOBER TO DECEMBER

INDEX

- Q.L. APPLIED AREA
- 1 Km RADIUS
- 500m RADIUS
- SEASONAL AGRICULTURE LAND
- TREES
- HABITATION & INFRASTRUCTURE
- WIND DIRECTION
- SH ROAD
- APPROACH ROAD
- BARREN LAND
- QUARRY PIT & CRUSHER UNIT
- ODAI
- CART TRACK



APPLICANT :

Thiru. S.A. RAMACHANDRAN,
 S/o. ARUMUGAM,
 ERANTHOTTAM,
 CHENGADURAI,
 SULUR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF Q.L. APPLIED AREA:

S.F.Nos : 220/ 1C, 1A & 223/ 2F.
 EXTENT : 3.21.5 Ha.
 VILLAGE : ICHIPATTI,
 TALUK : PALLADAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMILNADU.

PLATE NO - I-B

DATE OF SURVEY : 28.09.2022

ENVIRONMENTAL & LAND USE PLAN

SCALE: 1:10,000

PREPARED BY :

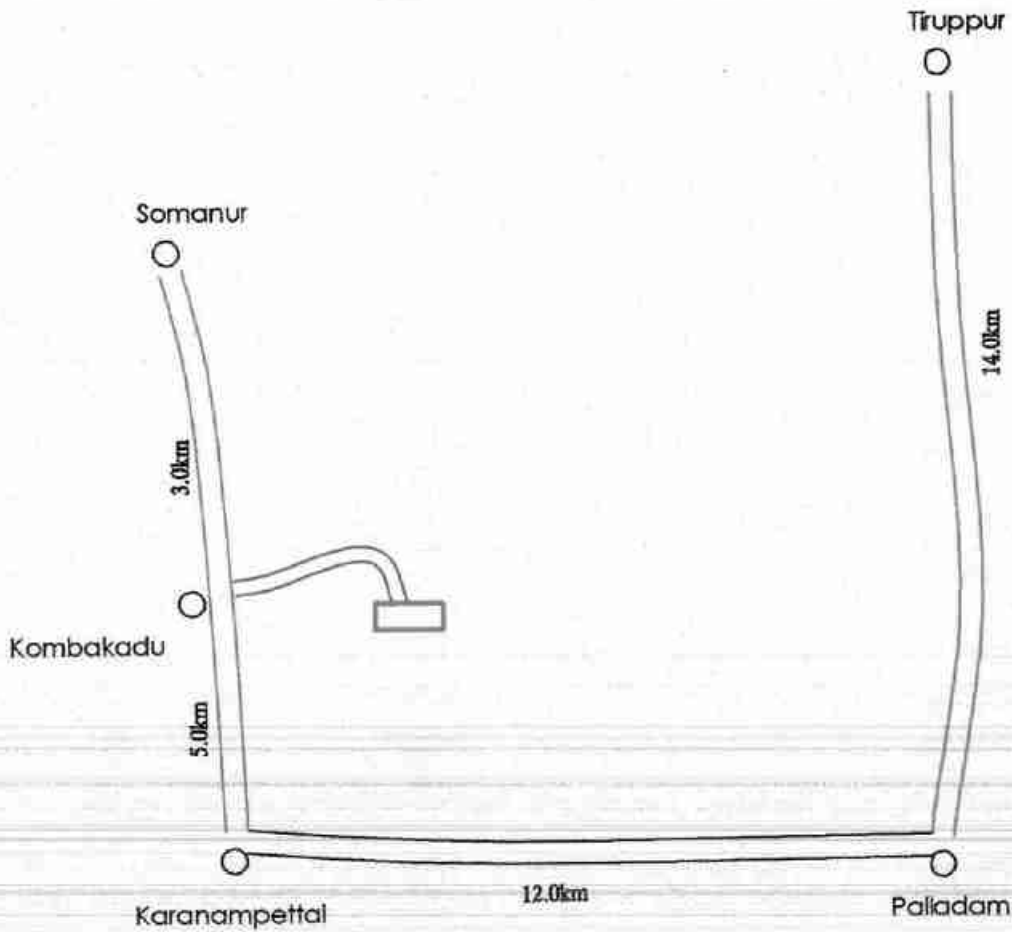
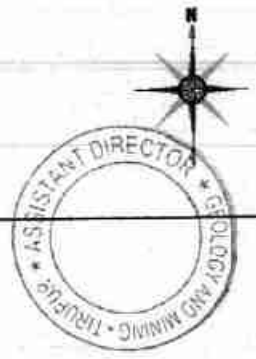
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT.





Dr. P. Thangaraj
 Dr. P. THANGARAJ, M.Sc., Ph.D.,
 QUALIFIED PERSON

LAND USE PATTERN		
DESCRIPTION	PERCENTAGE	INDEX
QUARRY PITS & CRUSHER	(13%)	
TREES	(08%)	
BARREN LAND	(39%)	
ROADS	(05%)	
HABITATION & INFRASTRUCTURE	(08%)	
AGRICULTURE LAND	(23%)	
ODAI	(04%)	
TOTAL	100%	

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PLATE NO : I-C
ROUTE MAP

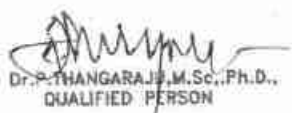


<u>INDEX</u>	<u>APPLICANT :</u>
LEASE APPLIED AREA 	Thiru. S.A. RAMACHANDRAN, S/o. ARUMUGAM, ERANTHOTTAM, CHENGADURAI,
SH - ROAD 	SULUR TALUK, COIMBATORE DISTRICT.
NHROAD 	<u>LOCATION OF Q.L. A. AREA:</u>
APPROACH ROAD 	S.F.Nos : 220/ 1C, 1A & 223/ 2F. EXTENT : 3.21.5 Ha. VILLAGE : ICHIPATTI, TALUK : PALLADAM, DISTRICT : TRUPPUR, STATE : TAMILNADU.

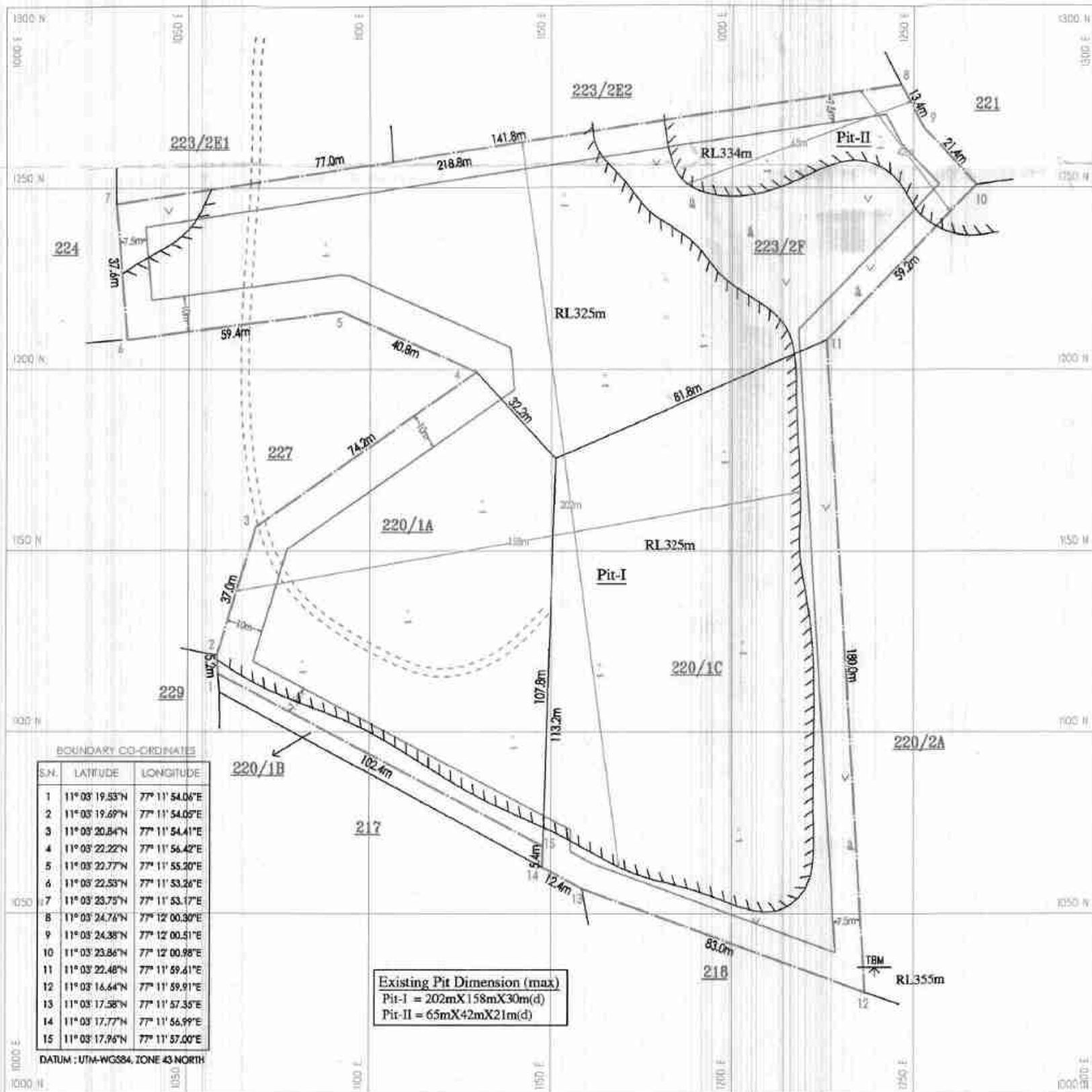
SCALE :
NOT TO SCALE

PREPARED BY:

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

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- TEMPORARY BENCH MARK
- GRAVEL
- ROUGHSTONE
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD



APPLICANT :

Thiru. S.A. RAMACHANDRAN,
S/o. ARUMUGAM,
ERANTHOTTAM,
CHENGADURAI,
SULUR TALUK,
COIMBATORE DISTRICT.

LOCATION OF Q.L. APPLIED AREA:

S.F.Nos : 220/ 1C, 1A & 223/ 2F.
EXTENT : 3.21.5 Ha.
VILLAGE : ICHIPATTI,
TALUK : PALLADAM,
DISTRICT : TIRUPPUR,
STATE : TAMILNADU.

PLATE NO - II

DATE OF SURVEY : 28.09.2022

QUARRY LEASE PLAN & SURFACE PLAN

SCALE. 1:1000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

Dr. P. Thangaraj
Dr. P. THANGARAJ, M.Sc, Ph.D.,
QUALIFIED PERSON

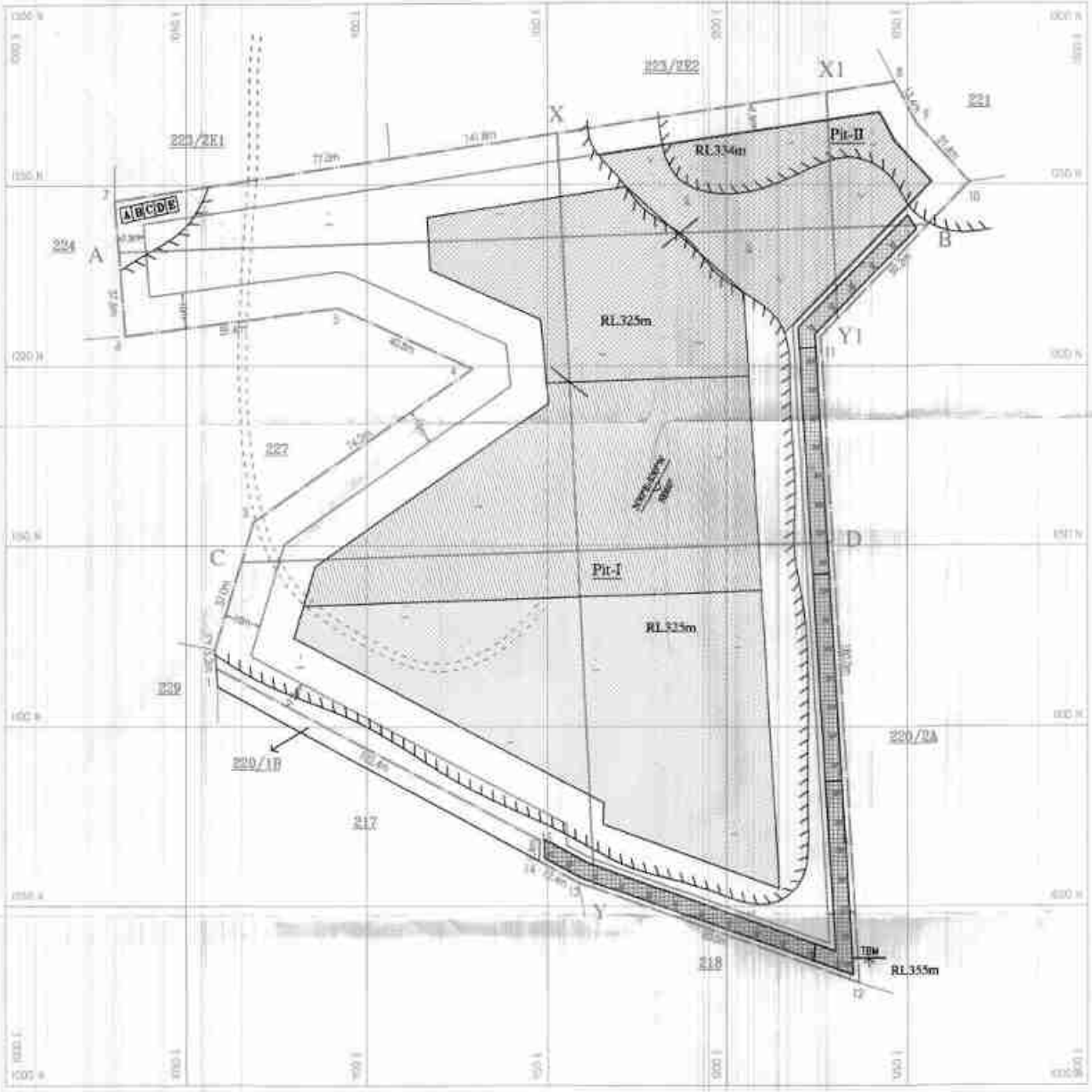
162

BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	11° 03' 19.53"N	77° 11' 54.06"E
2	11° 03' 19.69"N	77° 11' 54.05"E
3	11° 03' 20.84"N	77° 11' 54.41"E
4	11° 03' 22.22"N	77° 11' 56.42"E
5	11° 03' 22.77"N	77° 11' 55.20"E
6	11° 03' 22.53"N	77° 11' 53.26"E
7	11° 03' 23.75"N	77° 11' 53.17"E
8	11° 03' 24.76"N	77° 12' 00.30"E
9	11° 03' 24.38"N	77° 12' 00.51"E
10	11° 03' 23.86"N	77° 12' 00.98"E
11	11° 03' 22.48"N	77° 11' 59.41"E
12	11° 03' 16.64"N	77° 11' 59.91"E
13	11° 03' 17.38"N	77° 11' 57.35"E
14	11° 03' 17.77"N	77° 11' 56.99"E
15	11° 03' 17.76"N	77° 11' 57.00"E

DATUM : UTM-WGS84, ZONE 43 NORTH

Existing Pit Dimension (max)
Pit-I = 202mX158mX30m(d)
Pit-II = 65mX42mX21m(d)

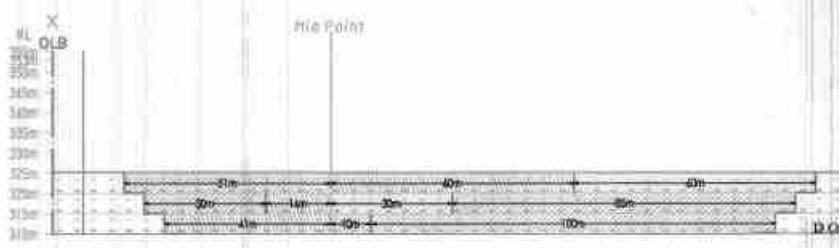


BOUNDARY CO-ORDINATES

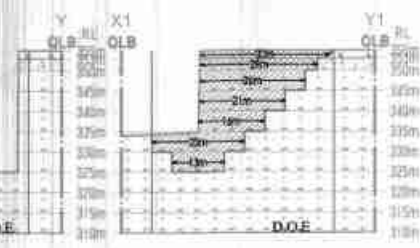
S.N.	LATITUDE	LONGITUDE
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2	11° 03' 19.69"N	77° 11' 54.05"E
3	11° 03' 20.84"N	77° 11' 54.41"E
4	11° 03' 22.22"N	77° 11' 56.42"E
5	11° 03' 22.77"N	77° 11' 55.20"E
6	11° 03' 23.33"N	77° 11' 53.26"E
7	11° 03' 23.75"N	77° 11' 53.17"E
8	11° 03' 24.74"N	77° 12' 00.30"E
9	11° 03' 24.38"N	77° 12' 00.51"E
10	11° 03' 23.66"N	77° 12' 00.98"E
11	11° 03' 22.48"N	77° 11' 59.61"E
12	11° 03' 16.64"N	77° 11' 59.91"E
13	11° 03' 17.58"N	77° 11' 57.25"E
14	11° 03' 17.77"N	77° 11' 56.99"E
15	11° 03' 17.96"N	77° 11' 57.00"E

GATUM : UTM WGS84, ZONE 43 NORTH

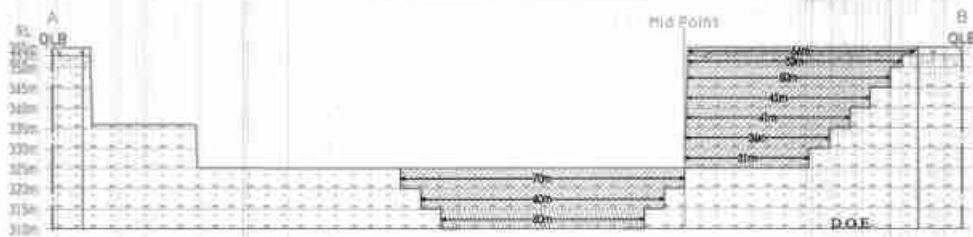
SECTION ALONG X-Y



SECTION ALONG X1-Y1

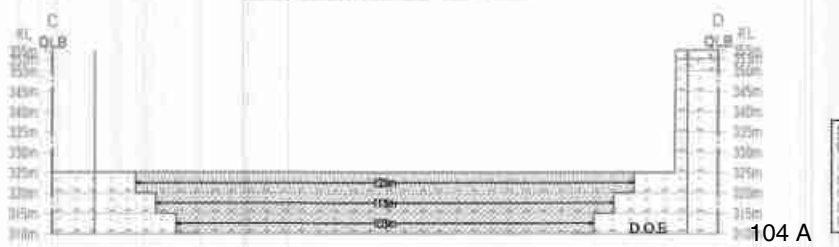


SECTION ALONG A-B



Existing Pit Dimension (max)
 Pit-I = 202mX158mX30m(d)
 Pit-II = 65mX42mX21m(d)

SECTION ALONG C-D



- I - yr Proposed area to be Planned
- II - yr Proposed area to be Planned
- III - yr Proposed area to be Planned
- IV - yr Proposed area to be Planned
- V - yr Proposed area to be Planned

SITE SURVEYS (Proposed)
 A - CHECK
 B - SURVEY ROOM
 C - FIRST AID ROOM
 D - MIST SHELTER
 E - TOILET

- I - yr Proposed area to be Quarried
- II - yr Proposed area to be Quarried
- III - yr Proposed area to be Quarried
- IV - yr Proposed area to be Quarried
- V - yr Proposed area to be Quarried

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- TEMPORARY BENCH MARK
- GRAVEL
- WEATHERED ROCK
- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- D.O.E DEPTH OF ESTIMATION

APPLICANT:
 Thiru. S.A. RAMACHANDRAN,
 S/o. ARUMUGAM,
 ERANTHOTTAM,
 CHENGADURAI,
 SULUR TALUK,
 COIMBATORE DISTRICT.

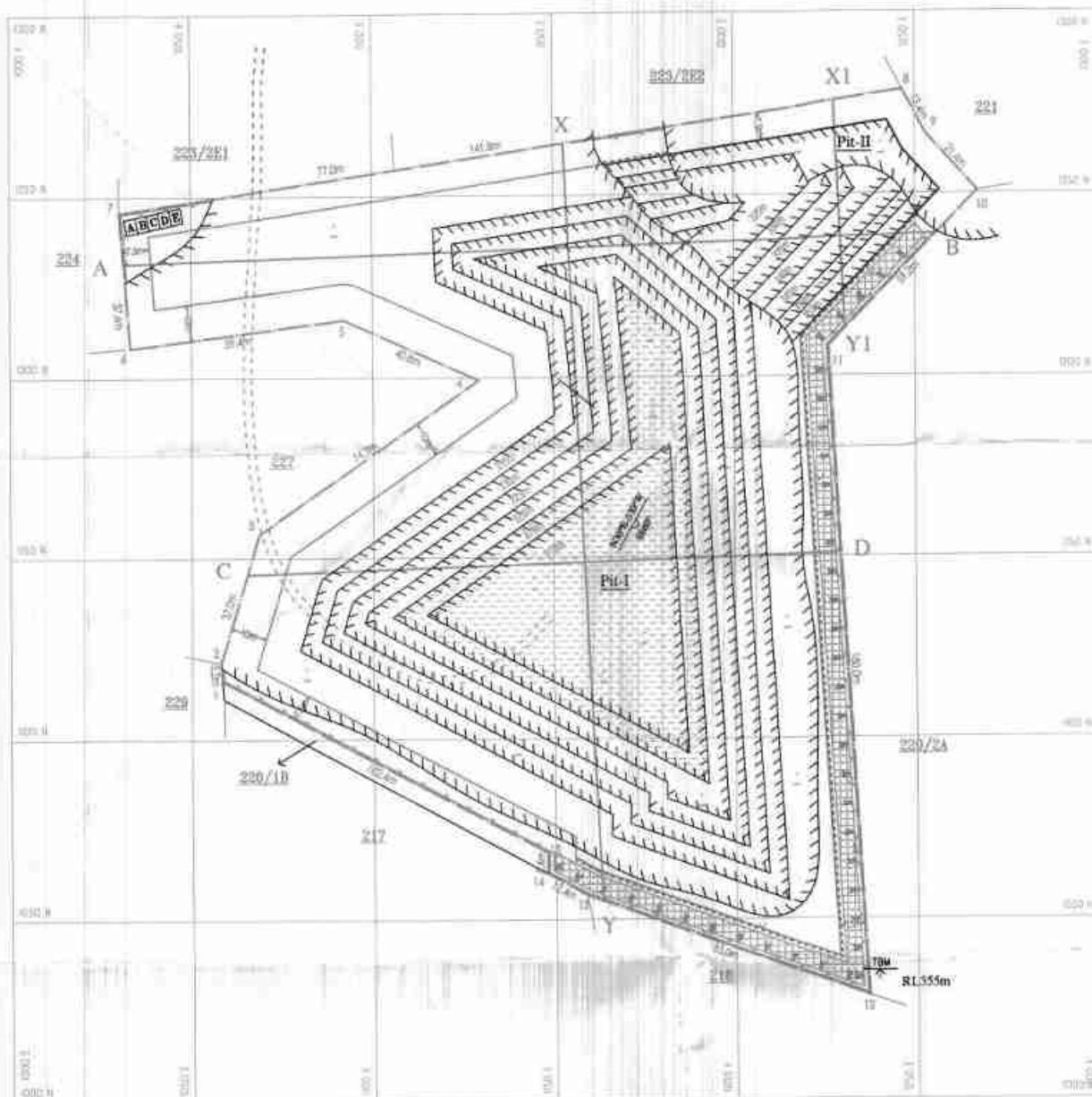
LOCATION OF Q.L. APPLIED AREA:
 S.F.No : 220/1C, 1A & 223/2F,
 EXTENT : 3.21.5 Ha,
 VILLAGE : ICHIPATTI,
 TALUK : PALLADAM,
 DISTRICT : TRIPPUR,
 STATE : TAMILNADU.

PLATE NO - III
 DATE OF SURVEY : 28.09.2022

**TOPOGRAPHY, GEOLOGICAL PLAN
 YEARWISE DEVELOPMENT &
 PRODUCTION PLAN & SECTIONS**
 SCALE - 1 : 1000

PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLAN IS TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE BASED UPON THE LEAD MAP
 AUTHENTICATED BY STATE GOVERNMENT

(Signature)
 S.P. MANGARAJU, S.C.P.,
 QUALIFIED PERSON



BOUNDARY COORDINATE

S.N.	LATITUDE	LONGITUDE
1	11°03' 19.53"N	77° 11' 54.02"E
2	11°03' 19.69"N	77° 11' 54.05"E
3	11°03' 20.84"N	77° 11' 54.41"E
4	11°03' 22.22"N	77° 11' 54.42"E
5	11°03' 22.77"N	77° 11' 53.20"E
6	11°03' 22.53"N	77° 11' 53.28"E
7	11°03' 23.75"N	77° 11' 53.17"E
8	11°03' 24.76"N	77° 12' 00.30"E
9	11°03' 24.38"N	77° 12' 00.51"E
10	11°03' 23.86"N	77° 12' 00.98"E
11	11°03' 22.48"N	77° 11' 59.61"E
12	11°03' 16.44"N	77° 11' 59.91"E
13	11°03' 17.38"N	77° 11' 57.35"E
14	11°03' 17.77"N	77° 11' 56.99"E
15	11°03' 17.96"N	77° 11' 57.00"E

DATUM : UTM WGS84, ZONE 43 NORTH

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- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- IVY Y PLANTATION
- BARBED WIRE FENCING
- EXISTING LAND FORM
- PROPOSED GARLAND DRAIN
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- RAIN WATER STORAGE

APPLICANT :
 Thiru. S.A. RAMACHANDRAN,
 S/o. ARUMUGAM,
 ERANTHOTTAM,
 CHENGADURAI,
 SULLUR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF Q.L. APPLIED AREA:
 S.F.No: 220/ 1C, 1A & 223/ 2E.
 EXTENT : 3.21.5 Ha.
 VILLAGE : ICHIPATTI
 TALUK : PALLADAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMILNADU.

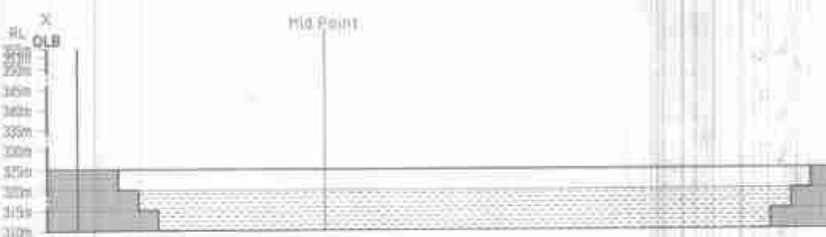
PLATE NO - IV
 DATE OF SURVEY : 28.09.2022

PROGRESSIVE MINE CLOSURE PLAN & SECTIONS
 SCALE : 1 : 1000

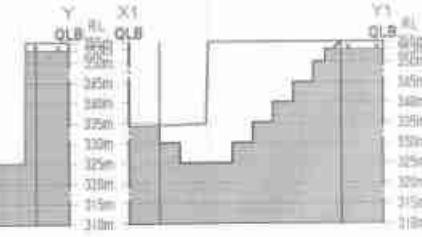
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 S.P. PRABHAKARAN, S.P.O.,
 QUALIFIED PERSON

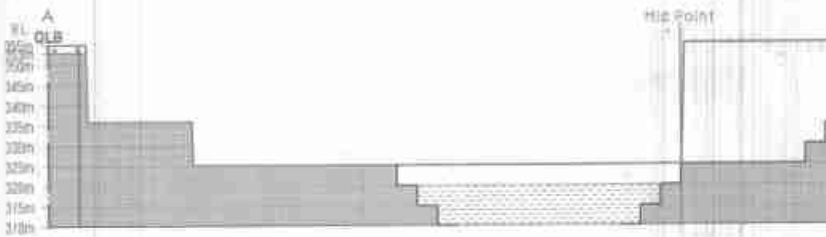
SECTION ALONG X-Y



SECTION ALONG X1-Y1



SECTION ALONG A-B



SECTION ALONG C-D

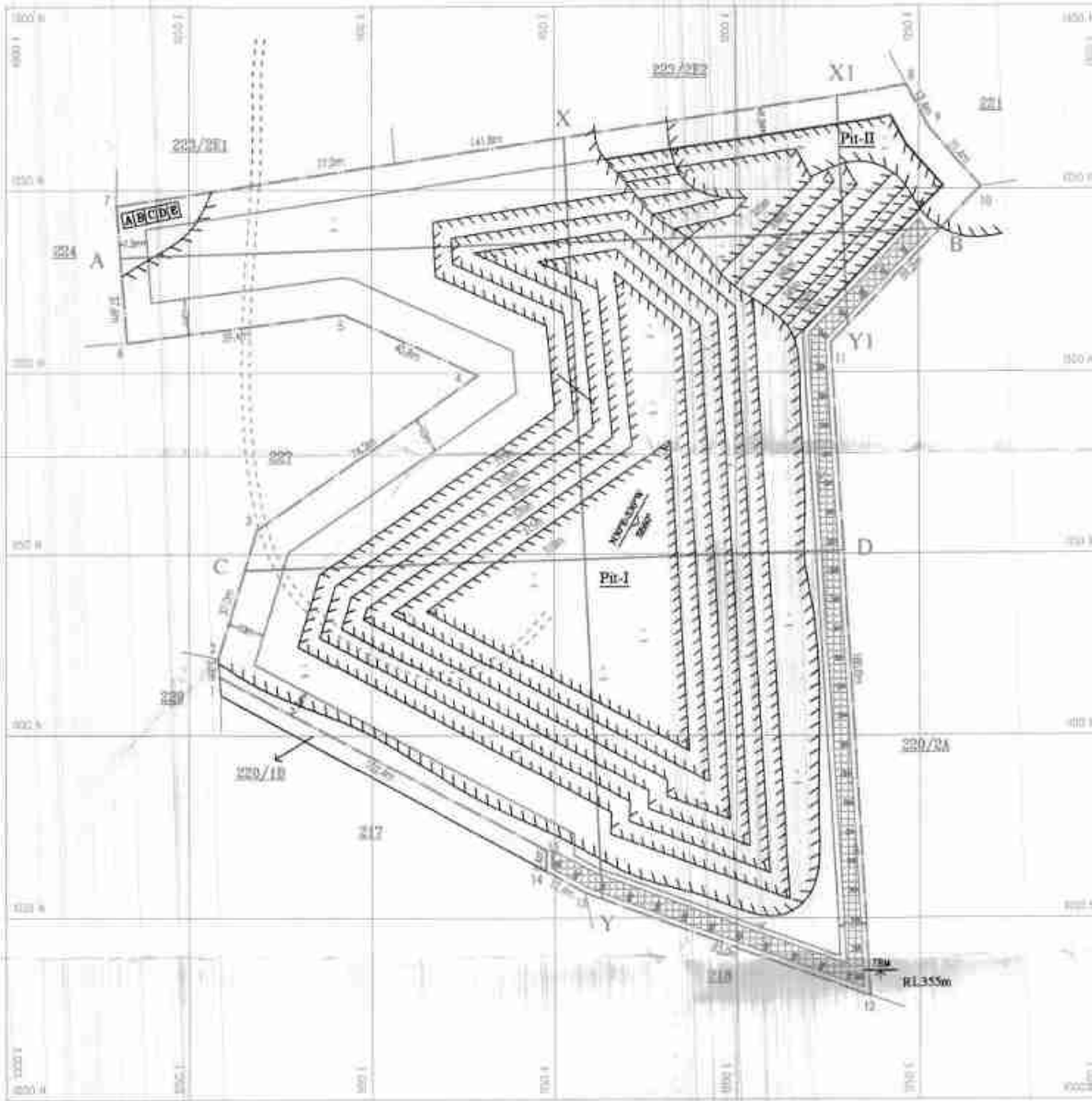


SITE SERVICES
 A - OFFICE
 B - STORE ROOM
 C - WENT AND HOUSE
 D - NEET WRESTLER
 E - FURRY

Proposed Pit Dimension (max)
 Pit-I = 202mX158mX45m(d)
 Pit-II = 65mX42mX30m(d)

LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
QUARRYING PIT	2.70.0	2.70.0
INFRASTRUCTURE	Nil	0.01.0
ROADS	0.02.0	0.02.0
GREEN BELT	Nil	0.13.0
UN-UTILIZED AREA	0.49.5	0.33.5
TOTAL	3.21.5	3.21.5



BOUNDARY CO-ORDINATES

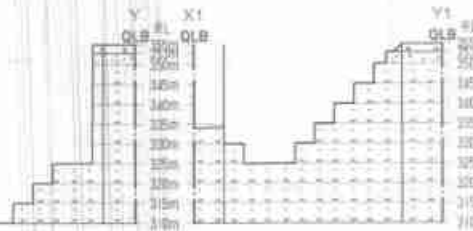
S.N.	LATITUDE	LONGITUDE
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2	11° 03' 19.89"N	77° 11' 54.05"E
3	11° 03' 20.84"N	77° 11' 54.41"E
4	11° 03' 22.22"N	77° 11' 55.42"E
5	11° 03' 23.77"N	77° 11' 55.20"E
6	11° 03' 25.53"N	77° 11' 53.26"E
7	11° 03' 23.75"N	77° 11' 53.17"E
8	11° 03' 24.75"N	77° 12' 00.30"E
9	11° 03' 24.38"N	77° 12' 00.51"E
10	11° 03' 23.86"N	77° 12' 00.98"E
11	11° 03' 22.48"N	77° 11' 59.61"E
12	11° 03' 16.64"N	77° 11' 59.91"E
13	11° 03' 17.58"N	77° 11' 57.38"E
14	11° 03' 17.77"N	77° 11' 56.99"E
15	11° 03' 17.84"N	77° 11' 57.00"E

DATUM : UTM WGS84, ZONE 43 NORTH

SECTION ALONG X-Y



SECTION ALONG XI-Y1



SECTION ALONG A-B



SECTION ALONG C-D



SITE SERVICES

- A - OFFICE
- B - ETCARE ROOM
- C - TERRY ALI ROOM
- D - MESS BUILDING
- E - TOILET

Ultimate Pit Dimension (max)
 Pit-I = 20mX15mX4m(d)
 Pit-II = 6.5mX42mX30m(d)

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- Q.L. APPLIED AREA BOUNDARY
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- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- M V Y PLANTATION

APPLICANT:
 THIRU. S.A. RAMACHANDRAN,
 S/O. ARUMUDAM,
 ERANTHOTAM,
 CHENGADURAI
 SELLUR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF Q.L. APPLIED AREA:
 S.F.No.s : 220/ 1C, 1A & 220/ 2F,
 EXTENT : 3.21.5 Ha.
 VILLAGE : JCHPATIL
 TALUK : PALLADAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMILNADU.

PLATE NO - V
 DATE OF SURVEY : 28.09.2022

CONCEPTUAL PLAN & SECTIONS
 SCALE : 1:1000

PREPARED BY:
 I am so certify that the information in this plate is true and correct to the best of my knowledge based upon the lease map authenticated by state government

 D.P. THANGARAJ A.S.P., P.S.,
 QUALIFIED PERSON

Hydrogeological Report For
Rough stone and Gravel Quarry Over an
Extent of 3.21.5ha of Patta lands in S.F.Nos.220/1A,
1C & 223/2F of Ichipatti Village, Palladam Taluk,
Tiruppur District, Tamil Nadu State.

HYDROGEOLOGICAL REPORT FOR ICHIPATTI
ROUGH STONE AND GRAVEL QUARRY

1. INTRODUCTION

NAME OF THE APPLICANT WITH ADDRESS-

Name of the applicant : **Thiru.S.A.Ramachandran**
Address : S/o. Arumugam, Earanthottam,
Chengadurai, Sulur Taluk,
Coimbatore - 641 401.
State : Tamil Nadu.
Mobile : +91 98658 99551

DETAILS OF THE AREA-

Land Classification : Patta land
Survey No : 220/1A, 1C & 223/2F
Extent : 3.21.5ha
Village : Ichipatti
Taluk : Palladam,
District : Tiruppur

The Client requires detailed information on ground water occurrences at proposed project site of Ichipatti Rough stone and Gravel quarry. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements. The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

2. SCOPE OF THE WORKS –

The scope of works includes:

- ❖ Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- ❖ To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- ❖ To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- ❖ To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

3. BACKGROUND INFORMATION

Geographical information of the study area-

The investigated site falls in the Toposheet No: **58 - E/04** Latitude between **11° 03' 16.64"N to 11° 03' 24.76"N** and Longitude between **77° 11' 53.17"E to 77° 12' 00.98"E** on WGS datum-1984.

Geomorphology and Land Use

The geomorphologic characteristics of Tirupur are broadly classified into Padi plain, Habitation mask and Water body mask. The land use categories are classified as Built up, Agriculture, Water bodies and Waste land. Soil types in Tirupur block can be divided into Fine, Fine loamy, Loamy skeletal, and Clayey loamy.

Climate

The climate in the plains of Noyyal river basin is "semiarid subtropical monsoonic". The hot months are March, April and May with a maximum temperatures ranging from 35.5°C to 36.8°C and the cool months are November, December and January with minimum temperatures ranging from 23.9°C to 24.1 °C. The mean annual temperature is 29.4°C.

Rainfall

Rainfall in the basin is highly variable due to the orographic effects of the Western Ghats. The western and upper reaches usually receive more than 3000 mm annually during the southwest monsoon whereas the eastern part of the basin receives an annual rainfall of 600 mm, which mostly occurs during the northeast monsoon and most of it is received during the months of April and May.

Soil

The type of soil that occur in Noyyal basin are many and varied, ranging from shallow red non-calcareous soils to very deep grey calcareous ones. A standard reconnaissance soils survey of Coimbatore district reveals the occurrence of 14 different soil series and their associations. These 14 series can be broadly classified in to five categories: red soil, grey soil, alluvial soil, colluvial soil and forest soil

1. GEOLOGY**Regional Geology of Tiruppur District-**

Tiruppur district of Tamil Nadu forms a part of southern Granulitic terrain and is predominantly occupied by crystalline rocks of Archaean to late Proterozoic age. Regionally, the rocks can be grouped under five categories namely i) Charnockite Group represented by Charnockite, Pyroxene Granulite and Magnetite Quartzite, ii) Peninsular Gneissic Complex (II) comprising hornblende-biotite gneiss, iii) Basic intrusive include Pyroxinite/Dunite iv) Younger intrusive comprising, Nepheline-Syenite, Pink Granite, Pegmatite and Quartz veins and v) Quaternary sediments of Kankar and soil.

Stratigraphy of the Area

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

Hornblende-Biotite gneiss is well foliated, medium to coarse grained, pale grey and exposed as sheets and small knolls. Pink Granite gneiss occurs as thin bands and lensoidal bodies. It is a medium grained rock composed of alternating bands of mafic (mainly of biotite

and hornblende) and felsic (Feldspar and Quartz) minerals. It is well recognized in Avinashi area.

Stratigraphy succession of Tiruppur District

Age	Group	Lithology
Holocene		Block Cotton Soil/Clay ± Gypsum
Cenozoic		Kankar/calc-tufa
Neoproterozoic	Acid intrusive	Quartz veins Pegmatite Pink Granite
	Sivamalai syenite Complex	Nepheline-syenite
	Chalk Hills (Basic Intrusive)	Pyroxenite/Dunite
Archaean-Palaeoproterozoic	Peninsular Gneissic Complex (II)	Pink Granite Gneiss
	PGC (II)	Hornblende Biotite gneiss
Archaean	Charnockite Group	Charnockite (Unclassified) Pyroxene Granulite Banded Magnetite Quartzite

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

Nepheline syenite is a leucocratic, coarse grained rock and composed mainly of Feldspar with Nepheline and shows pitted appearance due to removal of Nepheline. This alkaline rock is available in and around Sivanmalai area only.

Acid intrusive are overlain by sediments of Quaternary age, represented by Kankar and black cotton soil with Gypsum. Most of the area is covered by brown and red brown soil.

Some part of the area covered with black cotton soil contains Gypsum as lumps. Black cotton soil covers south-western part of the district.

2. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A , expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

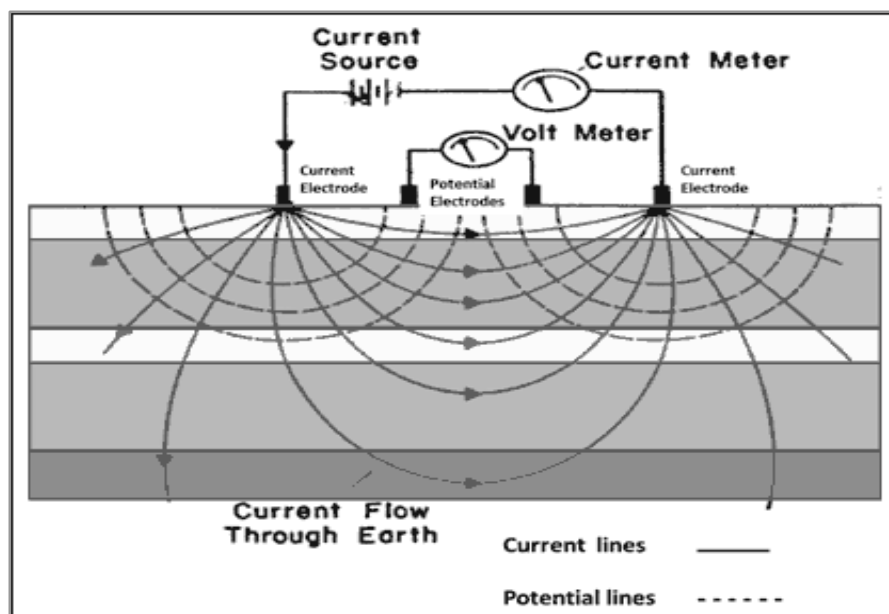
Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

Vertical Electrical Sounding (VES)

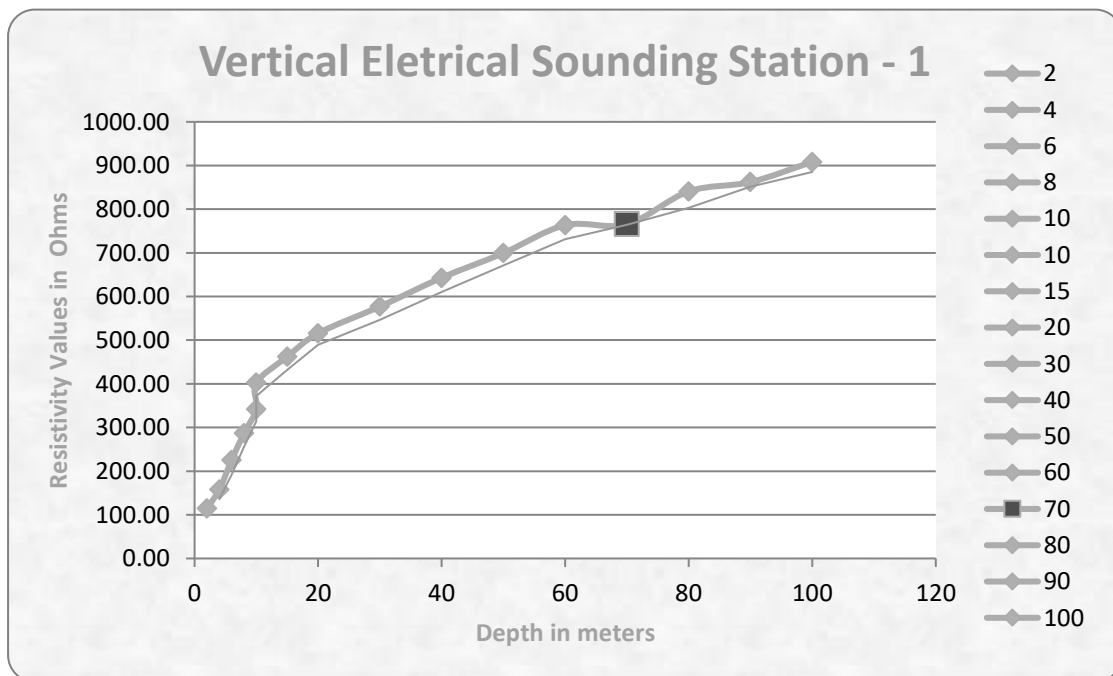
When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

Vertical Electrical Sounding Method



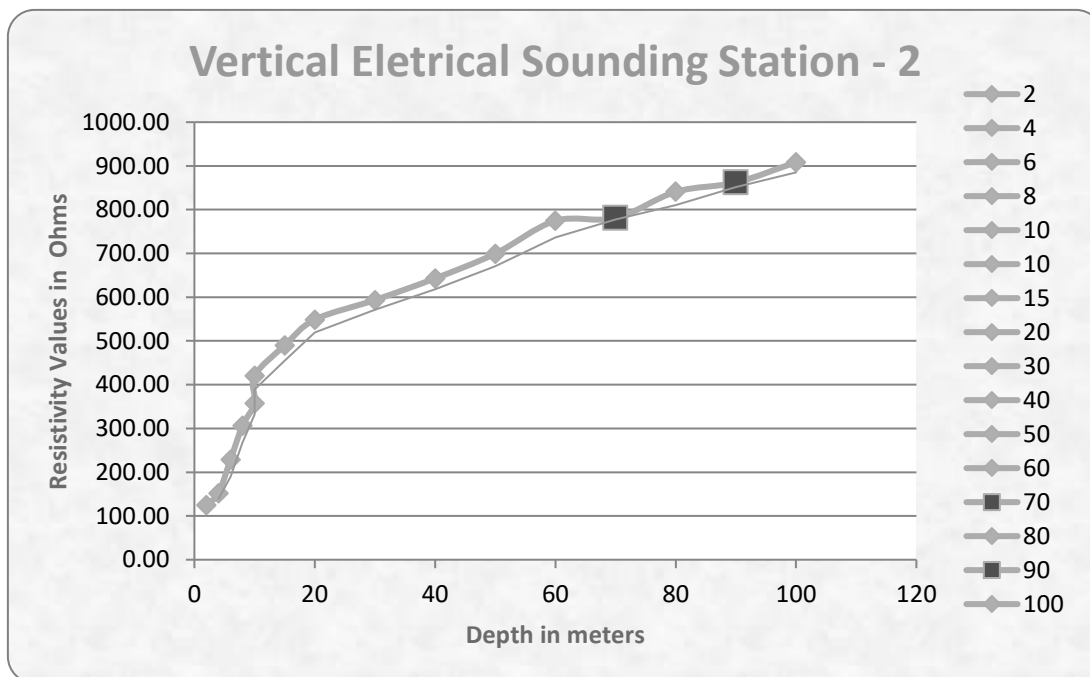
Geophysical Data's and Graphs Fracture Zone Levels

Vertical Electrical Sounding Station - 1					
GPS Coordinates - 10°54'0.07"N 77°37'47.89"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms [R]	Apparent Resistance in Ohms
1	2	1	4.71	24.36	114.74
2	4	1	23.55	6.70	157.79
3	6	1	54.95	4.10	225.30
4	8	1	98.91	2.90	286.84
5	10	1	155.45	2.20	341.99
6	10	5	23.55	17.10	402.71
7	15	5	62.80	7.36	462.21
8	20	5	117.75	4.38	515.75
9	30	5	274.75	2.10	576.98
10	40	5	494.55	1.30	642.92
11	50	5	777.15	0.90	699.44
12	60	5	1122.55	0.68	763.33
13	70	5	1530.75	0.50	765.38
14	80	5	2001.75	0.42	840.74
15	90	5	2535.55	0.34	862.09
16	100	5	3132.15	0.29	908.32



● Based on the vertical electrical sounding graphs purple color is fracture zone.

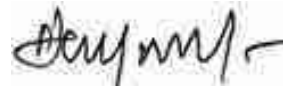
Vertical Electrical Sounding Station - 2					
GPS Coordinates - 10°53'56.89"N 77°37'47.96"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms [R]	Apparent Resistance in Ohms
1	2	1	4.71	26.53	124.96
2	4	1	23.55	6.46	152.13
3	6	1	54.95	4.16	228.59
4	8	1	98.91	3.10	306.62
5	10	1	155.45	2.30	357.54
6	10	5	23.55	17.86	420.60
7	15	5	62.80	7.80	489.84
8	20	5	117.75	4.66	548.72
9	30	5	274.75	2.16	593.46
10	40	5	494.55	1.30	642.92
11	50	5	777.15	0.90	699.44
12	60	5	1122.55	0.69	774.56
13	70	5	1530.75	0.51	780.68
14	80	5	2001.75	0.42	840.74
15	90	5	2535.55	0.34	862.09
16	100	5	3132.15	0.29	908.32



● This vertical electrical sounding graphs purple color is fracture zone.

3. Conclusion –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 75m to 80m where minor fractures are observed and shallow aquifers are expected above 60m-65m BGL. The ultimate pit limit as per the approved mining plan depth is 45m (2m Gravel + 3m Weathered Rock + 40m Rough stone) below ground level, which will have no impact on the Ground Water.



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

Govt. Approved Hydro Geologist

M/s. Geo Exploration and Mining Solutions,

Regd. Office: No. 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004, Tamil Nadu

Mobile: +91 - 94433 56539

E-Mail: infogeoexploration@gmail.com

SELVA NANDHINI EXPLOSIVES AND CHEMICALS

LICENSE NO-E/SC/TN/22/654(E85920)

7/182, Nandini illam , Bharathi Nagar, Kadampady , Kangamyampalayam(po),
City- Sulur , District -Coimbatore, State -Tamilnadu. 641401.

Date: 02/11/2022

Place: Sulur.

To,

M.Ramachandran,
S/o.Arumugam,
Earanthottam,
Chengadurai,
Sulur(tk),
Coimbatore district.

Sub: Regarding Blasting Work using explosives in your proposed quarry.

Sir,

We are having explosive license no. in Form 22, (E85920),(E95326),(E95332),(E95340) and (E95342),
Situating Magazine at Sirukinaru Village, Sangarandapalayam via, Tirupur district. Our office is at, 7/225, Bharathi
Nagar, Kadampady, Sulur, Coimbatore-641401.

We are having eight Explosive Vans for transporting detonators and class 2 explosives separately from our
magazine to work Sites and we have well Experienced and licensed blasters and shot fires for safety blasting
works for the last two years without any untoward incidents.

We are willing to undertake blasting work on contract basis at your site S.F No: 220/1C,220/1A,223/2F
Ichipatti Village, Palladam(Tk), Tirupur(dist).

Thanking you,

Yours faithfully,

For SELVA NANDHINI EXPLOSIVES AND CHEMICALS



Authorized Signatory

Enclosed: License Copy.

For SELVA NANDHINI EXPLOSIVES AND CHEMICALS

अनुज्ञापित प्ररूप एल. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 का अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने
Licence to possess : (c) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazineअनुज्ञापित सं. (Licence No.) : E/SC/TN/22/654(E85920)
वार्षिक फीस रूपए (Annual Fee Rs): 6800/-

1. Licence is hereby granted to

M/s.Selva Nandhini Explosives and Chemicals (अधिभागी / Occupier : V Bharath), 7/182, Nandhini Illam, Bharathi Nagar, Kadampady, Kanganyapalayam Post, Town/Village - Sulur, District-COIMBATORE, State-Tamil Nadu, Pincode 641401

को अनुज्ञापित अनुदस की जाती है।

2. अनुज्ञापितधारी की प्रास्थिति | Status of licensee : Partnership Firm

3. अनुज्ञापित निम्नलिखित प्रयोजनों के लिए विधिमान्य है।
Licence is valid only for the following purpose

possess for use of Nitrate Mixture, Safety Fuse, Detonators, Detonating Fuse, के उपयोग के लिए

4. अनुज्ञापित विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है।
Licence is valid for the following kinds and quantity of explosives: - (क) (a)

क्र. सं.	नाम और विवरण	वर्ग और प्रभाग	उप-प्रभाग	मात्रा किसी एक समय में
Sr. No.	Name and Description	Class & Division	Sub-division	Quantity at any one time
1.	Nitrate Mixture	2, 0	0	2500 Kgs
2.	Safety Fuse	6, 1	0	5000 Mtrs
3.	Detonators	6, 3	0	40000 Nds
4.	Detonating Fuse	6, 2	0	7500 Mtrs

(ख) किसी एक कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा [अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञापित के लिए]

20 times
as above.

(b) Quantity of explosives to be purchased in a calendar month [applicable for licence under article 3(b) and (c)]:

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञापित परिसर की पुष्टि होती है।
The licensed premises shall conform to the following drawing(s):रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/654(E85920)
दिनांक (Dated) 22/04/2016

6. अनुज्ञापित परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:

Survey No. 491/2, ग्राम (Town/Village) Sirukinar village, Sangapatpalayam Via

जिला (District) TIRUPUR

राज्य (State) Tamil Nadu

Tamil Nadu

पिनकोड (Pincode) 638706

दूरभाष (Phone) 9578323233

ई.मेल (E-Mail)

फैक्स (Fax)

पुलिस थाना (Police Station) : Uthiyur

7. अनुज्ञापित परिसर में निम्नलिखित सुविधाएं अतिविष्ट हैं।
The licensed premises consist of following facilities:

One Explosives room, lobby and a detonator room

8. अनुज्ञापित समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2008 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपायों के अधीन रहते हुए अनुदस की जाती है।
The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures:

- उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए) Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
- अनुज्ञापित प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञापित की शर्तों और अतिरिक्त शर्तों।
Conditions and Additional Conditions of this licence signed by the licensing authority.
- दूरी प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञापित तारीख 31 मार्च 2021 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2021.

यह अनुज्ञापित, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञापित की शर्तों का अधिकरण करने या यदि अनुज्ञापित परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिबंधित की जा सकती है, जहां वह लागू हो।
This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 22/04/2016

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 05/05/2016
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 25/07/2017
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 15/03/2018

नवीनीकरण के पृष्ठानक के लिए स्थान
Space for Endorsement of Renewalनवीकरण की तारीख
Date of Renewalसमाप्ति की तारीख
Date of Expiryअनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प
Signature of licensing authority and stamp

25/02/2021

31/03/2026

Jt. Chief Controller of Explosives, South Circle, Chennai

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडिक अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.



Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), Tamil Nadu)

To,

The owner
M.THANGAVEL ROUGH STONE
5/216 Erankadu Thottam Ichipatti Village Palladam TALuk Tiruppur -641668

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/38858/2019 dated 25 Mar 2021. The particulars of the environmental clearance granted to the project are as below.

- | | |
|--|--|
| 1. EC Identification No. | EC22B001TN165149 |
| 2. File No. | 6913/2019 |
| 3. Project Type | New |
| 4. Category | B1 |
| 5. Project/Activity including Schedule No. | 1(a) Mining of minerals |
| 6. Name of Project | M.Thangavel Rough stone and gravel quarry, S.F. No. 208/1,208/2& 208/3, Ichipatti Village, Palladam Taluk, Tiruppur District |
| 7. Name of Company/Organization | M.THANGAVEL ROUGH STONE |
| 8. Location of Project | Tamil Nadu |
| 9. TOR Date | 01 Jan 1900 |

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 08/02/2022

(e-signed)
Tmt.P.RAJESWARI,IFS
Member Secretary
SEIAA - (Tamil Nadu)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

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STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY- TAMILNADU

3rdFloor, Panagal Maaligai, No.1, Jeenis Road, Saidapet, Chennai-15.

ENVIRONMENTAL CLEARANCE

Lr.No.SEIAA-TN/F.No.6913/1(a)/EC.No: 4957/2021 dated: 02.02.2022

Sub: SEIAA, TN – Proposed Rough Stone & Gravel quarry lease over an extent of 1.52.0 ha at S.F.Nos. 208/1, 208/2, 208/3, of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu by Thiru M. Thangavel – issue of Environmental Clearance – Regarding.

- Ref:** 1. Your application submitted Terms of Reference dated: 11.07.2019
2. TOR issued by SEIAA-TN vide Lr. No. SEIAA-TN/F.No./6913/SEAC / TOR- 757/2020 Dt: 24.09.2021
3. Public Hearing conducted on 17.02.2021
4. Online Proposal No. SIA/TN/MIN/38858/2021 dated 25.03.2021
5. Project proponent submitted EIA Report to SEIAA-TN on 25.03.2021
6. Minutes of the 238th of SEAC held on 13.10.2021
7. Minutes of the 482nd SEIAA meeting held on 27.01.2022

Details of Minor Mineral Activity:-

This has reference to your application 4th cited. The proposal is for obtaining Environmental Clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.

Sl. No.	Details of the proposal	Data furnished
1.	Name and Address	Thiru M. Thangavel No 5/216, Erankadu Thottam Ichipatti Viilage


MEMBER SECRETARY
SEIAA-TN

		Palladam Taluk Tiruppur District - 641 668
2.	Type of quarrying (Savudu/Rough Stone/Sand/Granite)	Rough stone and Gravel
3.	S.F No. Of the quarry site with area break-up	208/1, 208/2, 208/3
4.	Village in which situated	Ichipatti
5.	Taluk in which situated	Palladam
6.	District in which situated	Tiruppur
7.	Extent of quarry (in ha.)	1.52.0 Ha
8.	Period of quarrying proposed	5 years
9.	Type of mining	Opencast Mechanized Mining
10.	Production (Quantity in m ³)	1,25,710cu.m of rough stone, & 16510cu.m of gravel
11.	Latitude & Longitude of all corners of the quarry site	N ^o 28.72'03°N to 11 ^o 25.40'03°11 E ^o 17.08'12°E to 77 ^o 09.91'12°77
12.	Topo Sheet No.	58-E/04
13.	Man Power requirement per day:	18 Employees
14.	Precise area communication approved by the District Collector with date	Na.Ka.No.114/Kanimam/2018, dated: 12.09.2018
15.	Mining Plan approved by the Deputy Director of Geology and Mining with date	Re.No.114/Mines/2018, dated: 28.09.2018
16.	Water requirement: 1. Drinking & domestic purposes (in KLD) 2. Dust suppression & Green Belt (in KLD)	4.0KLD 1.0KLD Water Vendors 3.0 KLD Existing Bore well
17.	Power requirement: a. Domestic Purpose	TNEB


MEMBER SECRETARY
SEIAA-TN

b. Industrial purpose		
18.	Depth of quarrying	32m
19.	Depth of water table	45m-50m
20.	Whether any habitation within 300m distance	No
21.	Project Cost (excluding EMP cost)	Rs.50.35 lakh
22.	EMP cost	Rs.3.80 Lakhs
23.	CER cost	Rs.1.00 Lakhs
24.	VAO letter	
25.	AD mines 500m cluster letter	Rc.No.114/Mines/2018, dated: 31.01.2020
26.	TOR issued	TOR issued by SEIAA-TN vide Lr. No. SEIAA-TN/F.No./6913/SEAC/TOR-757/2020 Dt:24.09.2021
27.	Public hearing	17.02.2021
28.	EIA	25.03.2021
29.	<p><u>Validity:</u> This Environmental Clearance is granted for the production in 1,25,710cu.m of rough stone, & 16510cu.m of gravel for the period of 5 Years from the date of execution of the mining lease.</p>	

Affidavit

The Proponent has furnished affidavit in Hundred Rupees stamp paper attested by the Notary stating that

We, Thiru M. Thangavel No 5/216, Erankadu Thottam Ichipatti Viilage Palladam Taluk Tiruppur District - 641 668, solemnly declare and sincerely affirm that:

We have applied for getting Environment Clearance to SEIAA, Tamil Nadu for quarry lease for Proposed Rough Stone & Gravel quarry lease over an extent of 1.52.0 ha at S.F.Nos. 208/1, 208/2, 208/3, of Ichipatti Village, Palladam Taluk, Tiruppur District.

1. We swear to state and confirm that within 10km radius of the quarry site, we have applied for environmental clearance, none of the following is situated


MEMBER SECRETARY
SEIAA-TN

- a. Protected areas notified under the wild life (Protection) Act, 1972
 - b. Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and Control of Pollution) Act 1974.
 - c. Eco-Sensitive areas as notified
 - d. International boundaries within 10km radius from the boundary of the proposed site.
2. We will complete the following Corporate Environment Responsibility (CER) activities in this upcoming scheme period

CER Activity	Project Cost (Rs) in lakhs	CER Cost 2.0% of project cost (Rs) in lakhs
Developing the library/sports/drinking water facilities in Ichipatti Village	54.15	1.08
Total cost Allocation	54.15	1.08


3. The following quarries located within the radius 500m from the periphery of the project site details as shown below:

S.No	Lessee/Applicant Name	S.F.Nos	Extent (Ha)	Lease Status
1	R. Gowri @ Baby	206/2	1.57.0	Existing
2	S.A. Ramachandran	220/1C	1.19.0	Existing
3	S.A. Ramachandran	220/1A, 223/2F	2.02.5	Existing
4	C. Thangaraj	207/1A	1.92.0	Existing
5	S.P. Palanisamy	222/1B, 223/2E2	1.87.5	Applied
Total			8.58.0	

4. There will not be any hindrance or disturbance to the people during transportation.
5. No habitation/village within 300m radius from the periphery of our quarry.
6. We swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the labourers working in our quarry site.
8. Approach road belongs to me only no other patta land encountered.
9. We will not engage any child labour in our quarry site and we aware that engaging child labour is punishable under the law.
10. All types of safety / protective equipment will be provided to all the labourers working in our quarry.


MEMBER SECRETARY
SEIAA-TN

12. The project proponent shall strictly adhere to mine closure plan after ceasing mining operations as committed. Also the proponent shall undertake re- grassing of the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition that is fit for the growth of fodder, flora, fauna etc.
13. Proper barrier to reduce noise level, dust pollution and to hold down any possible fly material (debris) should be established by providing greenbelt and/or metal sheets along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
14. The operation of the quarry should not affect the agriculture activities & water bodies near the project site and a safety distance of 50m from the boundary be left vacant without any mining activity.
15. Transportation of the quarried materials shall not cause any hindrance to the Village people or damage to the existing Village road.
16. The project proponent shall comply with the mining and other relevant rules and regulations wherever applicable.
17. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
18. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance.
19. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.
20. All the commitments made by the proponent during the public hearing, as per the minutes of public hearing should be implemented in total.
21. 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 furnish the detailed EMP mentioning all the activities as proposed in the CER and furnish the same before placing the subject to SEIAA.
22. All the conditions imposed by the Deputy Director, Geology & Mining, Tiruppur District in the mining plan approval and the precise area communication issued by District Collector, Tiruppur District should be strictly followed.


MEMBER SECRETARY
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Discussion by SEIAA and the Remarks:-

The proposal was placed in the 482nd Authority meeting held on 27.01.2022. After detailed discussion, the Authority accepts the recommendation of SEAC and decided to grant Environmental Clearance subject to the conditions as recommended by SEAC in addition to the following condition.

1. As per the recommendation of SEAC and as accepted by the proponent, restricting the ultimate depth of mining to 32m below ground level and quantity of 125710cu.m of Rough stone & 16510cu.m of Gravel for five years considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining.
2. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent has furnished the detailed EMP mentioning all the activities in the CER as committed. All the activities proposed shall be carried out before obtaining CTO from TNPCB.
3. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife.
4. The proponent shall ensure that the activity does not disturb the biodiversity the flora & fauna in the ecosystem.
5. The proponent shall ensure that the activity does not neither disturb the water bodies and natural flow of surface and ground water, nor cause any pollution.
6. The proponent shall ensure that the activities undertaken should not result in carbon emission, and temperature rise, in the area.
7. The proponent shall ensure that the mine closure plan are followed as per mining plan and the mine restoration should be done with native species, and site restored to near original status.
8. The proponent shall ensure that Monitoring must be carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads.
9. The proponent shall ensure that the area should be ecologically restored to conserve the ecosystems and ensure flow of goods and services.
10. The proponent shall ensure that the activities shall not disturb the agro biodiversity and agro farms.


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11. The proponent shall ensure that the activity should not result in invasion by invasive alien species.
12. Actions to be taken to promote agro forestry, mixed plants and biodiversity conservation.
13. The proponent shall ensure that activity should not deplete the indigenous soil seed bank and disturb the microazal fungi, soil organism, soil community nor result in eutrophication of soils and water.
14. The proponent shall ensure that all mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area.

Part-A: Conditions to be Complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - I. The project has been accorded Environmental Clearance.
 - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - III. Environmental Clearance may also be seen on the website of the SEIAA.
 - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.


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6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
15. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
17. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
18. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
19. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
20. The following measures are to be implemented to reduce Air Pollution during transportation of mineral


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- i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
21. The following measures are to be implemented to reduce Noise Pollution
- i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
 - v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
22. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
23. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
24. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
25. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
26. The following measures are to be adopted to control erosion of dumps:-
- i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous& other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
28. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.


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29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
31. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
33. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
34. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
35. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
36. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
37. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Bunds to be provided at the boundary of the project site.


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39. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
40. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
41. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
42. The Project Proponent shall provide solar lighting system to the nearby villages.
43. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
44. Safety equipments to be provided to all the employees.
45. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
46. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
47. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
48. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
49. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
50. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
51. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
52. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.


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53. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
54. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
55. All the commitment made by the project proponent in the proposal shall be strictly followed.
56. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
57. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/ 2016 (M.A.No. 758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No. 12/2017 & M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).
58. All required sanitary and hygienic measures should be in place before starting construction activities and they have to be maintained throughout the construction phase.
59. The company shall stress upon the preventive aspects of occupational health.
60. A separate environment and safety management cell with qualified staff shall be set up before commissioning of construction activities and shall be retained throughout the lifetime of the industry, for implementation of the stipulated environmental safeguards.
61. A scientific site/ ecological rehabilitation and restoration plan on long term basis should be drawn to carryout restoration with native species and Bio diversity.
62. The Green/Blue plan should guide the restoration of the site. The rehabilitation/restoration plan should be submitted to SEIAA-TN within one month. If applicable.
63. The existing water bodies should not be disturbed to ensure sustainable environment for aquatic life forms.
64. The proponent should completely implement all environmental pollution control measures as detailed in the EIA report and in the additional report.
65. Avenue plantation wherever needed has to be carried out along the route for dust suppression.


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66. The green belt developed for the prevention of dust pollution should not form a part of the larger green belt development envisaged in the EIA report.
67. Regular monitoring and check up for pulmonary and carcinogenic diseases to be carried out regularly, not only for the workers involved in the mines but also to the people in the villages adjoining the mines. Interaction with the Primary Health Centre & district medical officer should be on regular basis to monitor the incidence of the diseases if any and to provide suitable medical facility for the patients.
68. Monitoring of well water levels and water quality of the wells in the locations furnished in the EIA report shall be done during pre-monsoon and post monsoon period and results submitted to the Regional Office of MoEF, Chennai and SEIAA.
69. Monitoring of water quality and air quality in and around the project site in the selected monitoring points as mentioned in the EIA report shall be continued regularly involving Academic Institutions.
70. Hydro geological study including infiltration test shall be conducted by any reputed agency to estimate leachate quantity.
71. Regular medical check-up for mine workers and nearby residents around the project site involving community medical centre/NIMH shall be conducted.
72. As per norms, the health study should be conducted through competent/approved health organization and report submitted for one year.
73. The effective safe guard measures shall be provided to control particulate dust level in critical areas, transfer points and haul road within the mine area.
74. NOC from the State GWA for drawing ground water shall be obtained, if ground water table is intersected.
75. Green belt shall be provided as per norms of MoEF & CC, GOI, in consultation with local DFO.
76. All the recommendations made in the EIA report of the project shall be effectively implemented.
77. A booklet containing the Dos and Don'ts shall be prepared in vernacular languages for the use of the mine engineers/ managers and the workers to ensure that all necessary environmental, safety and health measures are undertaken.


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78. All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with.
79. Hydro geological study of the area shall be reviewed annually and report submitted to the Authority. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the operation of the Mining activity.
80. A separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the various Environmental Management and Monitoring functions shall be set up under the control of a Senior Executive.
81. The project proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at Chennai, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; RSPM, SO₂, NO_x or critical sector parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.


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SEIAA-TN

7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities


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SEIAA-TN

would be considering the project on merits and be taking decisions independently of the Environmental Clearance

18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.


MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Principal Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai - 32.
7. The District Collector, Tiruppur District.
8. The Commissioner of Geology and Mines, Guindy, Chennai - 32.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.



Signature Not Verified

Digitally signed by
Tmt.P.RAJESWARI, IFS
Member Secretary

Date: 2/8/2022 2:03:29 PM



Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), Tamil Nadu)

To,

The Owner
S P PALANISAMY RSG QUARRY
Ichipatti -641401

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/38883/2019 dated 24 Mar 2021. The particulars of the environmental clearance granted to the project are as below.

- | | |
|--|---|
| 1. EC Identification No. | EC21B001TN110012 |
| 2. File No. | 6923 |
| 3. Project Type | New |
| 4. Category | B1 |
| 5. Project/Activity including Schedule No. | 1(a) Mining of minerals |
| 6. Name of Project | S.P. Palanisamy Rough stone and gravel quarry Extent 1.87.50 Ichipatti Village, Palladam Taluk, Tiruppur District |
| 7. Name of Company/Organization | S P PALANISAMY RSG QUARRY |
| 8. Location of Project | Tamil Nadu |
| 9. TOR Date | 06 Oct 2020 |

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 12/11/2021

(e-signed)
Tmt.P.RAJESWARI,IFS
Member Secretary
SEIAA - (Tamil Nadu)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

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STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY- TAMILNADU

3rdFloor, PanagalMaaligai, No.1, Jeenis Road, Saidapet, Chennai-15.

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.6923/EC.No:4911/2020 dated: 03.11.2021

Sub SEIAA-TN – Proposed Rough Stone & Gravel quarry lease over an extent of 1.87.5Ha at S.F.Nos.221/1B & 223/2E2 of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu by Thiru.S.P.Palanisamy – issue of Environmental Clearance – Regarding.

- Ref:**
1. Your application submitted Terms of Reference dated: 12.07.2019
 2. ToR issued vide Lr. No. SEIAA-TN/F.No.6923/SEAC/ TOR-780/2020 Dt: 06.10.2020.
 3. Public Hearing conducted on 17.02.2021
 4. Online Proposal No. SIA/TN/MIN/38883/2019 dated 24.03.2021.
 5. Project proponent submitted EIA Report to SEIAA-TN on. 26.03.2021
 6. Minutes of the 236th meeting of SEAC held on 05.10.2021.
 7. Minutes of the 478th meeting of SEIAA - TN held on 29.10.2021.

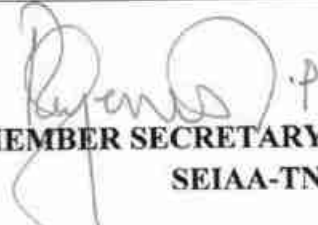
Details of Minor Mineral Activity:-

This has reference to your application second cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of minor minerals based on the particulars furnished in your application as shown below.

1	Name of Project Proponent and address	Thiru.S.P.Palanisamy S/o.Palanisamy No. 2/135, Iranthottam Sengathurai, Kadampadi Coimbatore District – 641401
2	Location of the Proposed Activity	


MEMBER SECRETARY
SEIAA-TN

	Survey Number	221/1B & 223/2E2
	Latitude and Longitude	11°03'23.67"N to 11°03'29.41"N 77°11'55.84"E to 77°12'03.60"E
	Village	Ichipatti
	Taluk	Palladam
	District	Tiruppur
3	Proposed Activity	
	i. Minor mineral	Rough Stone and Gravel Quarry
	ii. Mining Lease Area	1.87.5Ha
	iii. Approved quantity	181905cu.m of rough stone, & 10,794cu.m of gravel
	iv. Depth of Mining	37 m
	v. Type of mining	Opencast Mechanized Mining Method
	vi. Category(B1/B2)	B2
	vii. Precise area communication approved by the District Collector of Geology and Mining, with date	Na Ka. No.972/Kanimam/2017, dated: 12.09.2018
	viii. Mining plan approval by Assistant Director, Department of Geology and Mining with date	Roc.No.972/Mines/2017, dated: 28.09.2018.
	ix. Scheme of Mining period	5Years
4	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-	Not attracted. Affidavit furnished.
5	Man Power requirement per day:	20 Nos.
6	Utilities	
	i. Source of Water :	Existing Borewell & Water Vendors
	ii. Quantity of Water Requirement in KLD:	3.73 KLD


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SEIAA-TN

	a. Domestic & Drinking purpose	0.67 KLD
	b. Green Belt & Dust Suppression	2.7 KLD & 0.36 KLD
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
7	Cost	
	i. Project Cost	Rs. 64.36 Lakhs
	ii. EMP Cost	Rs. 3.80 Lakhs
	iii. CER Cost	Rs. 1.71 Lakhs
8	<u>Validity:</u> This Environmental Clearance is granted for the production in 181905cu.m of rough stone, & 10,794cu.m of gravel for the period of 5 Years from the date of execution of the mining lease.	

The Proponent has furnished affidavit in Hundred Rupees stamp paper dated: 7.9.2020 attested by the Notary stating that

The Proponent Thiru.S.P.Palanisamy, S/o.Palanisamy, No. 2/135, Iranthottam, Sengathurai, Kadampadi, Coimbatore District – 641401, solemnly declare and sincerely affirm that:

I have apply for getting prior Environmental Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of Proposed Rough Stone & Gravel quarry lease over an extent of 1.87.5Ha at S.F.Nos.221/1B & 223/2E2 of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu.

1. I swear to state and confirm that within 10km area of the quarry site, I have applied for Environmental Clearance, none of the following situated.
 - a) Protected areas notified under the wild life (Protection) Act, 1972
 - b) Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974.
 - c) Eco-Sensitive area as notified
 - d) Interstate boundaries and international boundaries within 5km radius from the boundary of the proposed site.
2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.


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SEIAA-TN

CER Activity	Project cost (Rs. In laksh)	CER cost 2.0% project cost (Rs. In Laksh)
Developing the library / sports /drinking water facilities Ichipatti school	68.17	1.36
Total cost allocation	68.17	1.36

3. I solemnly declare & affirm that following quarries located within 500m radius from the periphery of quarry Site.

Sl. NO.	Name of the owner	Extent	S.F. No.	Lease status
1	S.P. Palanisamy	1.87.5	221/B, 223/2E2	Proposed
2	R.Gowri @ Baby	1.57.5	206/1	Proposed
3	M. Thangavel	1.52.0	208/1, 208/2, 208/3,	Proposed
4	R. Gowri @ Baby	1.57.0	206/2	Existing
5	S.A. Ramachandran	1.19.0	220/C	Existing
6	S.A. Ramachandran	2.02.5	220/1A, 223/2F	Existing
7	C. Thangaraj	1.92.0	207/1A, etc.	Existing

4. There will not be hindrance or disturbance to the public during transportation. no villages are enrouted during transportation.
5. There is no approved habitation within 300m radius from the periphery of my quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the laborers working in my quarry site.
8. Approach road belongs to local panchayat only and no other private patta roads encountered.
9. I will not engage any child labor in my quarry site and I aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in my quarry.
11. No permanent structures, temples etc., are located within 500m radius from the periphery of my quarry.


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I ensure to do all the social and Environment commitment as mentioned in the mining plan to the best of my knowledge.

Details of 500M radius Proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from the Assistant Director, Department of Geology & Mining, Tirppur District in his letter Roc.No.972/Mines/2017, dated: 06.01.2020 has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows:

a. Existing Quarries

Sl.No.	Name of the Owner	Village and S.F.No	Extent in Hects	Distance from this proposed quarry
1	R.Gowri @ Baby	Ichipatti (V) 206/2	1.57.0 ha	
2	S.A. Ramachandran	Ichipatti 220/1C	1.91.0Ha	
3	S.A. Ramachandran	Ichipatti (v), 220/1A, 223/2F	2.02.5	
4	C.Thangaraj	Ichipatti (v) 207/1A, etc	1.92.0	

b. Abandoned Quarries

S.No	Name of the Owner	S.F.Nos.	Extent in ha

c. Present proposed Quarries:

S.No	Name of the Owner	S.F.Nos.	Extent in ha	Distance from this proposed quarry
1	S.P. Palanisamy	Ichipatti (V), 221/1B, 223/2E2	1.87.5	
2.	R.Gowri @ Baby	Ichipatti 206/1	1.57.5	
3	M.Thangavel	Ichipatti(V), 208/1,2,3,	1.52.0	

d. expired Quarries

S.No	Name of the Owner	S.F.Nos.	Extent in ha
		Nil	


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Appraisal by SEAC:-

The proposal was placed for appraisal in this 236th meeting of SEAC held on 05.10.2021. The project proponent gave a detailed presentation. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

1. The project proponent, Thiru.S.P.Palanisamy has applied for Environmental Clearance for the proposed Rough Stone & Gravel quarry lease over an extent of 1.87.5Ha at S.F. Nos. 221/1B & 23/2E2of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
3. TOR issued by SEIAA-TN vide Lr. No. SEIAA-TN/F.No.6923/SEAC/TOR-780/2020 Dt:06.10.2020.
4. Minutes of Public hearing Dt: 17.02.2021.
5. The production for the five years states that the total quantity of recoverable as 1,93,025 cu.m of rough stone, & 10,794 cu.m of gravel and the ultimate depth of mining is 42m below ground level.


Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of issue of Environmental Clearance subject to the following specific conditions, in addition to normal conditions stipulated by MOEF &CC:

1. Restricting the depth of mining upto 37m ultimate depth below ground level and quantity of 1,91,595 cu.m of rough stone, & 10,794 cu.m of gravel are permitted for mining over five years considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining.
2. The project proponent shall ensure only controlled blasting with utmost safety precautions as well as to ensure simultaneous blasting is not carried out at the same time between the adjacent/nearby quarries without affecting livelihood /safety of the surrounding environment and the habitats so as to reduce cumulative impact due to cluster mining activity & adhering to the noise level standards prescribed by the CPCB .
3. The proponent shall form proper benches as per the approved mining plan during the operation of the quarry considering the hydro-geological regime of the surrounding area


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as well as for safe mining.

4. The Proponent should install cautionary boards at the entry and important locations of the mining site displaying caution notice to the public about the danger of entering the mining lease.
5. The proponent shall conduct annual physical fitness test and eye test for all the employees to ensure health & safety during occupation.
6. Fugitive emission measurements should be carried out during the mining operation and the report on the same may be submitted to TNPCB once in six months.
7. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site and adequate noise level reduction measures be undertaken.
8. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit as per the conditions and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
9. Greenbelt needs to be developed in the periphery of the mines area preferably adopting Miyawaki scheme of atleast 3m width so that at the closure time the trees would have grown well.
10. Groundwater quality monitoring should be conducted once every six months and the report should be submitted to TNPCB.
11. After mining is completed, proper leveling should be done by the Project proponent & Environmental Management Plan furnished by the Proponent should be strictly followed.
12. The Project proponent shall strictly adhere to mine closure plan after ceasing mining operations as committed. Also the proponent shall undertake re- grassing of the mining area and any other area which might have been disturbed due to the mining activities and restore the land to a condition that is fit for the growth of fodder, flora, fauna etc.
13. Proper barrier to reduce noise level, dust pollution and to hold down any possible fly material (debris) should be established by providing greenbelt and/or metal sheets along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
14. The operation of the quarry should not affect the agriculture activities & water bodies near the project site and a safety distance of 50m from the boundary should be left vacant without any mining activity.


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15. Transportation of the quarried materials shall not cause any hindrance to the Village people or damage to the existing Village road.
16. The Project Proponent shall comply with the mining and other relevant rules and regulations wherever applicable.
17. The proponent shall develop an adequate greenbelt with native species on the periphery of the mine lease area before the commencement of the mining activity, in consultation with DFO of the concerned district/agriculture.
18. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
19. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance.
20. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.
21. 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 furnish the detailed EMP mentioning all the activities as proposed in the CER and furnish the same before placing the subject to SEIAA.
22. All the conditions imposed by the Deputy Director, Geology & Mining, Tiruppur District in the mining plan approval and the precise area communication issued by District Collector, Tiruppur District should be strictly followed.

Discussion by SEIAA and the Remarks:-

The subject was placed before the Authority in its 478th Authority meeting held on 29.10.2021. After detailed discussion, the Authority noted as follows.

1. The project proponent Thiru.S.P.Palanisamy has applied for Environmental Clearance for the proposed Rough Stone & Gravel quarry lease over an extent of 1.87.5Ha at S.F. Nos. 221/1B & 223/2E2 of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu.
2. The production for the five years states that the total quantity of recoverable as 1,93,025 cu.m of rough stone, & 10,794 cu.m of gravel and the ultimate depth of mining is 42m below ground level.


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3. In the minutes of the 236th meeting of SEAC held on 05.10.2021, the SEAC has recommended the proposal for the grant of issue of Environmental Clearance subject to the following conditions among others:

a. Restricting the depth of mining up to 37m ultimate depth below ground level and quantity of 1,91,595 cu.m of rough stone, & 10,794 cu.m of gravel are permitted for mining over five years considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining.

4. On verifying the approved mining plan, it was noticed that the actual quantity of rough stone to be mined out for the restricted depth of 37m is 181905 cu.m of rough stone **whereas in SEAC minutes, the quantity of rough stone to be mined out for the restricted depth of 37m is inadvertently mentioned as 1,91,595 cu.m of rough stone.**

In view of the above, the Authority accepts the recommendation of SEAC and decided to grant Environmental Clearance subject to the conditions as recommended by SEAC in addition to the following condition.

1. As per the recommendation of SEAC and as accepted by the proponent, the ultimate depth of mining is restricted to 37m ultimate depth below ground level and quantity of 181905 cu.m of rough stone, & 10,794 cu.m of gravel are permitted for mining over five years considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining.
2. As per the MoEF&CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent has furnished the detailed EMP, mentioning all the CER activities for Rs. 1.71 Lakhs as committed. All the CER activity shall be carried out before obtaining CTO from TNPCB.

Part-A: Conditions to be Complied before commencing mining operations:-

1. **The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that**

I. The project has been accorded Environmental Clearance.

II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.


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III. Environmental Clearance may also be seen on the website of the SEIAA.

IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.


2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. **A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.**
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.


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14. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
15. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
17. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
18. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
19. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
20. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
21. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
 - v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.


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22. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
23. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
24. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
25. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
26. The following measures are to be adopted to control erosion of dumps:-
 - i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous& other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
28. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.


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31. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
33. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
34. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
35. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
36. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
37. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Bunds to be provided at the boundary of the project site.
39. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
40. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
41. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity


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42. The Project Proponent shall provide solar lighting system to the nearby villages.
43. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
44. Safety equipments to be provided to all the employees.
45. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
46. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
47. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
48. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
49. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
50. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
51. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
52. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
53. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
54. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
55. All the commitment made by the project proponent in the proposal shall be strictly followed.

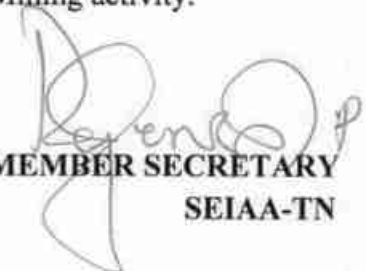

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56. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
57. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/2016 (M.A.No. 758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No. 12/2017 & M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).
58. All required sanitary and hygienic measures should be in place before starting construction activities and they have to be maintained throughout the construction phase.
59. The company shall stress upon the preventive aspects of occupational health.
60. A separate environment and safety management cell with qualified staff shall be set up before commissioning of construction activities and shall be retained throughout the lifetime of the industry, for implementation of the stipulated environmental safeguards.
61. A scientific site/ ecological rehabilitation and restoration plan on long term basis should be drawn to carryout restoration with native species and Bio diversity.
62. The Green/Blue plan should guide the restoration of the site. The rehabilitation/restoration plan should be submitted to SEIAA-TN within one month. If applicable.
63. The existing water bodies should not be disturbed to ensure sustainable environment for aquatic life forms.
64. The proponent should completely implement all environmental pollution control measures as detailed in the EIA report and in the additional report.
65. Avenue plantation wherever needed has to be carried out along the route for dust suppression.
66. The green belt developed for the prevention of dust pollution should not form a part of the larger green belt development envisaged in the EIA report.
67. Regular monitoring and check up for pulmonary and carcinogenic diseases to be carried out regularly, not only for the workers involved in the mines but also to the people in the


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villages adjoining the mines. Interaction with the Primary Health Centre & district medical officer should be on regular basis to monitor the incidence of the diseases if any and to provide suitable medical facility for the patients.

68. Monitoring of well water levels and water quality of the wells in the locations furnished in the EIA report shall be done during pre-monsoon and post monsoon period and results submitted to the Regional Office of MoEF, Chennai and SEIAA.
69. Monitoring of water quality and air quality in and around the project site in the selected monitoring points as mentioned in the EIA report shall be continued regularly involving Academic Institutions.
70. Hydro geological study including infiltration test shall be conducted by any reputed agency to estimate leachate quantity.
71. Regular medical check-up for mine workers and nearby residents around the project site involving community medical centre/NIMH shall be conducted.
72. As per norms, the health study should be conducted through competent/approved health organization and report submitted for one year.
73. The effective safe guard measures shall be provided to control particulate dust level in critical areas, transfer points and haul road within the mine area.
74. NOC from the State GWA for drawing ground water shall be obtained, if ground water table is intersected.
75. Green belt shall be provided as per norms of MoEF & CC, GOI, in consultation with local DFO.
76. All the recommendations made in the EIA report of the project shall be effectively implemented.
77. A booklet containing the Dos and Don'ts shall be prepared in vernacular languages for the use of the mine engineers/ managers and the workers to ensure that all necessary environmental, safety and health measures are undertaken.
78. All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with.
79. Hydro geological study of the area shall be reviewed annually and report submitted to the Authority. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the operation of the Mining activity.


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80. A separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the various Environmental Management and Monitoring functions shall be set up under the control of a Senior Executive.
81. The project proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at Chennai, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; RSPM, SO₂, NO_x or critical sector parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.


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9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.

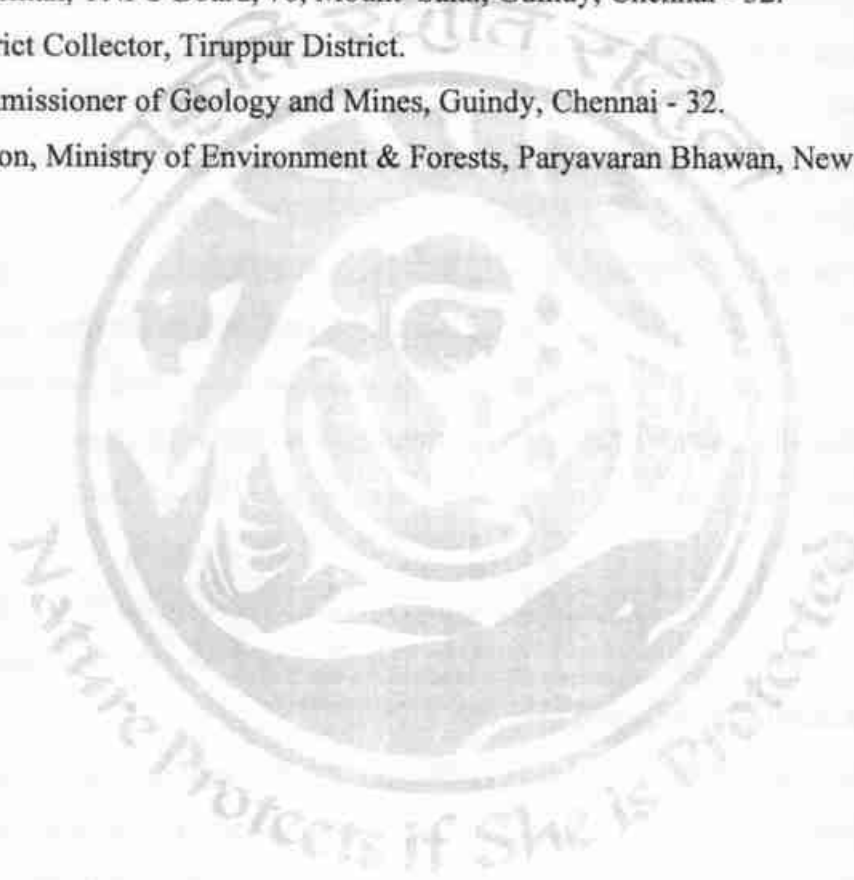

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19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.


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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Principal Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai - 32.
7. The District Collector, Tiruppur District.
8. The Commissioner of Geology and Mines, Guindy, Chennai - 32.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.



Signature Not Verified

Digitally signed by
Tmt.P.RAJESWARI, IFS
Member Secretary
Date: 11/12/2021 5:12:04 PM
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Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), Tamil Nadu)

To,

The Proprietrix
GOWRI (A) BABY
Ichipatti Village -641662

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/49988/2020 dated 24 Mar 2021. The particulars of the environmental clearance granted to the project are as below.

1. EC Identification No.	EC22B001TN195780
2. File No.	6924/2019
3. Project Type	New
4. Category	B1
5. Project/Activity including Schedule No.	1(a) Mining of minerals
6. Name of Project	Tmt. Gowri (a) R. Baby Rough stone and gravel quarry
7. Name of Company/Organization	GOWRI (A) BABY
8. Location of Project	Tamil Nadu
9. TOR Date	06 Oct 2020

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 09/02/2022

(e-signed)
Tmt.P.RAJESWARI,IFS
Member Secretary
SEIAA - (Tamil Nadu)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH. Please quote identification number in all future correspondence.

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TMT. P. RAJESWARI, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai-15.
Phone No. 044-24359973
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.6924/EC.No:4958 /2020 dated: 28.01.2022

Sir/Madam,

Sub SEIAA-TN – Proposed Rough Stone & Gravel quarry lease over an extent of 1.57.50ha of Patta land at S.F.Nos. 206/1 of Ichipatti Village, Palladam Taluk, Tiruppur District Tamil Nadu by Tmt. Gowri @ R.Baby – Issue of Environmental Clearance – Regarding.

- Ref:
1. Your application submitted Terms of Reference dated: 12.07.2019
 2. ToR issued vide Lr. No. SEIAA-TN/F.No.6924/SEAC/TOR-781/2020 Dt: 06.10.2021.
 3. Public Hearing conducted on 17.02.2021
 4. Online Proposal No. SIA/TN/MIN/49988/2020 Dt: 24.03.2021.
 5. Project proponent submitted EIA Report to SEIAA-TN on. 26.03.2021
 6. Minutes of the 238th meeting of SEAC held on 13.10.2021.
 7. Minutes of the 482nd meeting of SEIAA held on 27.01.2022.

Details of Minor Mineral Activity:-

This has reference to your application 4th & 5th cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of minor minerals based on the particulars furnished in your application as shown below.

1	Name of Project Proponent and address	Tmt. Gowri (a) R.Baby W/o.S.A.Ramachandran No.6-A, G.K.S.Nagar Sulur, Kadampati Coimbatore District
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2	Location of the Proposed Activity	
	Survey Number	206 /1 /
	Latitude and Longitude	11°03'33.50"N to 11°03'37.44"N 77°12'01.39"E to 77°12'06.81"E
	Village	Ichipatti
	Taluk	Palladam
	District	Tiruppur
3	Proposed Activity	
	i. Minor mineral	Rough Stone & Gravel
	ii. Mining Lease Area	1.57.5Ha
	iii. Approved quantity	13410m ³ of Rough Stone & 62167 cu.m of Gravel
	iv. Depth of Mining	22m below ground level
	v. Type of mining	Open mechanised mining
	vi. Category(B1/B2)	B2
	vii. Precise area communication approved by the District Collector, with date	Rc.No.1462/Mines/2017, dated: 12.09.2018
	viii. Mining plan approval by Assistant Director (Additional Charge), Department of Geology and Mining with date	Rc.No.1462/Mines/2017, dated: 08.10.2018
	ix. Scheme of Mining period	5Years
4	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-	Not attracted. Affidavit furnished.
5	Man Power requirement per day:	14 Nos.
6	Utilities	
	i. Source of Water :	Water Vendors
	ii. Quantity of Water Requirement in KLD:	3.5 KLD


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	a. Domestic & Drinking purpose b. Green Belt & Dust Suppression	1.0 KLD 2.5 KLD
	iii. Power Requirement: a. Domestic Purpose b. Industrial Purpose	TNEB 21096 Liters of HSD
7	Cost i. Project Cost ii. EMP Cost iii. CER Cost	Rs. 53.86Lakhs Rs.3.80 Lakhs Rs. 1.15 Lakhs
8	<u>Validity:</u> This Environmental Clearance is granted for the production in 13410cu.m of Rough Stone & 62167cu.m of Gravel for the period of 5 Years from the date of execution of the mining lease.	

The Proponent has furnished affidavit in Hundred Rupees stamp paper dated: 7.9.2020 attested by the Notary stating that

The Proponent Tmt. Gowri (a) R.Baby, W/o.S.A.Ramachandran, No.6-A, G.K.S.Nagar, Sulur, Kadampati, Coimbatore District, solemnly declare and sincerely affirm that:

I have apply for getting prior Environmental Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of Proposed Rough Stone & Gravel quarry lease over an extent of 1.57.50ha of Patta land at S.F.Nos.206/1 of Ichipatti Village, Palladam Taluk, Tiruppur District Tamil Nadu.

1. I swear to state and confirm that within 10km area of the quarry site, I have applied for Environmental Clearance, none of the following situated.
 - a) Protected areas notified under the wild life (Protection) Act, 1972,
 - b) Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974.
 - c) Eco-Sensitive area as notified
 - d) Interstate boundaries and international boundaries within 5Km radius from the boundary of the proposed site.
2. I will complete the following corporate Environment Responsibility (CER) actives before commencement of the quarrying activities.


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CER Activity	Project Cost (Rs. In Lakh)	CER Cost 2.0% of project cost (Rs. In Lakhs)
Developing the library/sports/Drinking water facilities in Ichipatti School	57.67	1.15
Total cost allocation	57.67	1.15

3. I solemnly & affirm that following quarries within 500meter radius from the periphery of the quarry site:

S.No	Name of the owner	Extent (Ha)	S.F.Nos.	Lease status
1	R.Gowri @Baby	1.57.5	206/1	Proposed
2	S.P.Palanisamy	1.87.5	221/1B, 223/2E2	Proposed
3	M.Thangavel	1.52.0	208/1, 208/2, 208/3	Proposed
4	R.Gowri @ Baby	1.57.0	206/2	Existing
5	S.A.Ramachandran	1.19.0	220/1C	Existing
6	S.A.Ramachandran	2.02.5	220/1A, 223/2F	Existing
7	C.Thangaraj	1.92.0	207/1A, etc	Existing

4. There will not be hindrance or disturbance to the People living no enroute / nearby our quarry site while transporting the mined out material and due to mining/quarrying activities.
5. There is no habitations are located within 500m radius from the periphery of my applied quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the labourers working in my quarry site.
8. The Approach road belongs to local Panchayat only no other private patta roads encountered. I will not engage any child labour in my quarry site and I aware that engaging child labour is punishable under the law.
9. All types of safety / protective equipment will be provided to all the labourers working in my quarry.
10. No permanent structures, temples etc., are located within 500m radius from the periphery of my quarry.


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I ensure to do all the social and Environment commitment as mentioned in the mining plan to the best of my knowledge.

Details of 500M radius Proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from the Assistant Director, Department of Geology & Mining, Tiruppur District in his letter Rc.No.1462/Mines/2017, dated: 02.07.2019 ^{and 31/11/2020} has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows:

S.No	Name of the applicant/lessee	Quarry/ lease applied area located	Extent (Ha)	Lease status
1	R.Gowri @Baby	206/1	1.57.5	Proposed
2	S.P.Palanisamy	221/1B, 223/2E2	1.87.5	Proposed
3	M.Thangavel	208/1, 208/2, 208/3	1.52.0	Proposed
4	R.Gowri @ Baby	206/2	1.57.0	Existing
5	S.A.Ramachandran	220/1C	1.19.0	Existing
6	S.A.Ramachandran	220/1A, 223/2F	2.02.5	Existing
7	C.Thangaraj	207/1A, etc	1.92.0	Existing

Appraisal by SEAC:-

Proposed Rough Stone & Gravel quarry lease over an extent of 1.57.50 haat S.F.Nos. 206/1, of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu by Gowri (a) R.Baby - For Environmental Clearance.

(SIA/TN/MIN/49988/2020 Dt:24.03.2021)

The proposal was placed for appraisal in this 238th meeting of SEAC held on 13.10.2021. The project proponent gave a detailed presentation. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

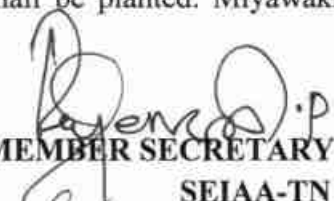
1. The project proponent, Gowri (a) R.Baby has applied for Environmental Clearance for the proposed Rough Stone & Gravel quarry lease over an extent of 1.57.50 haat S.F. Nos.206/1 of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
3. TOR issued by SEIAA-TN vide Lr. No. SEIAA-TN/F.No./6924/SEAC/TOR-781/2020 Dt:06.10.2021..
4. Minutes of Public hearing Dt: 17.02.2021.


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5. The production for the five years states that the total quantity of recoverable as 13,410cu.m of rough stone, & 62167cu.m of gravel and the ultimate depth of mining is 22m below ground level.

Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of issue of Environmental Clearance subject to the following specific conditions, in addition to normal conditions stipulated by MOEF &CC:

1. The project proponent shall ensure only controlled blasting with utmost safety precautions as well as to ensure simultaneous blasting is not carried out at the same time between the adjacent/nearby quarries without affecting livelihood /safety of the surrounding environment and the habitants so as to reduce cumulative impact due to cluster mining activity & adhering to the noise level standards prescribed by the CPCB .
2. The proponent shall form proper benches as per the approved mining plan during the operation of the quarry considering the hydro-geological regime of the surrounding area as well as for safe mining.
3. The proponent should install cautionary boards at the entry and important locations of the mining site displaying caution notice to the public about the danger of entering the mining lease.
4. The proponent shall conduct annual physical fitness test and eye test for all the employees to ensure health & safety during occupation.
5. Fugitive emission measurements should be carried out during the mining operation and the report on the same may be submitted to TNPCB once in six months.
6. The proponent shall ensure that the noise level is monitored during mining operation at the project site and adequate noise level reduction measures be undertaken.
7. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit as per the conditions and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
8. The purpose of Green belt around the project is to capture the fugitive emissions and to attenuate the noise generated, in addition to the improvement in the aesthetics. A wide range of indigenous plants species should be planted in and around the premise in consultation with the DFO, District / State Agriculture University. The plants species should have thick canopy cover, perennial green nature, native origin and large leaf areas. Medium size trees and small trees alternating with shrubs shall be planted. Miyawaki


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- method of planting i.e. planting different types of trees at very close intervals may be tried which will give a good green cover. 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 and the same shall be included in the layout out plan to be submitted for CMDA/DTCP approval. The total green belt area should be minimum 15% of the total area and the same shall not be used for car parking/OSR.
9. Groundwater quality monitoring should be conducted once in every six months and the report should be submitted to TNPCB.
 10. After mining is completed, proper leveling should be done by the project proponent & Environmental Management Plan furnished by the proponent should be strictly followed.
 11. The project proponent shall strictly adhere to mine closure plan after ceasing mining operations as committed. Also the proponent shall undertake re- grassing of the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition that is fit for the growth of fodder, flora, fauna etc.
 12. Proper barrier to reduce noise level, dust pollution and to hold down any possible fly material (debris) should be established by providing greenbelt and/or metal sheets along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
 13. The operation of the quarry should not affect the agriculture activities & water bodies near the project site and a safety distance of 50m from the boundary be left vacant without any mining activity.
 14. Transportation of the quarried materials shall not cause any hindrance to the Village people or damage to the existing Village road.
 15. The project proponent shall comply with the mining and other relevant rules and regulations wherever applicable.
 16. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
 17. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance.


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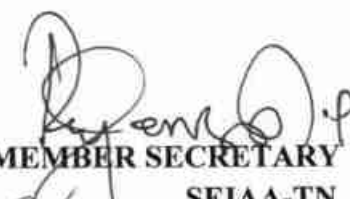
18. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.
19. All the commitments made by the proponent during the public hearing, as per the minutes of public hearing should be implemented in total.
20. As per the MoEF & CC Office Memorandum F.No. 22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall furnish the detailed EMP mentioning all the activities as proposed in the CER and furnish the same before placing the subject to SEIAA.
21. All the conditions imposed by the Deputy Director, Geology & Mining, Tiruppur District in the mining plan approval and the precise area communication issued by District Collector, Tiruppur District should be strictly followed

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 482nd Authority meeting held on 27.01.2022. After detailed discussion, the Authority accepts the recommendation of SEAC and decided to grant Environmental Clearance subject to the conditions as recommended by SEAC in addition to the following condition.

1. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent has furnished the detailed EMP mentioning all the activities in the CER as committed. All the activities proposed shall be carried out before obtaining CTO from TNPCB.
2. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife.
3. The proponent shall ensure that the activity does not disturb the biodiversity the flora & fauna in the ecosystem.
4. The proponent shall ensure that the activity ~~does not~~ neither disturb the water bodies and natural flow of surface and ground water, nor cause any pollution.
5. The proponent shall ensure that the activities undertaken do not result in carbon emission, and temperature rise, in the area.
6. The proponent shall ensure that the mine closure plan are followed as per mining plan and the mine restoration is be done with native species, and site restored to near original status.

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7. The proponent shall ensure that Monitoring must be carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads.
8. The proponent shall ensure that the area is ecologically restored to conserve the ecosystems and ensure flow of goods and services.
9. The proponent shall ensure that the activities do not disturb the agro biodiversity and agro farms.
10. The proponent shall ensure that the activity does not result in invasion by invasive alien species.
11. Actions to be taken to promote agro forestry, mixed plants and biodiversity conservation.
12. The proponent shall ensure that activity should not deplete the indigenous soil seed bank and disturb the mycorrhizal fungi, soil organism, soil community nor result in eutrophication of soils and water.
13. The proponent shall ensure that all mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area.

Part-A: Conditions to be Complied before commencing mining operations:-

1. **The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that**
 - I. The project has been accorded Environmental Clearance.**
 - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.**
 - III. Environmental Clearance may also be seen on the website of the SEIAA.**
 - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.**
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.


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5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
15. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
17. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
18. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters


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- should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
19. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
 20. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
 21. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
 - v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
 22. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
 23. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
 24. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
 25. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
 26. The following measures are to be adopted to control erosion of dumps:-
 - i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.


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27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous & other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
28. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
31. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
33. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
34. It shall be ensured that the total extent of nearby quarries (existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.


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35. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
36. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
37. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Bunds to be provided at the boundary of the project site.
39. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
40. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
41. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
42. The Project Proponent shall provide solar lighting system to the nearby villages.
43. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
44. Safety equipments to be provided to all the employees.
45. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
46. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
47. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
48. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
49. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.

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50. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
51. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
52. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
53. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
54. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
55. All the commitment made by the project proponent in the proposal shall be strictly followed.
56. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
57. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/2016 (M.A.No. 758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No. 12/2017 & M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).
58. All required sanitary and hygienic measures should be in place before starting construction activities and they have to be maintained throughout the construction phase.
59. The company shall stress upon the preventive aspects of occupational health.
60. A separate environment and safety management cell with qualified staff shall be set up before commissioning of construction activities and shall be retained throughout the lifetime of the industry, for implementation of the stipulated environmental safeguards.


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61. A scientific site/ ecological rehabilitation and restoration plan on long term basis should be drawn to carryout restoration with native species and Bio diversity.
62. The Green/Blue plan should guide the restoration of the site. The rehabilitation/restoration plan should be submitted to SEIAA-TN within one month. If applicable.
63. The existing water bodies should not be disturbed to ensure sustainable environment for aquatic life forms.
64. The proponent should completely implement all environmental pollution control measures as detailed in the EIA report and in the additional report.
65. Avenue plantation wherever needed has to be carried out along the route for dust suppression.
66. The green belt developed for the prevention of dust pollution should not form a part of the larger green belt development envisaged in the EIA report.
67. Regular monitoring and check up for pulmonary and carcinogenic diseases to be carried out regularly, not only for the workers involved in the mines but also to the people in the villages adjoining the mines. Interaction with the Primary Health Centre & district medical officer should be on regular basis to monitor the incidence of the diseases if any and to provide suitable medical facility for the patients.
68. Monitoring of well water levels and water quality of the wells in the locations furnished in the EIA report shall be done during pre-monsoon and post monsoon period and results submitted to the Regional Office of MoEF, Chennai and SEIAA.
69. Monitoring of water quality and air quality in and around the project site in the selected monitoring points as mentioned in the EIA report shall be continued regularly involving Academic Institutions.
70. Hydro geological study including infiltration test shall be conducted by any reputed agency to estimate leachate quantity.
71. Regular medical check-up for mine workers and nearby residents around the project site involving community medical centre/NIMH shall be conducted.
72. As per norms, the health study should be conducted through competent/approved health organization and report submitted for one year.
73. The effective safe guard measures shall be provided to control particulate dust level in critical areas, transfer points and haul road within the mine area.


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74. NOC from the State GWA for drawing ground water shall be obtained, if ground water table is intersected.
75. Green belt shall be provided as per norms of MoEF & CC, GOI, in consultation with local DFO.
76. All the recommendations made in the EIA report of the project shall be effectively implemented.
77. A booklet containing the Dos and Don'ts shall be prepared in vernacular languages for the use of the mine engineers/ managers and the workers to ensure that all necessary environmental, safety and health measures are undertaken.
78. All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with.
79. Hydro geological study of the area shall be reviewed annually and report submitted to the Authority. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the operation of the Mining activity.
80. A separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the various Environmental Management and Monitoring functions shall be set up under the control of a Senior Executive.
81. The project proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at Chennai, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; RSPM, SO₂, NO_x or critical sector parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

Part B: General Conditions:

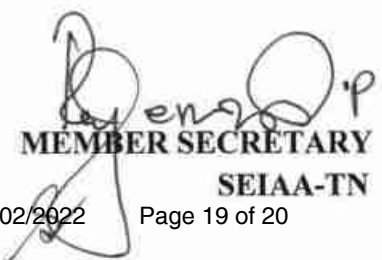
1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.


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4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.


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15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining tphe Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.


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22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.


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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Principal Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai - 32.
7. The District Collector, Tiruppur District.
8. The Commissioner of Geology and Mines, Guindy, Chennai - 32.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.

Signature Not Verified

Digitally signed by
Tmt.P.RAJESWARI, IFS
Member Secretary
Date: 2/9/2022 6:09:56 PM
Page 20 of 20



Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), Tamil Nadu)

To,

The owner
MUTHURATHINAM. M RSG
Ichipatti village palldam -638752

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/67261/2020 dated 03 Sep 2021. The particulars of the environmental clearance granted to the project are as below.

- | | |
|--|---|
| 1. EC Identification No. | EC22B001TN186874 |
| 2. File No. | 7981/2020 |
| 3. Project Type | New |
| 4. Category | B1 |
| 5. Project/Activity including Schedule No. | 1(a) Mining of minerals |
| 6. Name of Project | Thiru. M.Muthurathinam ROUGH STONE AND GRAVEL QUARRY Extent – 1.81.50 ha S.F. Nos. 215/4 & 215/3A Ichipatti Village, Palladam Taluk, Tiruppur District, |
| 7. Name of Company/Organization | MUTHURATHINAM. M RSG |
| 8. Location of Project | Tamil Nadu |
| 9. TOR Date | 16 Mar 2021 |

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 08/02/2022

(e-signed)
Tmt.P.RAJESWARI,IFS
Member Secretary
SEIAA - (Tamil Nadu)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

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TMT. P. RAJESWARI, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai-15.
Phone No. 044-24359973
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.7981/EC.No:4956/2020 dated:28.01.2022

Sir/Madam,

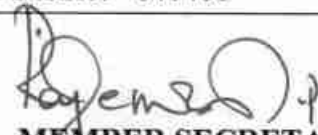
Sub SEIAA-TN – Proposed Rough Stone & Gravel quarry lease over an extent of 1.81.5 ha at S.F.Nos.215/4 & 215/3A, of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu by Thiru.M.Muthurathinam – issue of Environmental Clearance – Regarding.

- Ref:**
1. Your application submitted Terms of Reference dated: 23.10.2020
 2. ToR issued vide Lr. No. SEIAA-TN/F.No.7981/SEAC/TOR-895/2020 Dt: 16.03.2021.
 3. Public Hearing conducted on 17.02.2021
 4. Online Proposal No. SIA/TN/MIN/67261/2020 Dt: 03.09.2021.
 5. Project proponent submitted EIA Report to SEIAA-TN on. 26.03.2021
 6. Minutes of the 238th meeting of SEAC held on 13.10.2021.
 7. Minutes of the 482nd meeting of SEIAA held on 27.01.2022.

Details of Minor Mineral Activity:-

This has reference to your application second cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of minor minerals based on the particulars furnished in your application as shown below.

1	Name of the Owner/Firm	Thiru.M.Muthurathinam No.4/98, Sengathurai Palladam Taluk Coimbatore District - 641401
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2	Type of quarrying (Savudu/Rough Stone/Sand/Granite)	Rough Stone & Gravel
3	S.F No. Of the quarry site	215/4 & 215/3A
4	Village in which situated	Ichipatti
5	Taluk in which situated	Palladam
6	District in which situated	Tiruppur
7	Extent of quarry (in ha.)	1.81.5 Ha
8	Period of quarrying proposed	5 years
9	Type of mining	Open-cast mechanised mining
10	Production (Quantity in m ³)	59525cu.m of rough stone & 20480cu.m of gravel
11	Latitude & Longitude of all corners of the quarry site	10°03'04.53"N to 11°03'10.68"N 77°12'04.89"E to 77°12'10.58"E
12	Top Sheet No.	58 E/04
13	Man Power requirement per day:	18 Employees
14	Precise area communication approved by the DD / Mines, with date	Na.Ka.No.311/Kanimam/2020, dt:09.07.2020
15	Mining Plan approved by the DD(Additional Charge), G&M, Tiruppur District with date	Roc. No. 311/2020/Mines dated:29.07.2020
16	Water requirement: 1. Drinking & domestic purposes (in kLD) 2. Dust suppression & Green Belt (in kLD)	3.73 KLD 0.67 KLD Water Vendors 2.7 KLD & 0.36 KLD Existing borewell nearby area
17	Power requirement a. Domestic Purpose b. Industrial Purpose	TNEB 63,856 Litres of HSD
18	Depth of quarrying	32m below ground level
19	Depth of water table	62m in summer & 58m in rainy season
20	Project Cost (excluding EMP cost)	Rs.41.59 Lakhs


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21	EMP cost	Rs.3.80 Lakhs
22	CER cost	Rs.0.91 Lakhs
23	DD/G&M/Tiruppur District -500m cluster letter	Roc. No. 311/2020/Mines dated:29.07.2020
24	VAO certificate regarding 300m radius cluster	Dated:21.01.2020
25	ToR Issued details	TOR issued by SEIAA-TN vide Lr. No. SEIAA-TN/F.No.7981/SEAC/TOR-895/2020 Dt: 16.03.2021.
26	Public Hearing Details	Public hearing conducted on: 17.02.2021
27	EIA Report Received	EIA received on : 26.03.2021
28	<p><u>Validity:</u></p> <p>This Environmental Clearance is granted for the production in 59525cu.m of rough stone & 20480cu.m of gravel for the period of 5 Years from the date of execution of the mining lease.</p>	

The Proponent has furnished affidavit in Hundred Rupees stamp paper dated: 7.9.2020 attested by the Notary stating that

The Proponent Thiru.M.Muthurathinam, No.4/98, Sengathurai, Palladam Taluk, Coimbatore District - 641401, solemnly declare and sincerely affirm that:

I have apply for getting prior Environmental Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of Proposed Rough Stone & Gravel quarry lease over an extent of 1.81.5 ha at S.F.Nos.215/4 & 215/3A, of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu.

1. I swear to state and confirm that within 10km area of the quarry site, I have applied for Environmental Clearance, none of the following situated.
 - a) Protected areas notified under the wild life (Protection) Act, 1972,
 - b) Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974.
 - c) Eco-Sensitive area as notified
2. Interstate boundaries and international boundaries within 5Km radius from the boundary of the proposed site.
3. I will complete the following corporate Environment Responsibility (CER) actives before commencement of the quarrying activities.


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CER Activity	Project cost (rs.in Laskhs)	CER cost 2.0%of the project cost (Rs . in Lakhs)
1. Water purifier Cot and Bed facility to the Palladam Dispensary etc., 2. If we are instructed by PWD/ Competent bodies to desilt the water bodies nearby. I assure to spend out CER Cost for desilting/strengthening the bunds of the nearby water bodies	45.39	0.91
Total Cost Allocation	45.39	0.91

3. I solemnly declare & affirm that following quarries within 500 m radius from the periphery of the quarry site :-

Existing quarries

SI No	Name of the Lessee	Village	S.F.No	Extent Hect	Collector's proceedings No & Date	Lease period
1	C.Rakkiyappan	Ichipatti	215/1,2 15/2	1.11.5	378/Mies/2016 dated 4.11.2016	4.11.2016 to 3.11.2021
2	S.A. Ramachandran	Ichipatti	220/1C	1.19.0 HECT	41/Mines/2016 dated 23.9.2016	23.9.2016 to 22.9.2021
3	S.A. Ramachandran	Ichipatti	220/1A ,223/2F	2.02.5 HECT	430/Mines/2015 dated 23.9.2016	23.9.2016 to 22.9.2021
4	C.Thangaraj	Ichipatti	207/1A (Part)	1.92.0	491/Mines/2016 dated 13.09.2017	13.10.2017 to 12.10.2022

b. Abandoned / expired quarries

Sl.No	Name of the Lessee	Village	S.F.No	Extent Hect	Collector's proceedings No & Date	Lease period
-----Nil-----						

c. Present proposed quarries

Sl.No	Name of the Lessee	Village	S.F.No	Extent Hect	Remarks
1	M.Thangavel	Ichipatti	201/1,208/1	2.27.5	Adjacent applied area
2	V.Vel murugan	Ichipatti	231/1A,214/2	1.66.5	Adjacent applied area
3	S.P.Planisamy	Ichipatti	223/1B,223/2E2	1.87.5	Adjacent applied area


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4	M.Muthurathinam	Ichipatti	215/4,215/3A	1.18.5	Proposed area
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4. There will not be hindrance or disturbance to the People living no enroute / nearby our quarry site while transporting the mineral our material and due to quarrying activities.
5. No habitations within 500m radius from the periphery of my quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the labourers working in my quarry site.
8. The Approach road belongs to me only and no other private patta roads encountered.
9. I will not engage any child labour in my quarry site and I aware that engaging child labour is punishable under the law.
10. All types of safety / protective equipment will be provided to all the labourers working in my quarry.
11. No permanent structures, temples etc., are located within 500m radius from the periphery of my quarry.

I ensure to do all the social and Environment commitment as mentioned in the mining plan to the best of my knowledge.

Details of 500M radius Proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from the Deputy Director, Department of Geology & Mining, Tiruppur District in his letter Roc. No. 311/2020/Mines dated:29.07.2020 has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows:

a. Existing quarries

Sl. No	Name of the Lessee	Village	S.F.No	Extent Hect	Collector's proceedings No & Date	Lease period
1	C.Rakkiyappan	Ichipatti	215/1, 215/2	1.11.5	378/Mies/2016 dated 4.11.2016	4.11.2016 to 3.11.2021
2	S.A. Ramachandran	Ichipatti	220/1C	1.19.0 HECT	41/Mines/2016 dated 23.9.2016	23.9.2016 to 22.9.2021
3	S.A. Ramachandran	Ichipatti	220/1A,2 23/2F	2.02.5 HECT	430/Mines/2015 dated 23.9.2016	23.9.2016 to 22.9.2021
4	C.Thangaraj	Ichipatti	207/1A(1.92.0	491/Mines/2016	13.10.2017 to


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			Part)		dated 13.09.2017	12.10.2022
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b. Abandoned / expired quarries

Sl.No	Name of the Lessee	Village	S.F.No	Extent Hect	Collector's proceedings No & Date	Lease period
-----Nil-----						

c. Present proposed quarries

Sl.No	Name of the Lessee	Village	S.F.No	Extent Hect	Remarks
1	M.Thangavel	Ichipatti	201/1,208/1	2.27.5	Adjacent applied area
2	V.Vel murugan	Ichipatti	231/1A,214/2	1.66.5	Adjacent applied area
3	S.P.Planisamy	Ichipatti	223/1B,223/2E2	1.87.5	Adjacent applied area
4	M,Muthurathinam	Ichipatti	215/4,215/3A	1.18.5	Proposed area

Appraisal by SEAC:-

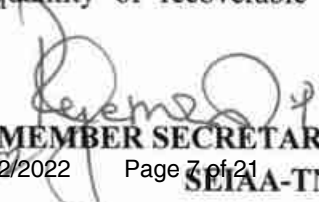
Proposed Rough Stone & Gravel quarry lease over an extent of 1.81.5 ha at S.F.Nos.215/4 & 215/3A, of Ichipatti Village, Palladam Taluk, Tiruppur District,Tamil Nadu by Thiru.M.Muthurathinam - For Environmental Clearance.

(SIA/TN/MIN/67261/2020 Dt: 03.09.2021)

The proposal was placed for appraisal in this 238th meeting of SEAC held on 13.10.2021. The project proponent gave a detailed presentation. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

1. The project proponent, Thiru.M.Muthurathinam has applied for Environmental Clearance for the proposed Rough Stone & Gravel quarry lease over an extent of 1.81.5 haat S.F. Nos.215/4 & 215/3A of Ichipatti Village, Palladam Taluk, Tiruppur DistrictTamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
3. TOR issued by SEIAA-TN vide Lr. No. SEIAA-TN/F.No./7981/SEAC/TOR-895/2020 Dt:16.03.2021..
4. Minutes of Public hearing Dt: 17.02.2021.
5. The production for the five years states that the total quantity of recoverable as


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79,825cu.m of rough stone & 20480cu.m of gravel and the ultimate depth of mining is 47m below ground level.

Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of issue of Environmental Clearance subject to the following specific conditions, in addition to normal conditions stipulated by MOEF &CC:

1. Restricting the ultimate depth of mining up to 32m below ground level and quantity of 59,525cu.m of rough stone, & 20480cu.m of gravel are permitted for mining over five years considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining.
2. The project proponent shall ensure only controlled blasting with utmost safety precautions as well as to ensure simultaneous blasting is not carried out at the same time between the adjacent/nearby quarries without affecting livelihood /safety of the surrounding environment and the habitants so as to reduce cumulative impact due to cluster mining activity & adhering to the noise level standards prescribed by the CPCB .
3. The proponent shall form proper benches as per the approved mining plan during the operation of the quarry considering the hydro-geological regime of the surrounding area as well as for safe mining.
4. The proponent should install cautionary boards at the entry and important locations of the mining site displaying caution notice to the public about the danger of entering the mining lease.
5. The proponent shall conduct annual physical fitness test and eye test for all the employees to ensure health & safety during occupation.
6. Fugitive emission measurements should be carried out during the mining operation and the report on the same may be submitted to TNPCB once in six months.
7. The proponent shall ensure that the noise level is monitored during mining operation at the project site and adequate noise level reduction measures be undertaken.
8. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit as per the conditions and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
9. The purpose of Green belt around the project is to capture the fugitive emissions and to attenuate the noise generated, in addition to the improvement in the aesthetics. A wide range of indigenous plants species should be planted in and around the premise in consultation with the DFO, District / State Agriculture University. The plants species


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should have thick canopy cover, perennial green nature, native origin and large leaf areas. Medium size trees and small trees alternating with shrubs shall be planted. Miyawaki method of planting i.e. planting different types of trees at very close intervals may be tried which will give a good green cover. 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 and the same shall be included in the layout out plan to be submitted for CMDA/DTCP approval. The total green belt area should be minimum 15% of the total area and the same shall not be used for car parking/OSR.

10. Groundwater quality monitoring should be conducted once in every six months and the report should be submitted to TNPCB.
11. After mining is completed, proper levelling should be done by the project proponent & Environmental Management Plan furnished by the proponent should be strictly followed.
12. The project proponent shall strictly adhere to mine closure plan after ceasing mining operations as committed. Also the proponent shall undertake re- grassing of the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition that is fit for the growth of fodder, flora, fauna etc.
13. Proper barrier to reduce noise level, dust pollution and to hold down any possible fly material (debris) should be established by providing greenbelt and/or metal sheets along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
14. The operation of the quarry should not affect the agriculture activities & water bodies near the project site and a safety distance of 50m from the boundary be left vacant without any mining activity.
15. Transportation of the quarried materials shall not cause any hindrance to the Village people or damage to the existing Village road.
16. The project proponent shall comply with the mining and other relevant rules and regulations wherever applicable.
17. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
18. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying


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- operation, if the project site attracts the NBWL clearance.
19. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.
 20. All the commitments made by the proponent during the public hearing, as per the minutes of public hearing should be implemented in total.
 21. 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 furnish the detailed EMP mentioning all the activities as proposed in the CER and furnish the same before placing the subject to SEIAA.
 22. All the conditions imposed by the Deputy Director, Geology & Mining, Tiruppur District in the mining plan approval and the precise area communication issued by District Collector, Tiruppur District should be strictly followed.

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 482nd Authority meeting held on 27.01.2022. After detailed discussions, the Authority accepted the recommendation of SEAC and decided to grant Environmental Clearance to the proposed Project subject to the conditions as recommended by SEAC & normal conditions in addition to the following conditions:

1. As per the recommendation of SEAC and as accepted by the proponent, the ultimate depth of mining is restricted to 32m BGL and quantity of 59525cu.m of Rough stone and 20480cu.m of Gravel are permitted for mining over a period of five years considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining.
2. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife.
3. The proponent shall ensure that the activity does not disturb the biodiversity the flora & fauna in the ecosystem.
4. The proponent shall ensure that the activity neither disturbs the water bodies and natural flow of surface and ground water, nor cause any pollution.
5. The proponent shall ensure that the activities undertaken do not result in carbon emission, and temperature rise, in the area.
6. The proponent shall ensure that the mine closure plan are followed as per mining plan and the mine restoration should be done with native species, and site restored to near original status.


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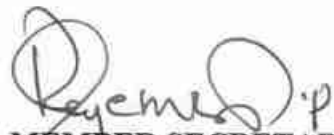
7. The proponent shall ensure that Monitoring is carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads.
8. The proponent shall ensure that the area is ecologically restored to conserve the ecosystems and ensure flow of goods and services.
9. The proponent shall ensure that the activities do not disturb the agro biodiversity and agro farms.
10. The proponent shall ensure that the activity does not result in invasion by invasive alien species.
11. Actions to be taken to promote agro forestry, mixed plants and biodiversity conservation.
12. The proponent shall ensure that activity does not deplete the indigenous soil seed bank and disturb the micorizal fungi, soil organism, soil community nor result in eutrophication of soil and water.
13. The proponent shall ensure that all the mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area.
14. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent has furnished the detailed EMP mentioning all the activities of CER as committed. All the activities proposed shall be carried out before obtaining CTO from TNPCB.

Part-A: Conditions to be Complied before commencing mining operations:-


1. **The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that**
 - I. **The project has been accorded Environmental Clearance.**
 - II. **Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.**
 - III. **Environmental Clearance may also be seen on the website of the SEIAA.**
 - IV. **The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.**
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.


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3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. **A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.**
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
15. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
17. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.


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18. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
19. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
20. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
21. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
 - v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
22. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
23. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
24. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
25. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
26. The following measures are to be adopted to control erosion of dumps:-
 - i. Retention/ toe walls shall be provided at the foot of the dumps.


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- ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous & other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
28. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
31. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
33. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.


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34. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
35. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
36. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
37. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Bunds to be provided at the boundary of the project site.
39. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
40. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
41. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
42. The Project Proponent shall provide solar lighting system to the nearby villages.
43. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
44. Safety equipments to be provided to all the employees.
45. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
46. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
47. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
48. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
49. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.


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50. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
51. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
52. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
53. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
54. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
55. All the commitment made by the project proponent in the proposal shall be strictly followed.
56. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
57. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/2016 (M.A.No. 758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No. 12/2017 & M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).
58. All required sanitary and hygienic measures should be in place before starting construction activities and they have to be maintained throughout the construction phase.
59. The company shall stress upon the preventive aspects of occupational health.
60. A separate environment and safety management cell with qualified staff shall be set up before commissioning of construction activities and shall be retained throughout the lifetime of the industry, for implementation of the stipulated environmental safeguards.


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61. A scientific site/ ecological rehabilitation and restoration plan on long term basis should be drawn to carryout restoration with native species and Bio diversity.
62. The Green/Blue plan should guide the restoration of the site. The rehabilitation/restoration plan should be submitted to SEIAA-TN within one month. If applicable.
63. The existing water bodies should not be disturbed to ensure sustainable environment for aquatic life forms.
64. The proponent should completely implement all environmental pollution control measures as detailed in the EIA report and in the additional report.
65. Avenue plantation wherever needed has to be carried out along the route for dust suppression.
66. The green belt developed for the prevention of dust pollution should not form a part of the larger green belt development envisaged in the EIA report.
67. Regular monitoring and check up for pulmonary and carcinogenic diseases to be carried out regularly, not only for the workers involved in the mines but also to the people in the villages adjoining the mines. Interaction with the Primary Health Centre & district medical officer should be on regular basis to monitor the incidence of the diseases if any and to provide suitable medical facility for the patients.
68. Monitoring of well water levels and water quality of the wells in the locations furnished in the EIA report shall be done during pre-monsoon and post monsoon period and results submitted to the Regional Office of MoEF, Chennai and SEIAA.
69. Monitoring of water quality and air quality in and around the project site in the selected monitoring points as mentioned in the EIA report shall be continued regularly involving Academic Institutions.
70. Hydro geological study including infiltration test shall be conducted by any reputed agency to estimate leachate quantity.
71. Regular medical check-up for mine workers and nearby residents around the project site involving community medical centre/NIMH shall be conducted.
72. As per norms, the health study should be conducted through competent/approved health organization and report submitted for one year.
73. The effective safe guard measures shall be provided to control particulate dust level in critical areas, transfer points and haul road within the mine area.


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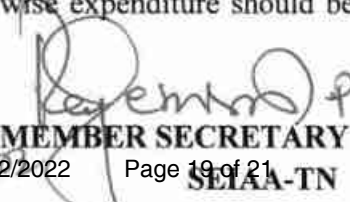
74. NOC from the State GWA for drawing ground water shall be obtained, if ground water table is intersected.
75. Green belt shall be provided as per norms of MoEF & CC, GOI, in consultation with local DFO.
76. All the recommendations made in the EIA report of the project shall be effectively implemented.
77. A booklet containing the Dos and Don'ts shall be prepared in vernacular languages for the use of the mine engineers/ managers and the workers to ensure that all necessary environmental, safety and health measures are undertaken.
78. All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with.
79. Hydro geological study of the area shall be reviewed annually and report submitted to the Authority. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the operation of the Mining activity.
80. A separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the various Environmental Management and Monitoring functions shall be set up under the control of a Senior Executive.
81. The project proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at Chennai, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; RSPM, SO₂, NO_x or critical sector parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.


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4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A beam shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be


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reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.

16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.


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23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.


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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Principal Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai - 32.
7. The District Collector, Tiruppur District.
8. The Commissioner of Geology and Mines, Guindy, Chennai - 32.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.

Signature Not Verified

Digitally signed by
Tmt.P. RAJESWARI, IES
Member Secretary
Date: 2/8/2022 6:28:20 PM
MEMBER SECRETARY
SEIAA-TN



Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), Tamil Nadu)

To,

The Proprietor
C RAKKIAPPAN
Ichipatti Village -641662

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/51504/2020 dated 25 Mar 2021. The particulars of the environmental clearance granted to the project are as below.

- | | |
|--|--|
| 1. EC Identification No. | EC21B001TN125315 |
| 2. File No. | 7215/2020 |
| 3. Project Type | New |
| 4. Category | B1 |
| 5. Project/Activity including Schedule No. | 1(a) Mining of minerals |
| 6. Name of Project | C.Rakkiappan Rough stone and gravel quarry, S.F. No. 216/2B2, Ichipatti Village, Palladam Taluk, Tiruppur District |
| 7. Name of Company/Organization | C RAKKIAPPAN |
| 8. Location of Project | Tamil Nadu |
| 9. TOR Date | 01 Jan 1900 |

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 12/11/2021

(e-signed)
Tmt.P.RAJESWARI,IFS
Member Secretary
SEIAA - (Tamil Nadu)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

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STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY- TAMILNADU

3rdFloor, PanagalMaaligai, No.1, Jeenis Road, Saidapet, Chennai-15.

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.7215/EC.No:4912/2020 dated: 03.11.2021

Sub SEIAA-TN – Proposed Rough Stone & Gravel quarry lease over an extent of 0.81.0Ha at S.F.Nos.216/2B2 of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu by Thiru.C.Rakkiappan – issue of Environmental Clearance – Regarding.

- Ref:**
1. Your application submitted Terms of Reference dated: 22.10.2019
 2. ToR issued vide Lr. No. SEIAA-TN/F.No.7215/SEAC/ TOR-802/2020 Dt:04.11.2020.
 3. Public Hearing conducted on 17.02.2021
 4. Online Proposal No. SIA/TN/MIN/51504/2020 dated 25.03.2021.
 5. Project proponent submitted EIA Report to SEIAA-TN on. 26.03.2021
 6. Minutes of the 236th meeting of SEAC held on 05.10.2021.
 7. Minutes of the 478th meeting of SEIAA - TN held on 29.10.2021.

Details of Minor Mineral Activity:-

This has reference to your application second cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of minor minerals based on the particulars furnished in your application as shown below.

1	Name of Project Proponent and address	Thiru. C. Rakkiappan S/o. Chinnapa Gounder No. 3/24, Hopes Colony Sulur Coimbatore District – 641402
2	Location of the Proposed Activity	


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	Survey Number	216/2B2
	Latitude and Longitude	11°03'04.01"N to 11°03'08.73"N 77°12'02.14"E to 77°12'04.27"E
	Village	Ichipatti
	Taluk	Palladam
	District	Tiruppur
3	Proposed Activity	
	i. Minor mineral	Rough Stone and Gravel Quarry
	ii. Mining Lease Area	0.81.0Ha
	iii. Approved quantity	40,900cu.m of rough stone, & 7410cu.m of gravel
	iv. Depth of Mining	22m below ground level
	v. Type of mining	Opencast Mechanized Mining Method
	vi. Category(B1/B2)	B2
	vii. Precise area communication approved by the District Collector of Geology and Mining, with date	Rc.No.1390/Mines/2018, dated: 03.06.2019
	viii. Mining plan approval by Assistant Director, Department of Geology and Mining with date	Roc. No.1390/Mines/2018, dated:01.08.2019.
	ix. Scheme of Mining period	5Years
4	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-	Not attracted. Affidavit furnished.
5	Man Power requirement per day:	12 Nos.
6	Utilities	
	i. Source of Water :	Existing Borewell & Water Vendors
	ii. Quantity of Water Requirement in KLD:	2.3 KLD


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	a. Domestic & Drinking purpose	0.8 KLD
	b. Green Belt & Dust Suppression	0.8 KLD & 0.7KLD
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
7	Cost	
	i. Project Cost	Rs. 31.91 Lakhs
	ii. EMP Cost	Rs. 3.80 Lakhs
	iii. CER Cost	Rs. 0.715 Lakhs
8	Validity:	
	This Environmental Clearance is granted for the production in 40,900cu.m of rough stone, & 7410cu.m of gravel for the period of 5 Years from the date of execution of the mining lease.	

The Proponent has furnished affidavit in Hundred Rupees stamp paper dated: 7.9.2020 attested by the Notary stating that

The Proponent Thiru. C. Rakkiappan, S/o. Chinnapa Gounder, No. 3/24, Hopes Colony, Sulur, Coimbatore District – 641402, solemnly declare and sincerely affirm that:

I have apply for getting prior Environmental Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of Proposed Rough Stone & Gravel quarry lease over an extent of 0.81.0Ha at S.F.Nos.216/2B2 of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu.

1. I swear to state and confirm that within 10km area of the quarry site, I have applied for Environmental Clearance, none of the following situated.
 - a) Protected areas notified under the wild life (Protection) Act, 1972
 - b) Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974.
 - c) Eco-Sensitive area as notified
 - d) Interstate boundaries and international boundaries within 5km radius from the boundary of the proposed site.
2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.


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CER Activity	Total Project Cost (Rs. In Lakh)	CER Cost 2.0% of project cost (Rs. In Lakh)
Developing solarmlight facilities for govt. Middle school ichipatti village If we are instructed by PWD/Competent bodies to desilt the water bodies. Nearby. We assure to spend out cer cost for desilting / strengthing thebunds of the nearby water bodies.	35.71	0.71
Total Cost Allocation	35.71	0.71

3. The total area of few quarries located within 500m radius from the periphery of my aplied area site details as shown below.

Proposed Quarries.

S.No	Name of the Owner	S.F.Nos.	Extent in ha
1	C.Rakkiappan	216/2B2	0.81.0
2.	Thiru.S.P.Palanisamy	223/1B 223/2E2	1.87.5
	Total extent		2.68.5

Existing Quarries:

S.No	Name of the Owner	S.F.Nos.	Extent in ha
1	Thiru. M.Muthurathinam	215/4, 215/3A	1.81.5
2.	Thiru.S.A. Ramachandran	220/1C	1.19.0
3	Thiru.S.A Ramachandran	220/1A 223/2F	2.02.5
	Total Extent		5.03.0

Abandoned Quarries:

S.No	Name of the Owner	S.F.Nos.	Extent in ha
		<u>Nil</u>	

4. There will not be hindrance or disturbance to the public during transportation. no villages are enrouted during transportation.
5. There is no approved habitation within 300m radius from the periphery of my quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the laborers working in my quarry site.
8. Approach road belongs to local panchayat only and no other private patta roads encountered.
9. I will not engage any child labor in my quarry site and I aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in my quarry.

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11. No permanent structures, temples etc., are located within 500m radius from the periphery of my quarry.

I ensure to do all the social and Environment commitment as mentioned in the mining plan to the best of my knowledge.

Details of 500M radius Proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from the Deputy Director, Department of Geology & Mining, Tiruppur District in his letter Roc.No.1390/2018/Mines, dated: 03.09.2020 has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows:

a. Existing Quarries

Sl.No.	Name of the Owner	Village and S.F.No	Extent in Hects	Collectors Proceedings No. & date	Lease period
1	Thiru. M.Muthurathinam	Ichipatti 215/4, 215/3A	1.81.5 Ha	Rc.177/Mines/2015, dated 31.12.2015	09.01.2016 to 08.01.2021
2	S.A. Ramachandran	Ichipatti 220/1C	1.91.0Ha	R,c,41/Mines/2016 dated 23.09.2016	23.09.2016 to 22.09..2021.
3	S.A. Ramachandran	Ichipatti 220/1A, 223/2F	2.02.5 Ha	R,c,430/Mines/2015 dated 23.09.2016	23.09.2016 to 22.09.2021.

b. Abandoned / expired Quarries

S.No	Name of the Owner	S.F.Nos.	Extent in ha

c. Present proposed Quarries:

S.No	Name of the Owner	S.F.Nos.	Extent in ha	Remarks
1	C.Rakkiappan	Ichipatti 216/2B2	0.81.0	Near by applied area
2.	Thiru.S.P.Palanisamy	Ichipatti 223/1B 223/2E2	1.87.5	Near by applied area


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Appraisal by SEAC:-

The proposal was placed for appraisal in this 236th meeting of SEAC held on 05.10.2021. The project proponent gave a detailed presentation. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

1. The project proponent, Thiru.C.Rakkiappan has applied for Environmental Clearance for the proposed Rough Stone & Gravel quarry lease over an extent of 0.81.0Ha at S.F. Nos. 216/2B2 of Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
3. TOR issued by SEIAA-TN vide Lr. No. SEIAA-TN/E.No./7215/SEAC/TOR-802/2020 Dt:04.11.2020.
4. Minutes of Public hearing Dt:17.02.2021.
5. The production for the five years states that the total quantity of recoverable as 40,900cu.m of rough stone, & 7410cu.m of gravel and the ultimate depth of mining is 22m below ground level.

Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of issue of Environmental Clearance subject to the following specific conditions, in addition to normal conditions stipulated by MOEF &CC:

1. The proponent shall form proper benches as per the approved mining plan during the operation of the quarry considering the hydro-geological regime of the surrounding area as well as for safe mining.
2. The project proponent shall ensure only controlled blasting with utmost safety precautions as well as to ensure simultaneous blasting is not carried out at the same time between the adjacent/nearby quarries without affecting livelihood /safety of the surrounding environment and the habitats so as to reduce cumulative impact due to cluster mining activity & adhering to the noise level standards prescribed by the CPCB .
3. The Proponent should install cautionary boards at the entry and important locations of the mining site displaying caution notice to the public about the danger of entering the mining lease.
4. The proponent shall conduct annual physical fitness test and eye test for all the employees to ensure health & safety during occupation.


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5. Fugitive emission measurements should be carried out during the mining operation and the report on the same may be submitted to TNPCB once in six months.
6. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site and adequate noise level reduction measures be undertaken.
7. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit as per the conditions and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
8. Greenbelt needs to be developed in the periphery of the mines area preferably adopting Miyawaki scheme of atleast 3m width so that at the closure time the trees would have grown well.
9. Groundwater quality monitoring should be conducted once every six months and the report should be submitted to TNPCB.
10. After mining is completed, proper leveling should be done by the Project proponent & Environmental Management Plan furnished by the Proponent should be strictly followed.
11. The Project proponent shall strictly adhere to mine closure plan after ceasing mining operations as committed. Also the proponent shall undertake re- grassing of the mining area and any other area which might have been disturbed due to the mining activities and restore the land to a condition that is fit for the growth of fodder, flora, fauna etc.
12. Proper barrier to reduce noise level, dust pollution and to hold down any possible fly material (debris) should be established by providing greenbelt and/or metal sheets along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
13. The operation of the quarry should not affect the agriculture activities & water bodies near the project site and a safety distance of 50m from the boundary should be left vacant without any mining activity.
14. Transportation of the quarried materials shall not cause any hindrance to the Village people or damage to the existing Village road.
15. The Project Proponent shall comply with the mining and other relevant rules and regulations wherever applicable.
16. The proponent shall develop an adequate greenbelt with native species on the periphery of the mine lease area before the commencement of the mining activity, in consultation with DFO of the concerned district/agriculture.


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17. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
18. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance.
19. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.
20. As per the MoEF & CC Office Memorandum F.No. 22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall furnish the detailed EMP mentioning all the activities as proposed in the CER and furnish the same before placing the subject to SEIAA.
21. All the conditions imposed by the Deputy Director, Geology & Mining, Tiruppur District in the mining plan approval and the precise area communication issued by District Collector, Tiruppur District should be strictly followed.

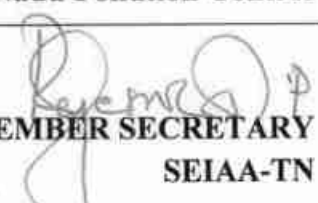
Discussion by SEIAA and the Remarks:-

The subject was placed before the Authority in its 478th Authority meeting held on 29.10.2021. After detailed discussion, the Authority accepts the recommendation of SEAC and decided to grant Environmental Clearance subject to the conditions as recommended by SEAC in addition to the following condition.

1. As per the MoEF&CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent has furnished the detailed EMP, mentioning all the CER activities for Rs. 0.715 Lakhs as committed. All the CER activity shall be carried out before obtaining CTO from TNPCB
2. The production for the five years states that the total quantity of recoverable as 40,900cu.m of rough stone, & 7410cu.m of gravel and the ultimate depth of mining is 22m below ground level.

Part-A: Conditions to be Complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - I. The project has been accorded Environmental Clearance.
 - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control


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Board.

III. Environmental Clearance may also be seen on the website of the SEIAA.

IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.

2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. **A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.**
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.


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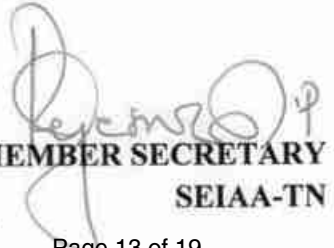
14. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
15. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
17. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
18. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
19. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
20. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
21. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
 - v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
22. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.


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23. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
24. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
25. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
26. The following measures are to be adopted to control erosion of dumps:-
 - i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous & other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
28. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
31. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the


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- mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
 33. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
 34. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
 35. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
 36. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
 37. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
 38. Bunds to be provided at the boundary of the project site.
 39. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
 40. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
 41. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
 42. The Project Proponent shall provide solar lighting system to the nearby villages.
 43. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
 44. Safety equipments to be provided to all the employees.
 45. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai


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46. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
47. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
48. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
49. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
50. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
51. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
52. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
53. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
54. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
55. All the commitment made by the project proponent in the proposal shall be strictly followed.
56. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
57. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A.


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No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/2016 (M.A.No. 758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No. 12/2017 & M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).

58. All required sanitary and hygienic measures should be in place before starting construction activities and they have to be maintained throughout the construction phase.
59. The company shall stress upon the preventive aspects of occupational health.
60. A separate environment and safety management cell with qualified staff shall be set up before commissioning of construction activities and shall be retained throughout the lifetime of the industry, for implementation of the stipulated environmental safeguards.
61. A scientific site/ ecological rehabilitation and restoration plan on long term basis should be drawn to carryout restoration with native species and Bio diversity.
62. The Green/Blue plan should guide the restoration of the site. The rehabilitation/restoration plan should be submitted to SEIAA-TN within one month. If applicable.
63. The existing water bodies should not be disturbed to ensure sustainable environment for aquatic life forms.
64. The proponent should completely implement all environmental pollution control measures as detailed in the EIA report and in the additional report.
65. Avenue plantation wherever needed has to be carried out along the route for dust suppression.
66. The green belt developed for the prevention of dust pollution should not form a part of the larger green belt development envisaged in the EIA report.
67. Regular monitoring and check up for pulmonary and carcinogenic diseases to be carried out regularly, not only for the workers involved in the mines but also to the people in the villages adjoining the mines. Interaction with the Primary Health Centre & district medical officer should be on regular basis to monitor the incidence of the diseases if any and to provide suitable medical facility for the patients.
68. Monitoring of well water levels and water quality of the wells in the locations furnished in the EIA report shall be done during pre-monsoon and post monsoon period and results submitted to the Regional Office of MoEF, Chennai and SEIAA.


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69. Monitoring of water quality and air quality in and around the project site in the selected monitoring points as mentioned in the EIA report shall be continued regularly involving Academic Institutions.
70. Hydro geological study including infiltration test shall be conducted by any reputed agency to estimate leachate quantity.
71. Regular medical check-up for mine workers and nearby residents around the project site involving community medical centre/NIMH shall be conducted.
72. As per norms, the health study should be conducted through competent/approved health organization and report submitted for one year.
73. The effective safe guard measures shall be provided to control particulate dust level in critical areas, transfer points and haul road within the mine area.
74. NOC from the State GWA for drawing ground water shall be obtained, if ground water table is intersected.
75. Green belt shall be provided as per norms of MoEF & CC, GOI, in consultation with local DFO.
76. All the recommendations made in the EIA report of the project shall be effectively implemented.
77. A booklet containing the Dos and Don'ts shall be prepared in vernacular languages for the use of the mine engineers/ managers and the workers to ensure that all necessary environmental, safety and health measures are undertaken.
78. All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with.
79. Hydro geological study of the area shall be reviewed annually and report submitted to the Authority. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the operation of the Mining activity.
80. A separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the various Environmental Management and Monitoring functions shall be set up under the control of a Senior Executive.
81. The project proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at Chennai, the respective Zonal Office of CPCB and the SPCB. The


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criteria pollutant levels namely; RSPM, SO₂, NO_x or critical sector parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program


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- of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
 13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
 14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
 15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
 16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
 17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
 18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
 19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining tpe Environmental Clearance.
 20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.


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21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.


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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Principal Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai - 32.
7. The District Collector, Tiruppur District.
8. The Commissioner of Geology and Mines, Guindy, Chennai - 32.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.

Signature Not Verified

Digitally signed by
Tmt.P.RAJESWARI, IFS
Member Secretary
Date: 11/12/2021 11:36:59 PM
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TEST REPORT

Report No	EHS360/TR/2024-25/001	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/001
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – Core Zone-11° 3'23.26"N 77°11'59.30"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	44.6	19.5	6.3	19.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	44.0	18.2	6.7	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	44.7	20.4	7.4	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	45.2	21.0	8.0	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	45.6	19.7	7.6	19.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	44.0	20.3	6.9	19.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	43.8	18.6	6.3	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	44.2	18.2	7.5	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	44.6	19.7	8.0	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	44.7	21.0	7.7	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	45.5	20.5	6.3	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	43.3	18.3	6.9	19.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	44.0	19.8	7.6	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	44.8	18.7	8.0	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	43.2	20.3	6.5	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	45.6	21.0	7.8	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	44.0	19.6	7.1	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	45.8	20.5	6.9	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	45.3	18.5	8.0	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	45.7	21.0	6.4	19.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	44.2	20.3	7.5	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	44.6	18.7	7.2	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	45.0	19.4	8.0	19.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	45.5	18.2	6.4	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	44.8	18.5	6.1	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	45.2	21.3	7.6	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/001	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/001
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – Core Zone-11° 3'23.26"N 77°11'59.30"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
04.03.2024	7:00-7:00	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	69.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	69.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	68.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	69.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	69.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/002	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/002
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Near Project Area- 11° 3'4.27"N 77°11'51.24"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	47.3	21.7	7.5	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	46.7	21.0	6.9	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	49.0	20.3	6.2	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	47.6	21.9	6.0	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	48.3	21.2	7.3	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	46.5	21.6	7.8	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	49.0	21.0	6.3	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	47.6	21.3	5.3	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	47.1	22.9	5.7	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	46.3	22.6	5.4	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	48.2	22.7	6.0	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	49.0	20.0	6.3	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	47.5	20.7	6.2	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	46.2	21.4	7.6	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	46.7	21.5	5.1	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	48.4	21.8	5.0	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	47.9	22.2	5.5	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	49.0	22.6	6.9	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	48.5	22.3	6.4	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	46.5	20.0	6.0	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	48.6	21.5	7.8	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	47.4	22.8	6.3	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	46.3	22.3	6.7	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	46.8	22.8	6.4	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	48.7	21.6	6.0	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	49.0	21.0	6.7	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<100	<400

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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Verified by



Authorised Signatory

A 17

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/002	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/002
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Near Project Area- 11° 3'4.27"N 77°11'51.24"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
04.03.2024	7:00-7:00	68.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/003	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/003
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 –Karugampalayam-11° 4'0.17"N 77°11'33.97"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	44.3	21.7	5.6	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	46.7	21.3	6.2	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	47.0	23.0	6.0	26.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	45.2	22.8	6.1	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	45.6	22.4	7.7	25.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	44.2	21.2	7.3	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	46.8	21.7	5.5	26.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	45.8	23.0	5.0	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	47.0	22.5	6.7	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	46.3	22.1	6.4	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	44.8	21.6	6.1	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	45.2	23.0	6.5	26.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	45.9	22.8	6.9	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	47.0	21.4	5.0	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	46.5	22.7	6.7	26.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	44.2	21.2	7.3	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	44.8	23.0	6.5	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	45.7	22.6	6.0	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	47.0	21.7	6.2	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	46.3	21.1	5.9	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	44.5	22.6	5.5	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	45.8	23.0	5.4	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	45.1	22.8	5.0	26.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	46.5	23.0	7.1	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	47.0	21.6	7.7	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	45.8	22.4	7.6	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<100	<400

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/003	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/003
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 -Karugampalayam-11° 4'0.17"N 77°11'33.97"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
04.03.2024	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]
Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/004	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/004
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 –Naduvelampalayam-11°2'27.63"N77°14'30.28"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	44.3	19.5	6.3	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	46.7	21.0	7.5	26.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	45.0	20.7	6.5	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	46.6	19.5	6.1	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	45.2	18.1	7.6	27.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	45.1	18.7	6.4	26.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	45.7	20.5	6.9	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	43.0	21.0	7.8	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	44.8	19.7	6.4	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	43.3	19.2	7.0	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	44.9	18.6	6.7	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	45.4	20.0	7.3	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	46.1	18.7	6.5	26.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	45.0	20.3	6.9	27.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	44.8	21.0	7.2	28.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	43.6	19.4	7.7	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	43.2	18.3	6.9	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	43.3	18.9	6.2	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	44.0	20.7	6.0	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	44.8	21.0	5.5	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	45.2	20.8	6.3	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	46.6	21.7	5.0	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	44.0	20.2	5.7	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	43.6	19.6	6.0	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	44.7	19.0	6.3	26.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	46.2	20.7	7.7	27.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<100	<400

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

A-17

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/004	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/004
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 –Naduvelpalayam-11°2'27.63"N77°14'30.28"E		

Date	Period. hrs	SPM (µg/m³)	As (ng/m³)	C6H6 (µg/m³)	BaP (ng/m³)	Pb (µg/m³)	Ni (ng/m³)
04.03.2024	7:00-7:00	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	69.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	68.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	69.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	60.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/005	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/005
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Pallapalayam- 11° 5'0.60"N 77°12'43.03"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	46.2	21.2	6.3	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	45.8	22.0	7.4	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	48.0	21.3	6.0	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	47.6	21.7	6.7	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	46.3	20.6	6.1	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	46.0	20.0	5.6	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	45.7	22.5	7.2	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	48.0	22.9	6.0	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	46.2	21.0	6.4	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	47.4	21.8	5.9	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	45.3	21.4	5.5	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	45.0	20.9	6.5	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	46.1	20.0	6.1	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	47.4	21.2	6.9	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	48.0	21.7	7.0	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	47.3	20.0	6.8	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	45.8	21.8	5.1	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	45.1	20.1	5.5	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	46.3	21.0	6.7	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	46.9	20.4	6.9	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	48.0	21.9	6.5	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	47.4	20.1	5.6	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	46.5	21.8	5.8	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	46.0	20.7	6.5	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	45.8	21.0	6.8	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	45.0	20.8	6.3	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<805	<80	<100	<400

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/005	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/005
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Pallapalayam- 11° 5'0.60"N 77°12'43.03"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
04.03.2024	7:00-7:00	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	63.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	66.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/006	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/006
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 –Kadampadi-11° 1'58.03"N 77° 9'53.51"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	46.2	22.8	7.5	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	45.9	22.0	8.0	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	49.0	21.5	7.6	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	48.5	21.0	7.1	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	48.2	22.8	7.6	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	46.7	23.1	6.2	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	45.0	22.9	6.9	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	45.7	21.6	6.0	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	48.6	22.2	6.7	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	48.2	21.7	7.0	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	49.0	22.8	6.4	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	46.3	23.0	6.0	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	45.4	21.4	5.6	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	48.7	20.1	6.1	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	48.1	20.9	5.3	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	46.3	21.6	5.4	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	46.0	21.0	5.0	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	47.4	22.8	6.6	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	47.9	22.1	6.2	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	45.2	21.9	5.5	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	46.3	20.2	6.0	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	49.0	22.7	7.6	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	48.6	22.1	6.0	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	48.1	21.7	5.9	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	46.3	21.0	5.2	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	45.7	21.4	5.4	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<100	<400

Note: BDL: Below Detection Limit ; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/006	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/006
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 –Kadampadi-11° 1'58.03"N 77° 9'53.51"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
04.03.2024	7:00-7:00	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	63.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	63.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	63.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/007	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/007
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ7 –Semmipalayam- 11° 0'29.43"N 77°14'2.67"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.03.2024	7:00-7:00	44.8	20.8	6.2	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.03.2024	7:15-7:15	46.0	20.2	7.8	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.03.2024	7:00-7:00	45.3	18.2	6.0	26.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.03.2024	7:15-7:15	45.9	18.5	6.7	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.03.2024	7:00-7:00	43.2	19.3	7.4	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.03.2024	7:15-7:15	43.0	18.2	7.1	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.03.2024	7:00-7:00	44.6	19.8	8.0	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.03.2024	7:15-7:15	45.6	19.3	6.2	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.04.2024	7:00-7:00	43.2	18.5	6.6	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.04.2024	7:15-7:15	44.8	19.6	7.0	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.04.2024	7:00-7:00	44.0	19.6	7.9	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.04.2024	7:15-7:15	45.6	18.3	6.3	26.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.04.2024	7:00-7:00	46.0	17.9	6.8	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.04.2024	7:15-7:15	45.1	18.5	6.0	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.04.2024	7:00-7:00	44.8	19.6	7.2	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.04.2024	7:15-7:15	44.2	18.9	7.8	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.04.2024	7:00-7:00	43.8	19.6	6.5	26.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.04.2024	7:15-7:15	43.0	20.1	6.1	25.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.05.2024	7:00-7:00	43.9	21.5	7.8	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.05.2024	7:15-7:15	44.6	20.6	7.2	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.05.2024	7:00-7:00	46.0	20.1	6.8	25.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.05.2024	7:15-7:15	45.8	19.8	6.3	26.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.05.2024	7:00-7:00	45.1	18.9	7.0	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.05.2024	7:15-7:15	43.8	19.6	7.4	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.05.2024	7:00-7:00	43.2	20.1	7.9	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.05.2024	7:15-7:15	44.2	20.4	6.7	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<100	<60	<80	<80	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

A-17

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/007	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/007
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ7 –Semmpalayam- 11° 0'29.43"N 77°14'2.67"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
04.03.2024	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.03.2024	7:15-7:15	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.03.2024	7:00-7:00	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.03.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.03.2024	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.03.2024	7:15-7:15	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.03.2024	7:00-7:00	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.03.2024	7:15-7:15	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.04.2024	7:00-7:00	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.04.2024	7:15-7:15	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.04.2024	7:00-7:00	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.04.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.04.2024	7:00-7:00	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.04.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.04.2024	7:00-7:00	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.04.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.04.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.04.2024	7:15-7:15	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.05.2024	7:00-7:00	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.05.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.05.2024	7:00-7:00	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.05.2024	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.05.2024	7:00-7:00	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.05.2024	7:15-7:15	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.05.2024	7:00-7:00	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.05.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<200	<100	<60	<80	<80

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

A-17
Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/ 008	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 008
Sample Description	Ambient Noise	Sample Collected Date	28.05.2024

Location	N1 – Project Area-11° 3'24.26"N 77°11'58.23"E			N2 – Near Project Area-11° 3'4.68"N 77°11'47.81"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	31.7	36.8	35.0	32.9	35.5	34.4
07:00-08:00	32.9	39.7	37.5	31.3	39.7	37.3
08:00-09:00	32.7	43.8	41.1	32.6	41.6	39.1
09:00-10:00	33.6	43.7	41.1	33.7	42.8	40.3
10:00-11:00	38.5	46.3	44.0	34.6	44.6	42.0
11:00-12:00	34.3	47.5	44.7	36.2	45.8	43.2
12:00-13:00	32.7	48.1	45.2	38.2	46.2	43.8
13:00-14:00	36.9	49.7	46.9	36.4	45.1	42.6
14:00-15:00	35.8	44.2	41.8	36.9	43.4	41.3
15:00-16:00	36.2	43.7	41.4	34.6	42.9	40.5
16:00-17:00	34.9	42.9	40.5	32.7	40.7	38.3
17:00-18:00	33.7	41.7	39.3	36.9	43.2	41.1
18:00-19:00	32.6	40.2	37.9	32.1	40.6	38.2
19:00-20:00	31.5	39.1	36.8	34.9	43.2	40.8
20:00-21:00	33.9	41.7	39.4	32.6	40.7	38.3
21:00-22:00	35.4	43.4	41.0	33.7	41.3	39.0
22:00-23:00	36.7	42.9	40.8	34.3	36.4	35.5
23:00-00:00	33.5	42.5	40.0	32.6	42.8	40.2
00:00-01:00	36.4	40.7	39.1	35.8	40.2	38.5
01:00-02:00	31.9	34.8	33.6	33.6	38.8	36.9
02:00-03:00	32.7	36.6	35.1	31.2	37.1	35.1
03:00-04:00	33.9	35.5	34.8	32.4	35.7	34.4
04:00-05:00	31.5	35.8	34.2	31.6	39.5	37.1
05:00-06:00	32.7	36.7	35.1	33.9	36.6	35.5
Result	Day Means		40.8	Day Means		39.7
	Night Means		36.0	Night Means		36.8

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

*****End of Report*****



Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/ 009	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 009
Sample Description	Ambient Noise	Sample Collected Date	28.05.2024

Location	N3 – Karugampalayam-11° 3'59.79"N 77°11'31.89"E			N4 –Naduvelampalayam- 11° 2'28.14"N 77°14'30.70"E		
	Min	Max	Result	Min	Max	Result
Parameter	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Time						
06:00-07:00	32.3	42.5	39.9	33.9	40.5	38.3
07:00-08:00	31.9	45.2	42.4	36.1	43.6	41.3
08:00-09:00	35.3	45.9	43.3	33.2	44.9	42.2
09:00-10:00	36.2	44.7	42.3	34.7	43.2	40.8
10:00-11:00	32.7	45.6	42.8	31.6	40.9	38.4
11:00-12:00	33.2	45.2	42.5	32.5	41.2	38.7
12:00-13:00	31.2	46.8	43.9	36.2	43.2	41.0
13:00-14:00	38.1	46.1	43.7	35.9	44.8	42.3
14:00-15:00	32.7	44.5	41.8	31.9	39.1	36.8
15:00-16:00	36.9	45.7	43.2	33.6	41.4	39.1
16:00-17:00	33.7	41.7	39.3	31.5	39.2	36.9
17:00-18:00	36.2	43.5	41.2	32.8	40.7	38.3
18:00-19:00	37.5	44.9	42.6	32.6	40.3	38.0
19:00-20:00	36.1	42.6	40.5	32.7	41.7	39.2
20:00-21:00	33.2	41.3	38.9	33.9	42.5	40.1
21:00-22:00	36.9	43.5	41.3	34.2	43.1	40.6
22:00-23:00	35.2	42.9	40.6	36.1	45.9	43.3
23:00-00:00	34.2	43.6	41.1	33.8	41.7	39.3
00:00-01:00	36.9	42.8	40.8	31.9	40.3	37.9
01:00-02:00	37.5	41.7	40.1	33.1	41.9	39.4
02:00-03:00	33.8	35.8	34.9	32.9	33.9	33.4
03:00-04:00	31.6	36.6	34.8	31.3	34.8	33.4
04:00-05:00	33.7	37.7	36.1	33.8	36.5	35.4
05:00-06:00	31.4	39.7	37.3	31.9	38.5	36.3
Result	Day Means		41.8	Day Means		39.7
	Night Means		37.9	Night Means		36.5

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/ 010	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 010
Sample Description	Ambient Noise	Sample Collected Date	28.05.2024

Location	N5 – Pallapalayam – 11° 5'0.23"N 77° 12'42.38"E			N6 – Kadampadi– 11° 1'57.97"N 77° 9'54.22"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	31.9	40.5	38.3	32.3	42.5	39.9
07:00-08:00	33.7	43.6	41.3	31.9	45.2	42.4
08:00-09:00	35.1	44.9	42.2	35.3	45.9	43.3
09:00-10:00	36.2	43.2	40.8	36.2	44.7	42.3
10:00-11:00	34.2	40.9	38.4	32.7	45.6	42.8
11:00-12:00	35.9	41.2	38.7	33.2	45.2	42.5
12:00-13:00	32.7	43.2	41.0	31.2	46.8	43.9
13:00-14:00	33.2	44.8	42.3	38.1	46.1	43.7
14:00-15:00	31.4	39.1	36.8	32.7	44.5	41.8
15:00-16:00	36.8	41.4	39.1	36.9	45.7	43.2
16:00-17:00	35.7	39.2	36.9	33.7	41.7	39.3
17:00-18:00	32.3	40.7	38.3	36.2	43.5	41.2
18:00-19:00	33.4	40.3	38.0	37.5	44.9	42.6
19:00-20:00	31.9	41.7	39.2	36.1	42.6	40.5
20:00-21:00	35.7	42.5	40.1	33.2	41.3	38.9
21:00-22:00	33.4	43.1	40.6	36.9	43.5	41.3
22:00-23:00	38.4	45.9	43.3	35.2	42.9	40.6
23:00-00:00	32.9	41.7	39.3	34.2	43.6	41.1
00:00-01:00	34.5	40.3	37.9	36.9	42.8	40.8
01:00-02:00	33.1	41.9	39.4	37.5	41.7	40.1
02:00-03:00	32.9	33.9	33.4	33.8	35.8	34.9
03:00-04:00	32.9	34.8	33.4	31.6	36.6	34.8
04:00-05:00	33.6	36.5	35.4	33.7	37.7	36.1
05:00-06:00	31.2	38.5	36.3	31.4	39.7	37.3
Result	Day Means		41.4	Day Means		41.8
	Night Means		38.1	Night Means		36.8

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

TC-9583

Report No	EHS360/TR/2024-25/ 011	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 011
Sample Description	Ambient Noise	Sample Collected Date	28.05.2024

Location		N7 - Semmipalayam- 11° 0'29.14"N 77°14'2.90"E	
Parameter	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)
06:00-07:00	38.6	41.3	40.2
07:00-08:00	37.5	41.5	39.9
08:00-09:00	39.2	41.8	40.7
09:00-10:00	39.4	41.8	40.8
10:00-11:00	39.2	43.5	41.9
11:00-12:00	40.2	42.2	41.3
12:00-13:00	41.5	43.3	42.5
13:00-14:00	41.8	42.2	42.0
14:00-15:00	42.8	43.8	43.3
15:00-16:00	43.5	44.1	43.8
16:00-17:00	41.3	43.2	42.4
17:00-18:00	43.5	43.9	43.7
18:00-19:00	45.9	46.6	46.3
19:00-20:00	46.7	47.9	47.3
20:00-21:00	41.2	44.8	43.4
21:00-22:00	42.1	43.5	42.9
22:00-23:00	36.4	38.8	37.8
23:00-00:00	36.4	37.7	37.1
00:00-01:00	36.7	39.2	38.1
01:00-02:00	32.8	38.3	36.4
02:00-03:00	32.2	38.1	36.1
03:00-04:00	34.8	38.5	37.0
04:00-05:00	34.6	36.9	35.9
05:00-06:00	34.1	36.5	35.5
Result	Day Means		42.4
	Night Means		36.6

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/ 012	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 012
Sample Description	Soil 1	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 KG	Sample Received On	29.05.2024
Sample Condition	Good	Test Commenced On	29.05.2024
Sampling Location	Project Area		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.35
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	402 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.5 %
04	Bulk Density	By Cylindrical Method	1.05 g/cm ³
05	Porosity	By Gravimetric Method	46.9 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018 APHA 23 rd Edn 2019 4500 Cl B IS 2720 Part 27 : 1977 (Reaff:2015) IS 10158 : 1982 (Reaff: 2019)	37.5 mg/kg
07	Magnesium as Mg		25.4 mg/kg
08	Chloride as Cl		49 mg/kg
09	Soluble Sulphate as SO ₄		0.0011 %
10	Total Phosphorus as P		3.52 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	388.1 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.57 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.91 %

*****End of Report*****



Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/ 012	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 012
Sample Description	Soil 1	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 KG	Sample Received On	29.05.2024
Sample Condition	Good	Test Commenced On	29.05.2024
Sampling Location	Project Area		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	31.8 %
	Sand		32.4 %
	Silt		35.8 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	14.4 mg/kg
16	Zinc as Zn		1.61 mg/kg
17	Boron as B		2.3 mg/kg
18	Potassium as K		30.1 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		2.2
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.64 mg/kg
23	Iron as Fe		3.01 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/ 013	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 013
Sample Description	Soil 2	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 KG	Sample Received On	29.05.2024
Sample Condition	Good	Test Commenced On	29.05.2024
Sampling Location	Soil – 2 – Near Project Area		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.51
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	510 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	46.6 %
04	Bulk Density	By Cylindrical Method	0.97 g/cm ³
05	Porosity	By Gravimetric Method	48.2 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	52 mg/kg
07	Magnesium as Mg		38.4 mg/kg
08	Chloride as Cl		23 mg/kg
09	Soluble Sulphate as SO ₄		0.0015 %
10	Total Phosphorus as P		3.05 mg/kg
11	Total Nitrogen as N	APHA 23 rd Edn 2019 4500 Cl B	415 mg/kg
12	Organic Matter	IS 2720 Part 27 : 1977 (Reaff:2015)	1.77 %
13	Organic Carbon	IS 10158 : 1982 (Reaff: 2019)	1.03 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 013	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 013
Sample Description	Soil 2	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 KG	Sample Received On	29.05.2024
Sample Condition	Good	Test Commenced On	29.05.2024
Sampling Location	Soil – 2 – Near Project Area		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	29.1 %
	Sand		33.0 %
	Silt		37.9 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	16.5 mg/kg
16	Zinc as Zn		5.05 mg/kg
17	Boron as B		4.55 mg/kg
18	Potassium as K		31 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.05 mg/kg
23	Iron as Fe		2.22 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

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Authorised Signatory

A S K

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

TC-9583

Report No	EHS360/TR/2024-25/ 014	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 014
Sample Description	Soil 3	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 KG	Sample Received On	29.05.2024
Sample Condition	Good	Test Commenced On	29.05.2024
Sampling Location	Soil – 3 Karugampalayam		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.61
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	371 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	46.2 %
04	Bulk Density	By Cylindrical Method	1.01 g/cm ³
05	Porosity	By Gravimetric Method	45.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	39.1 mg/kg
07	Magnesium as Mg		33 mg/kg
08	Chloride as Cl		28.4 mg/kg
09	Soluble Sulphate as SO ₄		0.0020 %
10	Total Phosphorus as P		3.6 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	451.6 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.14 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.24 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/ 014	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 014
Sample Description	Soil 3	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 KG	Sample Received On	29.05.2024
Sample Condition	Good	Test Commenced On	29.05.2024
Sampling Location	Soil – 3 Karugampalayam		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	25.9 %
	Sand		31.4 %
	Silt		42.7 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	30.1 mg/kg
16	Zinc as Zn		3.56 mg/kg
17	Boron as B		5.01 mg/kg
18	Potassium as K		24.6 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		2.55
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.02 mg/kg
23	Iron as Fe		1.45 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 015	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 015
Sample Description	Soil 4	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 KG	Sample Received On	29.05.2024
Sample Condition	Good	Test Commenced On	29.05.2024
Sampling Location	Soil – 4 – Naduvelampalayam		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.54
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	532 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.8. %
04	Bulk Density	By Cylindrical Method	0.99 g/cm ³
05	Porosity	By Gravimetric Method	46.5 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018 APHA 23 rd Edn 2019 4500 Cl B IS 2720 Part 27 : 1977 (Reaff:2015) IS 10158 : 1982 (Reaff: 2019)	63 mg/kg
07	Magnesium as Mg		55.5 mg/kg
08	Chloride as Cl		28.5 mg/kg
09	Soluble Sulphate as SO ₄		0.0024 %
10	Total Phosphorus as P		5.6 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	471 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.77 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.03 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/ 015	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 015
Sample Description	Soil 4	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 KG	Sample Received On	29.05.2024
Sample Condition	Good	Test Commenced On	29.05.2024
Sampling Location	Soil - 4 - Naduvelampalayam		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	33.4 %
	Sand		31.1 %
	Silt		35.5 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	8.64 mg/kg
16	Zinc as Zn		6.61 mg/kg
17	Boron as B		12 mg/kg
18	Potassium as K		15.5 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		3.44
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.03 mg/kg
23	Iron as Fe		4.15 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/ 016	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 016
Sample Description	Soil 5	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 KG	Sample Received On	29.05.2024
Sample Condition	Good	Test Commenced On	29.05.2024
Sampling Location	Soil – 5 – Pallapalayam		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.55
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	373 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.1 %
04	Bulk Density	By Cylindrical Method	1.11 g/cm ³
05	Porosity	By Gravimetric Method	45.3 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018 APHA 23 rd Edn 2019 4500 Cl B IS 2720 Part 27 : 1977 (Reaff:2015) IS 10158 : 1982 (Reaff: 2019)	70.2 mg/kg
07	Magnesium as Mg		42.5 mg/kg
08	Chloride as Cl		26 mg/kg
09	Soluble Sulphate as SO ₄		0.0008 %
10	Total Phosphorus as P		4.02 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	400 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.62 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.52 %

*****End of Report*****

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Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/ 016	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 016
Sample Description	Soil 5	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 KG	Sample Received On	29.05.2024
Sample Condition	Good	Test Commenced On	29.05.2024
Sampling Location	Soil – 5 – Pallapalayam		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	33.9 %
	Sand		30.7 %
	Silt		35.4 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	20.2 mg/kg
16	Zinc as Zn		5.63 mg/kg
17	Boron as B		5.01 mg/kg
18	Potassium as K		13.7 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		3.54
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.09 mg/kg
23	Iron as Fe		8.37 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986


*****End of Report*****

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Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/ 017	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 017
Sample Description	Soil 6	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 KG	Sample Received On	29.05.2024
Sample Condition	Good	Test Commenced On	29.05.2024
Sampling Location	Soil – 6 Kadampadi		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.59
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	531 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	46.6 %
04	Bulk Density	By Cylindrical Method	1.14 g/cm ³
05	Porosity	By Gravimetric Method	45.8 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018 APHA 23 rd Edn 2019 4500 Cl B IS 2720 Part 27 : 1977 (Reaff:2015) IS 10158 : 1982 (Reaff: 2019)	52.3 mg/kg
07	Magnesium as Mg		28.1 mg/kg
08	Chloride as Cl		65.5 mg/kg
09	Soluble Sulphate as SO ₄		0.0018 %
10	Total Phosphorus as P		6.26 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	410.5 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.28 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.32 %

*****End of Report*****

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Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/ 018	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 018
Sample Description	Soil 6	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 KG	Sample Received On	29.05.2024
Sample Condition	Good	Test Commenced On	29.05.2024
Sampling Location	Soil – 6 Kadampadi		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	32.5 %
	Sand		31.0 %
	Silt		36.5 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	17.5 mg/kg
16	Zinc as Zn		4.13 mg/kg
17	Boron as B		1.02 mg/kg
18	Potassium as K		14 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		1.23
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.26 mg/kg
23	Iron as Fe		2.33 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	38.3 meq/100g of soil

*****End of Report*****

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Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/ 019	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/019
Sample Description	Surface Water (SW-1)	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	29.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	29.05.2024
Sampling Location	Noyyal River		

S.No.	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.97
4	Conductivity @ 25°C	IS 3025 Part 14:2013	867 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	4.5 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	511 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	175.93 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	30.8 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	24.1 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	166 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	110.5 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	61.2 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.26 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.35 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	11 mg/l

*****End of Report*****

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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/019	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/019
Sample Description	Surface Water (SW-1)	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	29.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	29.05.2024
Sampling Location	Noyyal River		
S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	14 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	50 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.6 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	2.5 mg/l
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	21.5 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	610 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	130 MPN/100ml

*****End of Report*****



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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

TC-9583

Report No	EHS360/TR/2024-25/ 020	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/020
Sample Description	Surface Water (SW-2)	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	29.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	29.05.2024
Sampling Location	Samalapuram Lake		

S.No.	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	10 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.59
4	Conductivity @ 25°C	IS 3025 Part 14:2013	725 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	2.1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	428 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	161.14 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	28.0 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	22.2 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	130 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	87.1 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	51 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.15 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.22 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	8.64 mg/l

*****End of Report*****

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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/ 020	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/020
Sample Description	Surface Water (SW-2)	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	29.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	29.05.2024
Sampling Location	Samalapuram Lake		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	9.1 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	30 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.5 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	1.02 mg/l
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	16.7 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	510 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	100 MPN/100ml

*****End of Report*****



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A-17
Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/021	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/021
Sample Description	Ground Water (WW-1)	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	29.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	29.05.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	5 Hz
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.95
4	Conductivity @ 25°C	IS 3025 Part 14:2013	837 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.2 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	494 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	203.35 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	37.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	26.7 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	189 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	78.3 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	60 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.36 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.24 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	4.16 mg/l

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Page 1 of 1

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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 021	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/021
Sample Description	Ground Water (WW-1)	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	29.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	29.05.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	160 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml


*****End of Report*****

Page 1 of 1

Verified by




Authorised Signatory


 Name: Santhosh Kumar A
 Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2024-25/ 022	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/022
Sample Description	Ground Water (WW-2)	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	29.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	29.05.2024
Sampling Location	Semmipalayam		

S.No	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	5 Hz
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.28
4	Conductivity @ 25°C	IS 3025 Part 14:2013	1056 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	623 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	187.53 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	36.6 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	23.4 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	200 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	145 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	96 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.38 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.19 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	5.1 mg/l

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/ 022	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/022
Sample Description	Ground Water (WW-2)	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	29.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	29.05.2024
Sampling Location	Semmpalayam		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	100 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

TC-9583

Report No	EHS360/TR/2024-25/ 023	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/023
Sample Description	Ground Water (BW-1)	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	29.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	29.05.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5 Hz
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	6.82
4	Conductivity @ 25°C	IS 3025 Part 14:2013	828 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	488 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	158.12 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	29.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	20.8 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	162 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	98.6 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	52 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.21 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.35 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	8 mg/l

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/ 023	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/023
Sample Description	Ground Water (BW-1)	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	29.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	29.05.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	114 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

Page 1 of 1

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Authorised Signatory

A S K

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/ 024	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/024
Sample Description	Ground Water (BW-2)	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	29.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	29.05.2024
Sampling Location	Kadampadi		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5 Hz
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.66
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	915 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	540 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	200.02 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	33.2 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	28.5 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	210 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	125 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	25 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.22 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.20 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	6.6 mg/l

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/ 024	Report Date	04.06.2024
Site Location	THIRU. S. A. RAMACHANDRAN ROUGH STONE AND GRAVEL QUARRY S.F.NOS. 220/1A, 220/1C & 223/2F, Ichipatti Village, Palladam Taluk, Tiruppur District, Tamil Nadu State		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/024
Sample Description	Ground Water (BW-2)	Sample Collected Date	28.05.2024
Qty. of Sample Received	2 Litres	Sample Received On	29.05.2024
Sample Condition	Fit for Analysis	Test Commenced On	29.05.2024
Sampling Location	Kadampadi		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	155 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

A S K

Name: Santhosh Kumar A
Designation: Quality Manager

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National Accreditation Board for Education and Training



Certificate of Accreditation

Geo Exploration & Mining Solutions, Salem

No. 17, Advaita Ashram Road, Fairlands, Salem – 636 004, Tamilnadu, India.

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S.No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals opencast only	1	1 (a) (i)	A
2	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
3	Building and construction projects	38	8(a)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Jan 06, 2023 and posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2684 dated Feb 20, 2023. The accreditation needs to be renewed before the expiry date by Geo Exploration & Mining Solutions, Salem following due process of assessment.

Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

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

