
**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 – MINOR MINERAL — NON-FOREST LAND-PATTA LAND-EXISTING QUARRYRY

Lease Period/Mining Plan Period -10 years

CLUSTER EXTENT – 21.02.66 Ha

(7 Proposed Quarries+ 1 Existing Quarry+6 Expired)

THIRU. S. SHANMUGAM ROUGH STONE AND GRAVEL QUARRY

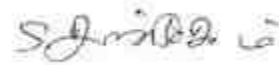
PROJECT PROPONENT	PROPOSED PROJECT	PROPOSED PRODUCTION
Thiru.S.Shanmugam S/o Subramani No.3/251, Karanampettai, Kodangipalayam, Tiruppur District, Tamil Nadu – 641 662	Extent: 5.11.5 ha S.F. Nos: 169/1A, 1B, 178/1(P), 178/2(P), 179/1A, 179/1B Idayarpalayam Village, Sulur Taluk, Coimbatore District	First Five-Year Production Rough Stone = 6,30,780 m³ Gravel = 47,312 m³ Second Five Year Production Rough Stone = 6,27,225 m³ Gravel = 32,668 m³ Annual Peak Production = 1,44,210 m³ of Rough Stone = 16,244 m³ of Rough Stone Proposed Depth = 77m BGL For 10 years
ToR obtained vide File No. 12987 TOR Identification No. TO25B0108TN5201182N Dated:19.12.2025		
Environmental Consultant GEO EXPLORATION AND MINING SOLUTIONS Old No. 260-B, New No. 17, Advaitha Ashram Road, Alagapuram, Salem – 636 004, Tamil Nadu, India Accredited for sector 1 Cat ‘A’, sector 31 & 38 Cat ‘B’ Certificate No : NABET/EIA/25-28/RA 0424 Validity Period: 25.08.2025 – 06.08.2028 Phone: 0427-2431989, Email: ifthiahmed@gmail.com, geothangam@gmail.com Web: www.gemssalem.com	 Laboratory GLOBAL LAB AND CONSULTANCY SERVICES Approved by ISO:9001:2015, NABL, FSSAI, Experts in QHSE NABL Accrediated Certificate No.TC-6060 Dated.01.08.2024 Valid Till – 31.07.2026 S.F No:92/3A2, Geetha Nagar, Alagapuram Pudur, Salem-636016.	
Baseline Monitoring Period October 2024 to December 2024 DECEMBER 2025		

DECLARATION BY THE PROJECT PROPONENT

I, **S.Shanmugam** – Authorized Signatory of **Thiru.S.Shanmugam Rough Stone and Gravel Quarry** hereby declare that this EIA & EMP report prepared by **M/s. Geo Exploration and Mining Solutions** for our Rough Stone & Gravel Quarry situated in S.F.No 169/1A, 1B, 178/1(P), 178/2(P), 179/1A, 179/1B (Part) over an extent of 5.11.5 Ha in Idayarpalayam Village, Sulur Taluk and Coimbatore District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide **File No. 12987 TOR Identification No. TO25B0108TN5201182N**
Dated:19.12.2025

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.Shanmugam

Place : Coimbatore

Dated:

UNDERTAKING BY THE EIA COORDINATOR

I, **Dr. M. Ifthikhar Ahmed, EIA Coordinator** given undertaking that, this EIA & EMP report prepared for **Thiru.S.Shanmugam Rough Stone and Gravel Quarry** situated in S.F.No 169/1A, 1B, 178/1(P), 178/2(P), 179/1A, 179/1B (Part) over an extent of 5.11.5 Ha in Idayarpalayam Village, Sulur Taluk and Coimbatore District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide **File No. 12987 TOR Identification No. TO25B0108TN5201182N Dated:19.12.2025**

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 EIA Co Ordinator



Dr. M. Ifthikhar Ahmed

Managing Partner

M/s. Geo Exploration and Mining Solutions

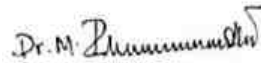
Place : Salem

Dated :

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 below-mentioned Functional Area Experts and Team Members prepared the EIA/EMP for Thiru.S.Shanmugam Rough Stone and Gravel Quarry situated in S.F.No 169/1A, 1B, 178/1(P), 178/2(P), 179/1A, 179/1B (Part) over an extent of 5.11.5 Ha in Idayarpalayam Village, Sulur Taluk and Coimbatore District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge.

Signature & Date:



Name:

Dr. M. Ifthikhar Ahmed

Designation:

Managing Partner

Name of the EIA Consultant Organization:

M/s. Geo Exploration and Mining Solutions

NABET Certificate No & Issue Date:

NABET/EIA/25-28/RA0424 Dated: 25-08-2025

Validity:

Valid till 06.08.2028

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

Declaration by experts contributing to the EIA/EMP for Thiru.S.Shanmugam Rough Stone and Gravel Quarry situated in S.F.No 169/1A, 1B, 178/1(P), 178/2(P), 179/1A, 179/1B (Part) over an extent of 5.11.5 Ha in Idayarpalayam Village, Sulur Taluk and Coimbatore District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge.

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**

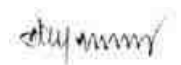
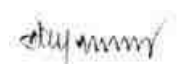
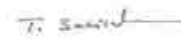
Designation: **EIA Coordinator**

Date & Signature:



Period of Involvement: **Aug 2025 to till date**

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No.	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	- Identification of different sources of air pollution due to the proposed mine activity - Prediction of air pollution and propose mitigation measures / control measures	Mr. A. Jagannathan	
2	WP	- Suggesting water treatment systems, drainage facilities - Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures.	Dr. M. Ifthikhar Ahmed	
3	HG	- Interpretation of ground water table and predict impact and propose mitigation measures. - Analysis and description of aquifer Characteristics	Dr. P. Thangaraju	
4	GEO	- Field Survey for assessing the regional and local geology of the area. - Preparation of mineral and geological maps. - Geology and Geo morphological analysis/description and Stratigraphy/Lithology.	Dr. P. Thangaraju	
5	SE	- Revision in secondary data as per Census of India, 2011. - Impact Assessment & Preventive Management Plan - Corporate Environment Responsibility.	Dr. T. Sasikala	
6	EB	- 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. Panneer Selvam	
7	RH	- Identification of hazards and hazardous substances - Risks and consequences analysis - Vulnerability assessment	Mr. J. R. Vikram Krishna	

		- Preparation of Emergency Preparedness Plan - Management plan for safety.		
8	LU	- Construction of Land use Map - Impact of project on surrounding land use - Suggesting post closure sustainable land use and mitigative measures.	Mr. A. Allimuthu	
9	NV	- Identify impacts due to noise and vibrations - Suggesting appropriate mitigation measures for EMP.	Mr. A. Jagannathan	
10	AQ	- Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. - Recommending mitigations measures for EMP	Mr. N. Senthilkumar	
11	SC	Assessing the impact on soil environment and proposed mitigation measures for soil conservation	Dr. M. Ifthikhar Ahmed	
12	SHW	- Identify source of generation of non-hazardous solid waste and hazardous waste. - Suggesting measures for minimization of generation of waste and how it can be reused or recycled.	Mr. J. R. Vikram Krishna	

NABET CERTIFICATE



National Accreditation Board for Education and Training

Certificate of Accreditation

Geo Exploration and Mining Solutions, Salem

No. 17, Advaita Ashram Road, Fairlands, Salem, Tamil Nadu – 636 004

Geo Exploration and Mining Solutions, Salem is Re-Accredited (RA3) as **Category-A organization** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations (Version 3), for the preparation of EIA/EMP reports in the sectors listed below, as per the specified categories

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals including opencast / underground mining	1	1 (a) (i)	A
2.	Mineral beneficiation	7	2 (b)	A
3.	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
4.	Building and construction projects	38	8 (a)	B

Note: Names of approved experts and sectors are mentioned in RAAC minutes dated August 21, 2025, posted on QCI-NABET website.

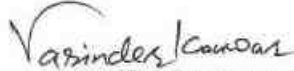
The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/25/3827 dated August 25, 2025; the accreditation needs to be renewed before the expiry date by Geo Exploration and Mining Solutions, Salem following due process of assessment.

Valid up to
August 06, 2028

Issue Date
August 25, 2025



Certificate No.
NABET/EIA/25-28/RA 0424


Prof (Dr) Varinder S Kanwar
(CEO – NABET)

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

For the easy representation the proposed, existing, abandoned and expired quarries are designated as below –

PROPOSED QUARRIES				
CODE	Name of the Proponent and Address	S.F. Nos	Extent in Ha	Status
P1	Thiru.S.Shanmugam	168/1A,169/1B, 178/1(P), 178/2(P), 179/1A,179/1B	5.11.5	ToR obtained vide File No. 12987 TOR Identification No. TO25B0108TN5201182N Dated:19.12.2025
P2	Thiru.N. Kathiresh	172/1B, 172/2 & 173/2A2	1.42.82	Public hearing conducted on 22.08.2024
P3	Thiru.N.Vivek Prithiviraj	180/3(P)	1.62.0	EC Under Process
P4	M/s.Ultra Ready Mix Concrete Pvt Ltd	168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P)	2.94.01	EC obtained
P5	Thiru.K. Ranganathan	174/4 & 176/1 of	2.28.0	EC Under Process
P6	Thiru. S. Nandhagopal	180/1 & 181/3	2.15.83	Public hearing conducted on 03.12.2025
P7	Thiru. V.Saravanan	171/2(P) & 176/2(P)	1.84.0	Public hearing conducted on 17.06.2025
Total			17.38.16	
EXISTING QUARRIES				
CODE	Name of the Proponent and Address	S.F.Nos , Village & Taluk	Extent in Ha	Lease Period
E1	Tmt. N. Chitradevi	179/2(P), Edayarpalayam Village, Suler Taluk	3.64.5	14.07.2021 to 13.07.2026
Total			3.64.5	
ABANDONED QURRIES				
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	Lease Period
A-1	Government Quarry	164/1	3.13.5	-
A-2	Jayakumar	260	-	-
A-3	R.Ayik Goundar	164/8	0.60.0	22.01.1999 – 28.01.2004
A-4	R.Rangasamy	171/1	0.20.5	28.10.2002 – 27.10.2007
A-5	A.Arumuga Gounder	178/1(P)	0.39.5	23.09.2003 – 22.09.2008
A-6	Tmt. Ponnammal	178/2, Edayarpalayam Village, Suler Taluk	0.33.0	22.10.2004 – 21.10.2009
Total			4.66.5	
EXPIRED QURRIES				
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	Lease Period
Ex-1	B.Sakthivel	164/6A, 164/7 Edayarpalayam Village, Suler Taluk	1.19.5	07.10.2017 to 06.10.2022
Total			1.19.5	
TOTAL CLUSTER EXTENT			21.02.66	

Note:-

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

As per above notification S.O.2269(E) dated : 01.07.2016 in para (b) in Appendix XI,- (ii)(5): The lease not operative for three years or more and leases which have got environmental clearance as on 15th January, 2016 shall

not be counted for calculating the area of cluster, but shall be included in the Environment Management Plan and the Regional Environmental Management Plan”

TERMS OF REFERENCE (ToR) COMPLIANCE

Thiru.S.Shanmugam

“ToR issued vide. File No.12987 TOR Identification No. TO25B0108TN5201182N Dated:19.12.2025”

SEAC SPECIFIC CONDITIONS		
1	A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: a. Copy of the agreement forming CMC. b. The Organisation chart of the Committee with defining the role of the members c. The ‘Standard Operating Procedures’ (SoP) executing the planned activities.	Noted and agreed It is given in chapter 7.
2	The Geo referenced Boundary pillars to be erected on the field as per the mine rules and the evidence should be submitted along with the EIA report.	Noted and agreed Boundary pillars have been erected at all corners of the quarry, and the relevant photographs will be submitted in the final EIA report.
3	The details of enumeration of structures including schools, colleges, primary health centres should be submitted along with the EIA report	Noted and agreed The structure study has been carried out within the radius of 300m. There is no habitation within the radius of 300m from the project site the details of the structures are given in the EIA report, Chapter No. III
4	The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300m & upto 1km 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. and spell out the mitigation measures to be proposed for the protection of the above structures, if any during the quarrying operations	Noted and agreed The structure study has been carried out within the radius of 300m. There is no habitation within the radius of 300m from the project site the details of the structures are given in the EIA report, Chapter No. III
5	The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Noted and agreed The area has been fenced and plantation activities carried out within the project site. Details given in chapter 2.
6	The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report	Noted and agreed The biodiversity study has been conducted by a Functional Area Expert through a NABET-accredited consultant. The detailed are presented in Chapter 3.
7	The PP shall prepare the EMP for the entire life of	Noted and agreed.

	mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	
8	The PP shall carry out the comprehensive studies on the cumulative environmental impacts of the existing & proposed quarries which included drilling & blasting, loading & hauling on the surrounding village and structures.	Noted and agreed.
9	The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall.	Noted and agreed.
10	The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/videographic evidence along with the EIA report	Noted and agreed. The Project Proponent will install CCTV cameras at all corners within the quarry lease area for continuous surveillance of mining activities. Photographic and videographic evidence of CCTV installation shall be furnished along with the final EIA report.

SEIAA SPECIFIC CONDITIONS

1	The PP shall furnish land consent for the S.F.No.169/1A, 169/1B, 179/1A & 179/1B from patta land owner of the proposed site, before EIA appraisal.	Noted and agreed
2	The land consent document furnished for S.F.No.178/1(P) & 178/2(P) is incomplete. Hence, the PP shall furnish land consent for the S.F.No. 178/1(P) & 178/2(P) in full shape from patta land owner of the proposed site, before EIA appraisal	Noted and agreed

2.SEAC STANDARD CONDITIONS

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.	Noted and agreed Existing quarry pit dimension is <table><tr><th colspan="2">Existing Pit Dimension</th></tr><tr><th>Area in m²</th><th>Depth in m</th></tr><tr><td>2,125</td><td>7</td></tr></table> There is no violation during the past quarrying activity.	Existing Pit Dimension		Area in m ²	Depth in m	2,125	7
Existing Pit Dimension								
Area in m ²	Depth in m							
2,125	7							
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.	Noted & agreed. The PP obtained VAO Certificate regarding the location of habitations within 300m radius from the periphery of the site and enclosed with as						

		annexure.
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.	Noted and agreed The structure study has been carried out within the radius of 300m. There is no habitation within the radius of 300m from the project site the details of the structures is given in the EIA report, Chapter No.III
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.	Noted and agreed The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3 • Odai -50m Safety- NW • Niyaviyal Odai -60m - North
5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	Noted and agreed 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.	Noted and agreed DFO letter will be submitted along with the Final EIA/EMP report
7	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Noted and agreed Proponent requested as will be carrying the slope stability Plan after commencement of quarrying operation and ensure that the reports will be submitted along with HYCR.
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.	Noted and agreed Proponent requested as will be carrying the slope stability Plan after commencement of quarrying operation and ensure that the reports will be submitted along with HYCR.
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.	Noted and agreed Proponent given affidavit stating that the blasting will be carried out under the supervision of Competent person.
10	The PP shall present a conceptual design for carrying out	Noted and agreed

	only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	
11	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences	Noted and agreed. There is no other quarry except this proposal operated by Proponent Thiru .S.Shanmugam
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,	Noted and agreed
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Noted and agreed. The AD letter will be submitted during the appraisal meeting.
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.	Existing depth of mining is 7 m bgl • Previous Lessee: Tmt.R.Ponnammal • Previous Lease Period: 23.09.2003 to 22.09.2008, S.F. No 178/1 (Extent: 0.39.5Ha)
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).	Noted and agreed Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2, Figure No.2.2 Geomorphology of the area is given in Chapter No 2, Figure No.2.10 Land use pattern of the project area is tabulated in the Chapter No.2. Table no 2.4
16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,	Noted and agreed. PP carried out the drone video survey and will be submitted during the appraisal while obtaining the EC.
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.	Noted and agreed The area has been fenced and plantation activities carried out within the project site.
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.	Noted and agreed The details of mineral reserves have been provided in Chapter No 1, Mineable reserves– 12,58,005 m ³ Peak Production – 1,44,210m ³ Proposed Depth – 77m bgl
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,	Noted and agreed. The PP provided Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per

	1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	the provisions of the Mines Act'1952 and the MMR, 1961
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.	Noted and agreed The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3,
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	Noted and agreed Baseline Data were collected for One Season (Post Monsoon) Oct to Dec 2024 as per CPCB Notification and MoEF & CC Guidelines. Details in 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 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.	Noted and agreed The Cumulative impact study due to mining operations is explained in chapter - 7
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted and agreed
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.	Noted and agreed 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
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.
26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
27	Description of water conservation measures proposed to	Noted and agreed

	be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt development and dust suppression. The Mine Closure Plan is prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
28	Impact on local transport infrastructure due to the Project should be indicated.	Noted and agreed Transportation details mentioned in Chapter -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.	Noted and agreed Details of the trees in the buffer zone given in Chapter No.3&4
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific	Noted and agreed After the completion of mining operation, the part of the quarried-out land will be utilized as temporary storage reservoir. The details are given in the Chapter No.4
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible	Noted and agreed Details are given in the Chapter No.3
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.	Noted and agreed Noted & agreed. It is proposed to plant a 920nos of trees in the 7.5m safety barrier and village roads.
33	Taller/one-year-old Saplings raised in appropriate size of bags, preferably ecofriendly bagsshould 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 It is a Fresh Lease. No trees within the project site. it is proposed to plant 2560 Nos of Trees in the safety barrier and Village roads.
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	Noted and agreed Disaster management Plan details in Chapter-7
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	Noted and agreed A Risk Assessment and management Plan Chapter- 7
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical	Noted and agreed Occupational Health impacts chapter- 10

	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.	Noted and agreed No Public Health Implications anticipated due to this project. Details of CER are discussed under Chapter 8
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Noted and agreed It is explained in Chapter -3
39	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	Noted and agreed No, Litigation against this 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.	Noted and agreed Chapter-8 discussed about benefits of projects.
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.	Noted & agreed.
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	Noted and agreed The EMP prepared for the life of the mine and discussed in chapter 10.
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.

SEIAA STANDARD CONDITIONS

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.	Noted and agreed The Cluster management committee has been formed covering the existing and proposed quarries in the cluster
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.,	Noted and agreed The information will be shared to the cluster management committee during the monthly meeting.

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.	Noted and agreed The list of members of the committee formed will be submitted to AD/Mines before resuming the mining operation.
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.	Noted and agreed It is an existing Granite quarry the blasting will be used occasionally for the removal of overburden only the blasting frequency and usage of haul roads are discussed.
5	The committee shall deliberate on risk & emergency management plan, fire safety & evacuation plan and sustainable development goals pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Noted and agreed The risk management plan and disaster management plan has been prepared and enclosed in this EIA report, Chapter No. 7.
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 in the EIA Report.	Noted and agreed Environmental policy of the cluster management committee is detailed in the EIA Report Chapter No. 6
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 and agreed The Restoration strategy is discussed in the progressive mine closure plan and enclosed in Mining plan.
8	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity.	Noted and agreed The information on the health of the workers and the local people will be updated periodically along with medical examination.
Agriculture & Agro-Biodiversity		
9	Impact on surrounding agricultural fields around the proposed mining Area.	As the proposed lease area is dominantly surrounded by mining land, barren land, and fallow land, the impact on the surrounding agricultural fields if present is considerably low. The Mining operation will be carried out to reduce the impact further to the level of negligence.
10	Impact on soil flora & vegetation around the project site.	The vegetation details have been provided in chapter III. There is no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species falls in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.

11	Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP.	Noted and agreed There are no trees within the existing quarry site, and therefore, no proposal for tree felling or removal is anticipated during the quarrying operations.
12	The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Noted and agreed The details of the soil analysis and the impacts are given in the Chapter No 3 & 4.
13	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted and agreed The Eco System of the area will be retained during the mining operation by the way of planting trees in the boundary barrier and un utilized areas. After completion of mining operation, the quarried-out pit will be facilitated to collect the rainwater to pit act as temporary reservoir
14	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock	Noted and agreed The project area is situated centre part of the quarry lands. The proposed Rough Stone quarrying operation will employ the wet drilling method, which is expected to have negligible impacts on nearby agricultural lands.
Forests		
15	The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife	Noted and agreed. There is no Reserve Forest within 1km radius from the project area. The mining operation will not cause any significant impact to the Reserve Forest and Wild life Sanctuaries
16	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	There is no forest/wildlife within 10km radius, chapter 3 details of Ecology and Biodiversity, and 4 endemic vulnerable and endangered indigenous flora and fauna.
17	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection	Details are discussed in the Chapter No.3
18	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		
19	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water	There are 9 open wells and 9 bore wells within the radius of 1km from the project area, Hydrogeological

	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	study has been conducted by the resistivity method
20	Erosion Control measures	Details discussed in the chapter No.4
21	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.	Details in Chapter 3
22	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir	Food webs describe who eats whom in an ecological community. Made of interconnected food chains, food webs help us understand how changes to ecosystems — say, removing a top predator or adding nutrients — affect many different species, both directly and indirectly. Whereas in this proposed project is for quarrying of Rough Stone and Gravel and is on a hard batholith formation where no diversion of any water bodies is proposed of there is no intersection of ground water table anticipated.
23	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	Details are given in the Chapter No 4.
24	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	Details in Chapter 4 impact of bio diversity.
25	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components	Details of impact on soil environment is detailed in Chapter No.4
26	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites	Bolampatti R.F. 17.7km -West There is, National Parks, Eco sensitive areas, Wild life sanctuaries within the radius of 10km. An ecological survey of the study area was conducted particularly with reference to the listing of species and assessment of the existing baseline ecological (terrestrial) condition in the study area. Ecological Environment is discussed under Chapter 3
27	The EIA shall include the impact of mining activity on the following:	There are 9 open wells and 9 bore wells within the radius of 1km from the project area, Hydrogeological

	a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its foot prints including environmental stress. c) Sediment geochemistry in the surface streams.	study has been conducted by the resistivity method
Energy		
28	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	Detailed discussed in chapter 4
Climate Change		
29	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities	Noted and agreed. Details discussed in chapter 4.
30	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features	Detailed discussed in chapter 3.
31	Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.	A greenhouse gas (GHG) is a gas that absorbs and emits radiant energy within the thermal infrared range, causing the greenhouse effect. The primary greenhouse gases in Earth's atmosphere are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and ozone (O₃) Carbon dioxide (CO₂): Carbon dioxide enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and other biological materials. Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle. Methane (CH₄): Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices, land use and by the decay of organic waste in municipal solid waste landfills. Nitrous oxide (N₂O): Nitrous oxide is emitted during agricultural, land use, and industrial activities; combustion of fossil fuels and solid waste; as well as during treatment of wastewater
Mine Closure Plan		
32	Detailed Mine Closure Plan covering the entire mine	Progressive Mine closure plan has been prepared

	lease period as per precise area communication order issued.	considering the entire lease period in the mining plan and the same has been approved.
EMP		
33	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs	Detailed discussed in chapter 10.
34	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	Detailed discussed in chapter 10.
Risk Assessment		
35	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	A Risk Assessment and management Plan Chapter- 7
Disaster Management Plan		
36	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Disaster management Plan details in Chapter-7
Others		
37	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.	Letter obtained from the VAO regarding surface features within 300m radius
38	As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	The issues raised during public hearing is addressed in chapter No.7
39	The project proponent shall study and furnish the possible pollution due to plastic and micro plastic on the environment. The ecological risks and impacts of plastic & micro plastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported	Plastic waste management in the project area detailed in Chapter No.7.

STANDARD TERMS OF REFERENCE

1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. The project is Not a violation category. This proposal falls under B1 Category (Cluster situation)
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.	Noted & agreed.
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 superimposed on Satellite imagery is enclosed in Figure No. 2.3 Project area boundary coordinates superimposed on Toposheet – Figure No. 2.2 Surface Features around the project area covering 10km radius – Figure No. 2.4 Geology map of the project area covering 10km radius - Figure No. 2.7 Geomorphology Map of the Study Area covering 10 km radius – Figure No. 2.8
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. 2.7 Geomorphology Map of the Study Area covering 10 km radius – Figure No. 2.8.
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.	Noted & agreed. 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	Not Applicable. 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.	Not Applicable. There is no Forest Land involved in the proposed project area. 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.	No Reserve Forest within the Study Area.
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. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
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. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
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. Detailed in Chapter No. 3.
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	Not Applicable. The project doesn't attract The C. R. Z. Notification,

	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).	2018.
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	Not Applicable. There are no approved habitations within a radius of 300 meters. Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.
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 One Season Oct to dec 2024 (Post Monsoon Season) 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 view 9.6.1 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.	Total Water Requirement: 2.7 KLD Discussed under Chapter 2, Table No 2.13. Figure No. 2.8.
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable. Water for dust suppression, greenbelt development and

		domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily requirement basis. Drinking water will be sourced from the approved water vendors.
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt development and dust suppression. The Mine Closure Plan is prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact Studies and Mitigation Measures of Water Environment including Surface Water and Ground Water are discussed in Chapter 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 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.	Not Applicable. The ground water table inferred 150m below ground level. The ultimate depth of quarry is 77m. This proposal of 40m below ground level will not intersect the ground water table, which is inferred from the hydro-geological carried out at the project site. Discussed under Chapter 3.
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	Not Applicable. There is no stream, seasonal or other water bodies passing within the project area. Therefore, no modification/ diversion of water bodies is anticipated.
30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	Highest elevation of the project area is 433m AMSL. Ultimate depth of the mine is 77m BGL Water level of the area is 150m 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.	Greenbelt Development Plan is discussed under Chapter 4. Figure No. 4.14. Pg.no.140.

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 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.	Discussed under Chapter 2. Mine Closure Plan is a part of Approved Mining Plan enclosed as Annexure Volume – 1.
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational health impact and details of the medical examination to the workers given in the Details in Chapter 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.	No Public Health Implications anticipated due to this project. Details of CER and CSR are discussed under Chapter 8.
37	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	No Negative Impact on Socio Economic Environment on the Study Area is anticipated and this project shall benefit the Socio-Economic Environment by ways of employment for 24 people directly and 100 people indirectly. Details in Chapter 2.
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 Environment Management Plan for the project to mitigate the anticipated impacts described under Chapter 4 is discussed under 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.	Public hearing points and commitment of the project proponent is detailed in the chapter No.7.
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation is pending in any court against this project.
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost is Rs.3,74,13,000/- CER Cost is Rs 5,00,000/-
42	A Disaster management Plan shall be prepared and	Details in Chapter 7.

	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.	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	Enclosed as a 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 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	Baseline monitoring reports are enclosed with Annexure
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.	Questionnaire of the project is will be enclosed with Final EIA report.
G	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II(I) Dated: 4th August, 2009, which are available on the website of this Ministry, should be followed.	Noted & agreed. 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-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	There is no changes in Form-I, Mining plan and Pre-feasibility report.
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. 2.3. Pg.no.15 Geological Plan – Figure No. 2.9. Pg.no.24. Working Plan – Figure No. 2.11. Pg.no.26 Closure Plan – Figure No. 2.12. Pg.no.29

LIST OF CONTENTS

CHAPTER – 1: INTRODUCTION	1
1.0 Preamble	1
1.1 Purpose of the report	2
1.2 Identification of Project and Project Proponent.....	4
1.3 Brief description of the project	4
1.4 Environmental Clearance	9
1.5 Post Environment Clearance Monitoring	9
1.6 Generic Structure of EIA Document.....	9
1.7 Scope of the Study.....	10
CHAPTER – 2: PROJECT DESCRIPTION.....	12
2.0 General.....	12
2.1 Description of the Project.....	12
2.2 Location of the Project	12
2.3 Geology	20
2.4 Resources and Reserves of the Proposed Quarry	30
2.5 Method of Mining	34
2.6 General Features.....	35
2.7 Project Requirement.....	37
2.8 Project Implementation Schedule	38
CHAPTER – 3: DESCRIPTION OF ENVIRONMENT.....	- 39 -
3.0 General.....	- 39 -
3.1 LAND ENVIRONMENT.....	41
3.1.2 OBJECTIVE	41
3.1.3 METHODOLOGY.....	42
3.1.4 Interpretation	46
3.2 Water Environment.....	52
3.3 Air Environment.....	73
3.4 Noise Environment	82
3.5 Biological Environment	87
3.6 Socio Economic Environment	104

3.25 Structure Study.....	117
CHAPTER – 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	119
4.0 General.....	119
4.1 Land Environment	119
4.2 Water Environment.....	120
4.3 Air Environment.....	121
4.4 Noise Environment (Impact & Mitigation Measures).....	127
4.5 Ecology and Biodiversity.....	131
4.6 Socio Economic.....	135
4.7 Occupational Health and Safety.....	135
4.8 Mine Waste Management	136
4.9 Mine Closure	136
CHAPTER – 5: ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)	138
5.0 Introduction:.....	138
5.1 Factors Behind the Selection of Project Site	138
5.2 Analysis of Alternative Site.....	138
5.3 Factors Behind Selection of Proposed Technology	138
5.4 Analysis of Alternative Technology	138
CHAPTER – 6: ENVIRONMENTAL MONITORING PROGRAMME.....	139
6.0 General.....	139
6.1 Methodology of Monitoring Mechanism	139
6.2 Implementation Schedule of Mitigation Measures	140
6.3 Monitoring Schedule and Frequency.....	140
6.4 Environmental Policy of the Proponents	141
6.5 Budgetary Provision for Environmental Monitoring Programme	141
6.6 Reporting Schedules of Monitored Data	142
CHAPTER – 7: ADDITIONAL STUDIES.....	143
7.0 General.....	143
7.1. Public Consultation:.....	143
7.2 Risk Assessment	143
7.3 Disaster Management Plan.....	145
7.4 CUMULATIVE IMPACT STUDY.....	148
7.5 PLASTIC WASTE MANAGEMENT PLAN	159

CHAPTER – 8: PROJECT BENEFITS	160
8.0 General.....	160
8.1 Employment Potential.....	160
8.2 Socio-Economic Welfare Measures Proposed	160
8.3 Improvement in Physical Infrastructure	160
8.4 Improvement in Social Infrastructure.....	161
8.5 Other Tangible Benefits.....	161
CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS.....	163
CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN	164
10.1 General.....	164
10.2 Environmental Policy.....	164
10.3 Land Environment Management –.....	165
10.4 Soil Management	165
10.5 Water Management.....	166
10.6 Air Quality Management.....	166
10.7 Noise Management.....	167
10.8 Ground Vibration and Fly Rock Control	167
10.8 Biological Environment Management.....	168
10.9 Occupational Safety & Health Management	169
10.10 CONCLUSION –	176
CHAPTER – 11: SUMMARY AND CONCLUSIONS	177
CHAPTER 12.0: DISCLOSURE OF CONSULTANTS	178

LIST OF TABLES

TABLE 1.2: PROPOSED PROJECTS IN THE CLUSTER	4
TABLE 1.3: DETAILS OF PROJECT PROPONENT.....	4
TABLE 1.4: SALIENT FEATURES OF THE PROPOSED PROJECTS IN CLUSTER.....	4
TABLE 1.5 – STRUCTURE OF THE EIA REPORT.....	10
TABLE 1.6 – ENVIRONMENT ATTRIBUTES.....	10
TABLE 2.1: SITE CONNECTIVITY TO THE QUARRY.....	12
TABLE 2.2 – BOUNDARY CO-ORDINATES OF PROPOSED PROJECT.....	13
TABLE 2.3 – LAND USE PATTERN OF THE PROPOSED PROJECT.....	20
TABLE 2.4: OPERATIONAL DETAILS FOR PROPOSED PROJECTS.....	20
TABLE 2.5: RANGE OF AQUIFER PARAMETERS.....	22
TABLE 2.6: GROUND WATER LEVEL VARIATIONS OF COIMBATORE DISTRICT	23
TABLE 2.7: AVAILABLE GEOLOGICAL RESOURCES OF PROPOSED PROJECT.....	30
TABLE 2.9: YEAR-WISE PROPOSAL FOR FIRST FIVE YEARS PRODUCTION PLAN.	30
TABLE 2.10: ULTIMATE PIT DIMENSIONS.....	31
TABLE 2.11: MINE CLOSURE BUDGET.....	34
TABLE 2.13 PROPOSED MACHINERY DEPLOYMENT.....	35
TABLE 2.14 – TRAFFIC SURVEY LOCATION'S.....	35
TABLE 2.15 – EXISTING TRAFFIC VOLUME	36
TABLE 2.16 – ANTICIPATED TRAFFIC DUE TO THIS PROPOSED PROJECT	36
TABLE 2.17 – SUMMARY OF TRAFFIC VOLUME.....	36
TABLE 2.18 – WATER REQUIREMENT FOR THE CLUSTER PROJECT.....	37
TABLE 2.19: EMPLOYMENT POTENTIAL FOR PROPOSED QUARRY.....	37
TABLE 2.20 – PROJECT COST OF PROPOSED PROJECT.....	38
TABLE 2.21 – EXPECTED TIME SCHEDULE FOR THE PROPOSED QUARRY.....	38

TABLE 3.1 – ENVIRONMENTAL MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING.....	- 40 -
TABLE 3.2: Resourcesat1-LISSIII SENSOR characteristics	42
TABLE: 3.3 LAND USE / LAND COVER DETAILS OF STUDY AREA.....	42
TABLE 3.3 – DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE PROJECT AREA	47
TABLE 3.4 – WATER BODIES WITHIN THE PROPOSED QUARRY.....	47
TABLE 3.5 – SOIL SAMPLING LOCATIONS	47
TABLE 3.6 – METHODOLOGY OF SAMPLING COLLECTION.....	48
TABLE 3.7 – SOIL QUALITY MONITORING DATA	51
TABLE 3.8 – WATER SAMPLING LOCATIONS	53
TABLE 3.9 – SURFACE WATER ANALYSIS RESULTS	54
TABLE 3.9 – GROUND WATER ANALYSIS RESULTS.....	56
TABLE 3.11: POST MONSOON WATER LEVEL OF OPEN WELLS 1 KM RADIUS	69
FIGURE 3.8: POST MONSOON WATER LEVEL OF OPENWELLS 1 KM RADIUS.....	69
TABLE 3.12: POST MONSOON WATER LEVEL OF BOREWELLS 1 KM RADIUS	71
TABLE 3.13 – RAINFALL DATA.....	74
TABLE 3.14 – METEOROLOGICAL DATA RECORDED AT SITE.....	74
TABLE 3.15 – METHODOLOGY AND INSTRUMENT USED FOR AIR QUALITY ANALYSIS.....	75
TABLE 3.16 – NATIONAL AMBIENT AIR QUALITY STANDARDS.....	76
TABLE 3.17 – AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS	76
TABLE 3.26 – ABSTRACT OF AMBIENT AIR QUALITY DATA	78
TABLE 3.27 –SUMMARY OF AMBIENT AIR QUALITY DATA.....	78
TABLE 3.31 – DETAILS OF SURFACE NOISE MONITORING LOCATIONS.....	83
TABLE 3.32 – NOISE MONITORING RESULTS IN CORE AND BUFFER ZONE.....	83

TABLE 4.1: WATER REQUIREMENTS	120
TABLE 4.2: ESTIMATED EMISSION RATE	122
TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM₁₀	125
TABLE 4.4: INCREMENTAL & RESULTANT GLC OF PM_{2.5}	126
TABLE 4.5: INCREMENTAL & RESULTANT GLC OF SO₂	126
TABLE 4.6: INCREMENTAL & RESULTANT GLC OF NO_x	126
TABLE 4.8: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY	128
TABLE 4.9: PREDICTED NOISE INCREMENTAL VALUES	128
TABLE 4.10: PREDICTED PPV VALUES DUE TO BLASTING	129
Table No 4.11 List of plant species proposed for Greenbelt development	131
TABLE 4.12: GREENBELT DEVELOPMENT PLAN	132
TABLE 4.13: BUDGET FOR GREEBELT DEVELOPMENT PLAN	133
TABLE 4.15: ECOLOGICAL IMPACT ASSESSMENTS	134
TABLE 6.1 IMPLEMENTATION SCHEDULE	140
TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC	140
TABLE 7.1 RISK ASSESSMENT & CONTROL MEASURES	143
TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION	146
TABLE 7.3: LIST OF QUARRIES WITHIN 500 METER RADIUS FROM THIS PROPOSAL	148
TABLE 7.4: SALIENT FEATURES OF THE PROPOSED PROJECTS IN CLUSTER	149
TABLE 7.5 CUMULATIVE PRODUCTION LOAD OF ROUGH STONE IN CLUSTER	154
TABLE 7.6: CUMULATIVE PRODUCTION OF GRAVEL IN CLUSTER	155
TABLE 7.7: EMISSION ESTIMATION FROM CLUSTER	155
TABLE 7.8: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER	156
TABLE 7.9: PREDICTED NOISE INCREMENTAL VALUES FROM CLUSTER	157

TABLE 7.10: NEAREST HABITATION FROM EACH MINE.....	157
TABLE 7.11: GROUND VIBRATIONS AT 8 MINES.....	158
TABLE 7.12: SOCIO ECONOMIC BENEFITS FROM 8 MINES.....	158
TABLE 7.13: GREENBELT DEVELOPMENT BENEFITS FROM 5 MINES.....	159
TABLE 7.14: ACTION PLAN TO MANAGE PLASTIC WASTE.....	159
TABLE 8.1 CER – ACTION PLAN.....	162
TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT.....	165
TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT.....	165
TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT.....	166
TABLE 10.4: PROPOSED CONTROLS FOR AIR ENVIRONMENT.....	166
TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT.....	167
TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK.....	167
TABLE 10.7 PROPOSED GREENBELT ACTIVITIES FOR 5 YEAR PLAN PERIOD.....	168
TABLE 10.8: RECOMMENDED SPECIES TO PLANT IN THE GREENBELT.....	169
TABLE 10.9: MEDICAL EXAMINATION SCHEDULE – P2.....	169
TABLE 10.10: LIST OF PERIODICAL TRAININGS PROPOSED FOR EMPLOYEES ...	170
TABLE 10.11: EMP BUDGET FOR PROPOSED PROJECT.....	172

LIST OF FIGURES

<i>Figure 1.1. Satellite Imagery of Cluster quarries.....</i>	<i>3</i>
<i>FIG1.1A KEY MAP SHOWING THE LOCATION OF THE PROJECT SITE.....</i>	<i>6</i>
<i>FIGURE 1.2: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 10 KM RADIUS.....</i>	<i>7</i>
<i>FIGURE 1.2: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 2 KM RADIUS.....</i>	<i>8</i>
<i>FIGURE 2.1: TOPOGRAPHICAL VIEW OF THE PROJECT SITE.....</i>	<i>13</i>
<i>FIGURE 2.2: PHOTOGRAPHS OF FENCING & GREEN BELT</i>	<i>13</i>
<i>FIGURE 2.2: SHOWING GOOGLE IMAGE ROUGH STONE AND GRAVEL QUARRY PROJECT AREAS</i>	<i>14</i>
<i>FIGURE 2.3: QUARRY LEASE PLAN</i>	<i>15</i>
<i>FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE</i>	<i>16</i>
<i>FIGURE 2.5: DIGITIZED MAP OF THE STUDY AREA (10 KM RADIUS FROM PROJECT SITE).....</i>	<i>17</i>
<i>FIGURE 2.6: DIGITIZED MAP OF THE STUDY AREA (5 KM RADIUS FROM PROJECT SITE).....</i>	<i>18</i>
<i>FIGURE 2.7: DIGITIZED MAP OF THE STUDY AREA (1 KM RADIUS FROM PROJECT SITE).....</i>	<i>19</i>
<i>FIGURE 2.8: GROUND WATER LEVEL VARIATIONS OF COIMBATORE DISTRICT..</i>	<i>23</i>
<i>FIGURE 2.9: REGIONAL GEOLOGY MAP</i>	<i>24</i>
<i>FIGURE 2.10: GEOMORPHOLOGY MAP</i>	<i>25</i>
<i>FIGURE 2.11: TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT PRODUCTION PLAN AND SECTION.....</i>	<i>26</i>
<i>FIGURE 2.11A: YEARWISE DEVELOPMENT & PRODUCTION PLAN AND SECTION FOR FIRST FIVE YEARS.....</i>	<i>27</i>
<i>FIGURE 2.11B: YEARWISE DEVELOPMENT & PRODUCTION PLAN AND SECTION FOR SECOND FIVE YEARS</i>	<i>28</i>

FIGURE 2.12: CLOSURE PLAN AND SECTIONS.....	29
FIGURE 2.13: TRAFFIC SURVEY LOCATIONS & TRANSPORTATION ROUTE MAP. 36	
FIGURE 3.1: CHART SHOWING LANDUSE/LANDCOVER ANALYSIS USING LISS III .Data	43
FIGURE 3.2: MAP SHOWING FALSE COLOR COMPOSITE (3,2,1) SATELLITE IMAGERY OF THE STUDY AREA	44
FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS.....	45
FIGURE 3.18: PHOTOGRAPHS OF SOIL SAMPLING COLLECTIONS.....	48
FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS	49
FIGURE 3.6: SOIL MAP.....	- 50 -
FIGURE 3.18: PHOTOGRAPHS OF WATER SAMPLING COLLECTIONS.....	53
FIGURE 3.9: CONTOUR MAP OF BORE WELL WATER LEVEL	71
FIGURE 3.10: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE.....	70
FIGURE 3.11: GROUND WATER LEVEL MAP.....	71
FIGURE 3.12: WINDROSE DIAGRAM.....	75
FIGURE 3.14 AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS.....	77
FIGURE 3.15 : BAR DIAGRAM OF SUMMARY OF AAQ.....	80
FIGURE 3.16: BAR DIAGRAM OF PARTICULATE MATTER (PM₁₀).....	80
FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER (SO₂)	81
FIGURE 3.17 A: BAR DIAGRAM OF PARTICULATE MATTER (NO₂).....	82
FIGURE 3.18: PHOTOGRAPHS OF AMBIENT NOISE MONITORING LOCATIONS.....	83
FIGURE 3.19: NOISE MONITORING STATIONS AROUND 10 KM RADIUS.....	85
FIGURE 3.20: DAY & NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE ..	86
Fig No: 3.21 Flora species observation in the core zone area.....	90
Fig No. 3.22: Graph showing % distribution of floral life forms	96
Fig No: 3.23. Flora species observation in the Buffer zone area	98

FIG 3.24 GRAPH SHOWING POPULATION PROJECTION.....	109
FIG.3.25 GRAPH SHOWING POPULATION GROWTH RATE.....	110
FIGURE 3.26 POPULATION OF STUDY AREA	111
FIGURE 3.27 LITERACY RATE IN THE STUDY AREA.....	113
FIGURE 3.28 VULNERABLE GROUPS	114
FIGURE 3.29 WORKING POPULATION IN THE STUDY AREA.....	115
FIGURE 4.1: AERMOD TERRAIN MAP.....	123
FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀.....	124
FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM_{2.5}.....	124
FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF SO₂.....	124
FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF NO_x.....	125
FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST	125
FIGURE 6.1 ENVIRONMENTAL MONITORING CELL.....	139
FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT	145
FIGURE 10.1: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS...	170

CHAPTER – 1: INTRODUCTION

1.0 Preamble

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.

Rough Stone is the major requirement for construction industry. The proposed project is categorized under category “B1” Activity 1(a) (mining lease area falls in the cluster, Total extent of the quarries within 500m radius is < 5ha). This EIA Report is prepared for **Thiru. S.Shanmugam Rough Stone and Gravel Quarry** over an extent of 5.11.50 ha at Idayarpalayam Village, Sulur Taluk, Coimbatore District and Tamil Nadu State, Total Extent of the proposed and existing quarries falls in the cluster category is 21.02.66 ha, the Environmental impact assessment study carried out considering these quarry and Environmental Management plan is prepared individually for this project.

- Proponent applied for Rough Stone and Gravel quarry lease on 27.09.2025.
- Precise Area Communication Letter was issued by the District Collector, Tirunelveli R.C. No: 339/Kanimam/2025, Dated: 30.09.2025.
- The Mining Plan was prepared by Recognized Qualified Person and approved by Joint Director, Geology and Mining, Coimbatore District, vide R.C. No: 339/Kanimam/2025, Dated: 30.09.2025.
- The Mining plan has been approved for the quantity of 12,58,005 m³ of Rough Stone and 79,980 m³ of Gravel up to the depth of 77m bgl for the period of Ten years.
- Proponent applied for Terms of Reference vide Proposal No. SIA/TN/MIN/557640/2025 Dated: 11.11.2025 and the Proposal was Appraised in 648th SEAC - II meeting held on 11.11.2025 & in 931st SEIAA Meeting held on 15.12.2025 and the ToR was Granted vide File.No.12987 ToR. Identification No TO25B0108TN5201182N Dated: 19.12.2025.

The Previous Mining operations were carried out the Mine lease area was

S.No	Name of the Lessee	Extent Ha	S.F.No.	Lease Period
1	Tmt.R.Ponnamal	0.33.0	178/2(P)	22.10.2004 – 21.10.2009
2	Tmt.R.Ponnamal	0.39.5	178/1(P)	23.09.2003 – 22.09.2008

The proponent has engaged M/s. Geo Exploration and Mining Solutions, Salem, Tamil Nadu for carrying out EIA / EMP Study. The Baseline Monitoring study has been carried out during Winter season (October 2024 – December 2024).

-
- The Baseline Monitoring study has been carried out during the period of October 2024 – December 2024

“As per the Ministry of Environment, Forest and Climate Change (IA) Division Office Memorandum F.N. IA3-22/10/2022-IA.E 177258J Dated 8th June 2022 para 6(iii) Baseline Data used for preparation of EIA / EMP reports may be collected at any stage of the EC process.”

- Based on the OM the Base line data collected for this proposal during the season October 2024 – December 2024 has been utilized

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

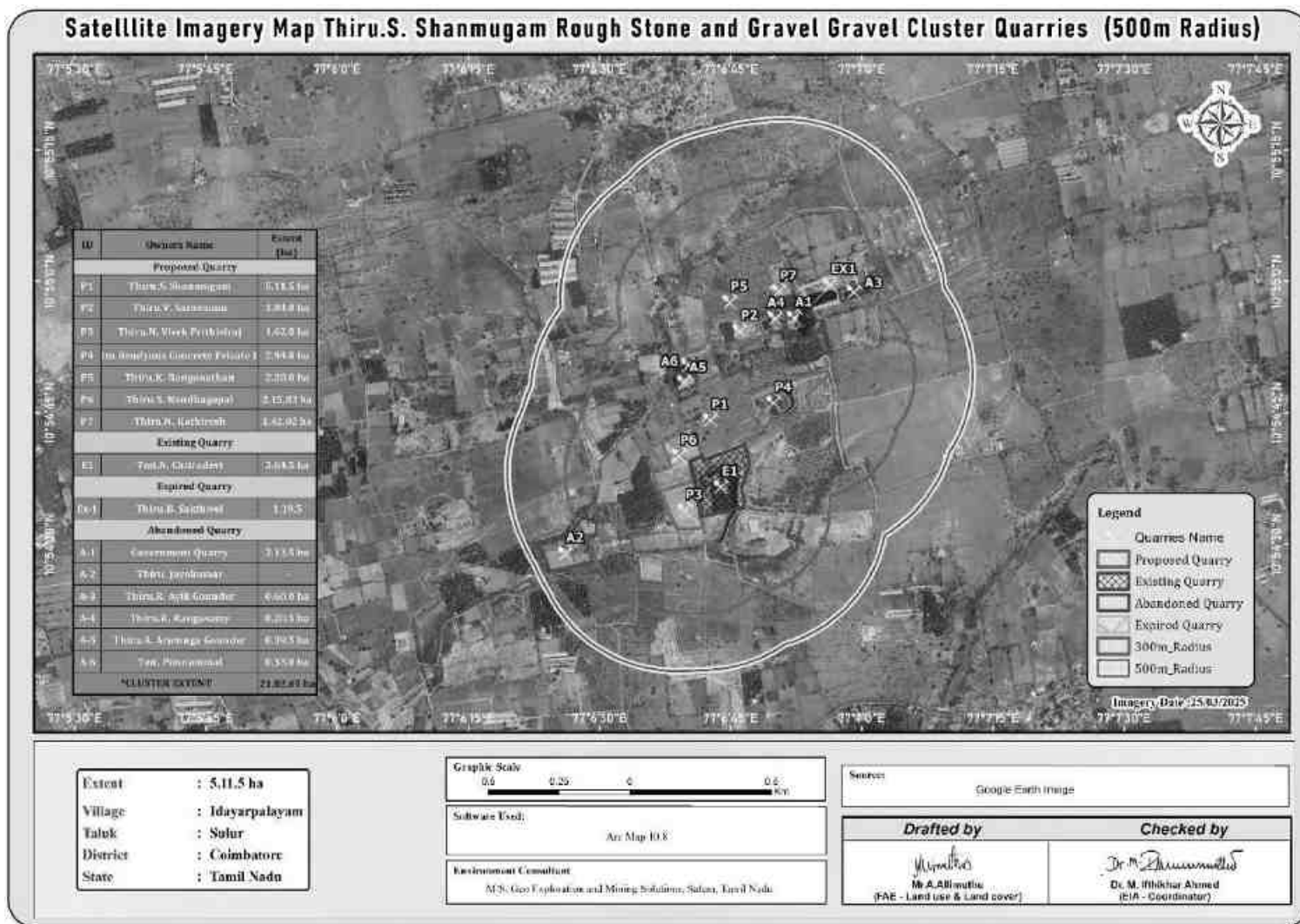
1.1 Purpose of the report

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

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 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 of Cluster quarries

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

Note: As per above notification S.O.2269 (E) dated: 01.07.2016 in para (b) in Appendix XI, - (i) (6) A cluster shall be formed when the distance between the peripheries of one lease is less than 500 meters from the periphery of other lease in a homogeneous mineral area which shall be applicable to the mine lease or quarry licenses granted on and after 9th September, 2013

1.2 Identification of Project and Project Proponent

1.2.1 Identification of Project

The project area is a Patta Land, no forest land is involved

TABLE 1.2: PROPOSED PROJECTS IN THE CLUSTER

Name of the Project	Thiru. S.Shanmugam Rough Stone & Gravel Quarry
S.F. No.	S.F.Nos. 169/1A,169/1B, 178/1 (Part), 178/2 (Part), 179/1A and 179/1B
Extent	5.11.50 Ha
Village, Taluk	Idayarpalayam Village, Sulur Taluk
District	Coimbatore District

Source: Approved Mining Plan

1.2.2 Identification of Project Proponent

TABLE 1.3: DETAILS OF PROJECT PROPONENT

Name of the Proponent	Thiru. S.Shanmugam
Address	S/o. Subramani, No. 3/521, Karanampettai, Kodangipalayam, Tiruppur District, Tamil Nadu State – 641662
Mobile	+91 98422 67515
Email	Rajagp7674@gmail.com
Status	Proprietor (Individual)

Source: Approved Mining Plan

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.

TABLE 1.4: SALIENT FEATURES OF THE PROPOSED PROJECTS IN CLUSTER

Name of the Mine	Thiru. S.Shanmugam Rough Stone and Gravel Quarry				
Land Type	Patta Land				
S.F. No.	169/1A,169/1B, 178/1 (Part), 178/2 (Part), 179/1A and 179/1B				
Extent	5.11.5 Ha				
Previous quarry operation details	S.No	Name of the Lessee	Extent Ha	S.F.No.	Lease Period
	1	Tmt.R.Ponnamal	0.33.0	178/2(P)	22.10.2004 – 21.10.2009
	2	Tmt.R.Ponnamal	0.39.5	178/1(P)	23.09.2003 – 22.09.2008
Present quarry pit dimension	Depth - 7m Bgl				
Proposed Depth	77m bgl (2m Gravel + 75m Roughstone)				

Geological Resources	Rough Stone		Gravel	
	38,25,625 m³		98,050 m³	
Mineable Reserves	Rough Stone		Gravel	
	12,58,005 m³		79,980 m³	
Proposed production for first five years	6,30,780 m³		47,312 m³	
Proposed production for Second five years	6,27,225 m³		32,668 m³	
Mining Plan Period / Lease Period	10Years			
Ultimate Pit Dimension	Section	Length (m)	Width (m)	Depth (m)
	XY-AB	53	123	52
	XY-CD	58	165	62
	XY-EF	128	153	77
	X1Y1-EF	113	43	42
Toposheet No	58 - F/01			
Latitude	10°54'39.5259"N to 10°54'49.3401"N			
Longitude	77°06'38.4897"E to 77°06'48.1409"E			
Highest Elevation	433m AMSL			
Machinery	Wagon Drill Machine		2	
	Jack Hammer		4	
	Compressor		1	
	Excavator with Bucket and Rock Breaker		3	
	Tippers		6	
	Water Sprinkling Tanker		1	
Blasting	Usage of Slurry Explosive with MSD detonators			
Manpower Deployment	42 Nos			
Water Bodies	Odai		50m Safety Northwest	
	Niyaviyal Odai		60m N	
Total Cost	Project Cost		Rs. 3,50,60,000/-	
	EMP Cost		Rs. 3,80,000/-	
	Total		Rs. 3,54,40,000/-	
CER cost	Rs.5,00,000/-			
Water Requirements	2.7 KLD			
Nearest Habitation	730m-NE			

Source: Approved Mining Plan

1.3.2 Location of the project

The lease applied area is located about 13km Southeast of Coimbatore, 12km Southwest of Suler and 1km South side of Edaiyarpalayam Village.

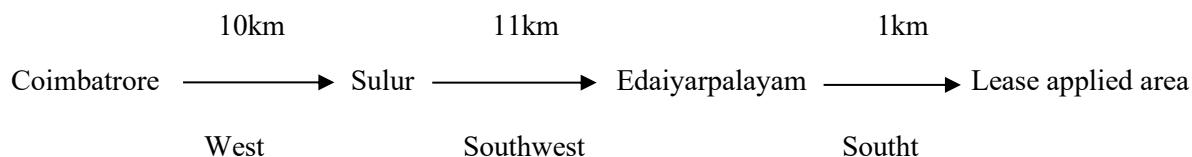


FIG1.1A KEY MAP SHOWING THE LOCATION OF THE PROJECT SITE

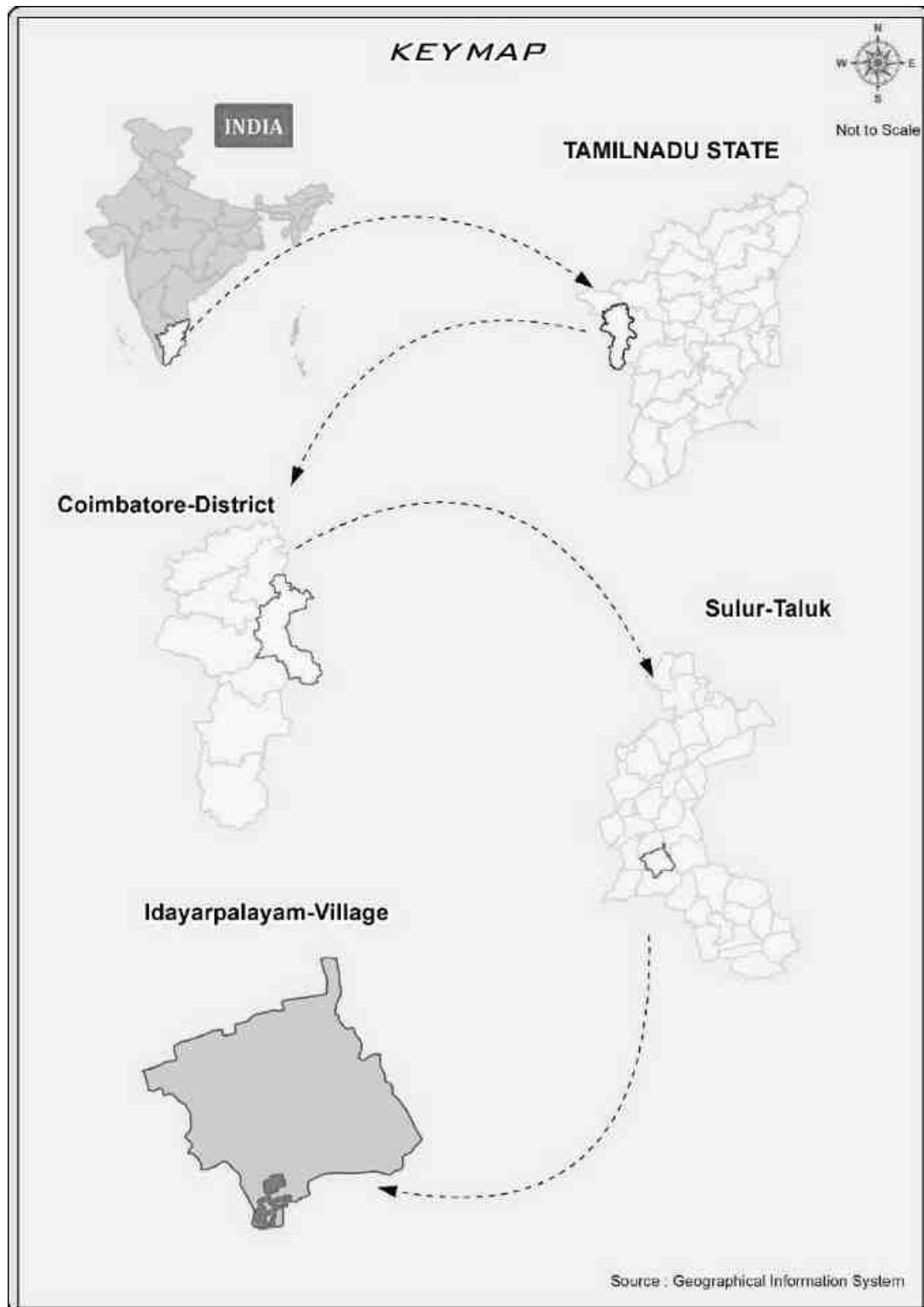


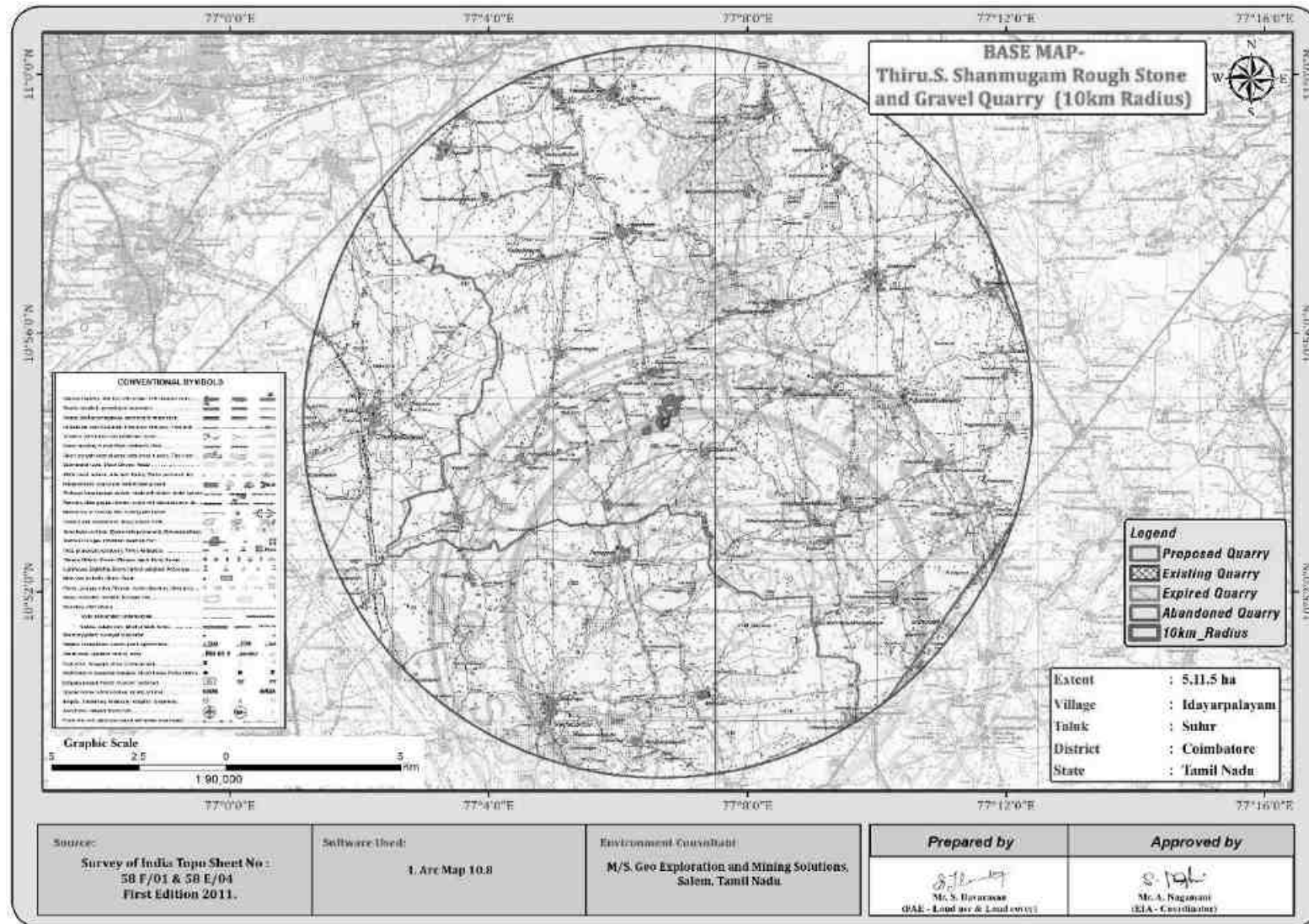
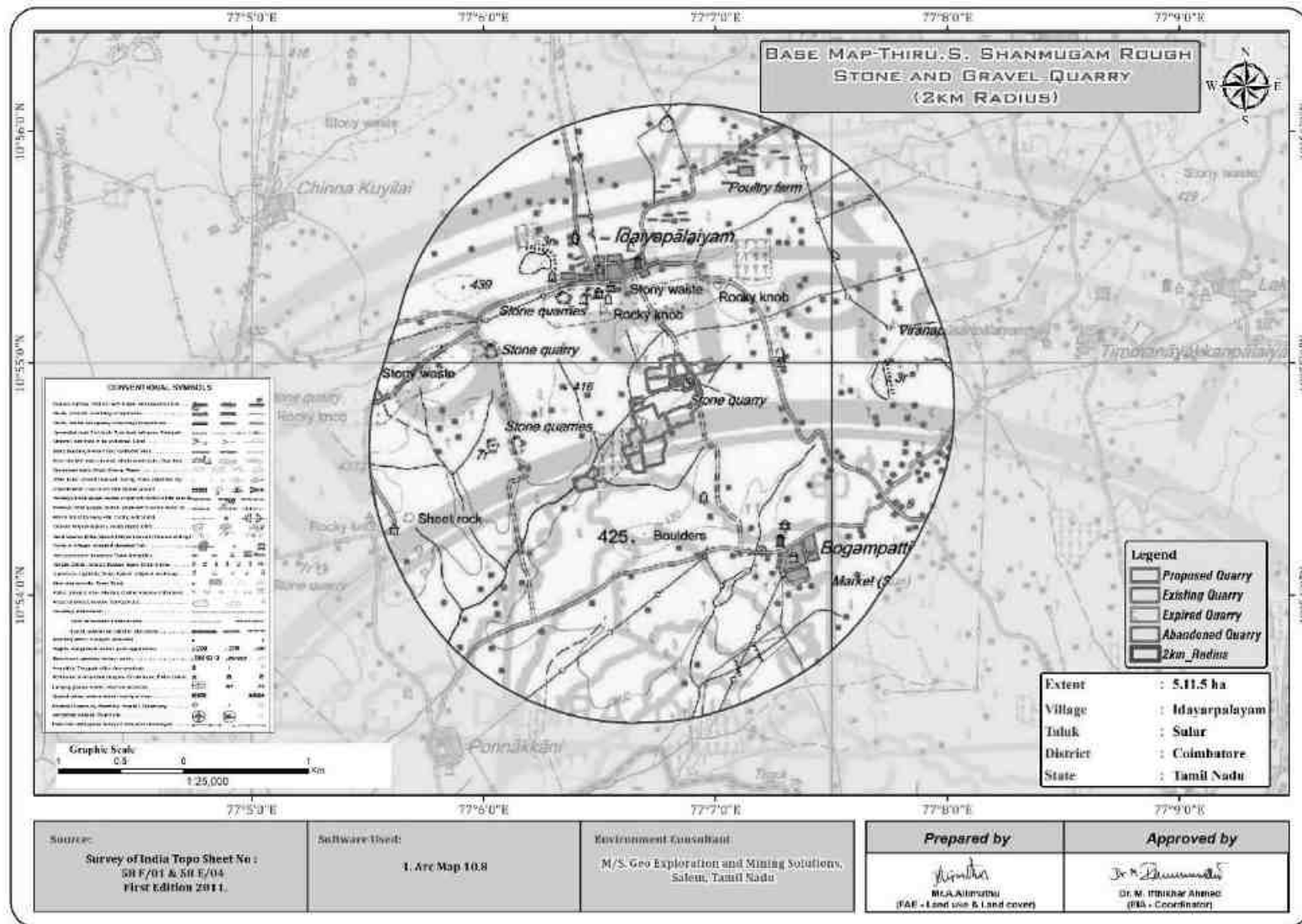
FIGURE 1.2: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 10 KM RADIUS

FIGURE 1.2: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 2 KM 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: -

1. Screening
2. Scoping
3. Public consultation &
4. Appraisal

SCREENING –

- The proponent applied for Rough Stone and Gravel Quarry Lease Date from 27.09.2025
- The precise area communication letter was received from the Assistant Director, Department of Geology and Mining, Coimbatore District vide Rc.No.339/Kanimam/2025 Dated.30.09.2025.
- The Mining plan was approved by the Assistant Director, Department of Geology and Mining, Coimbatore vide Rc.No. 339/Kanimam/2025 Dated.27.10.2025
- Proponent applied for ToR for Environmental Clearance vides online No. SIA/TN/MIN/557640/2025, Dated:11.11.2025

SCOPING –

- The proposal was placed in 648th SEAC-II meeting held on 05.12.2025 and the committee recommended for issue of ToR.
- The proposal was considered in 931st SEIAA meeting held on 15.12.2025 and issued ToR vide File No.12987. TOR Identification No. TO25B0108TN5201182N Dated:19.12.2025

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.

The report has been prepared using the following references:

- Guidance Manual of Environmental Impact Assessment for Mining of Minerals, Ministry of Environment and Forests, 2010
- EIA Notification, 14th September, 2006
- File No. 12987. TOR Identification No. TO25B0108TN5201182N Dated:19.12.2025
- Approved Mining plan

1.5 Post Environment Clearance Monitoring

The Project Proponents in the Cluster will 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 every year.

1.6 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. A brief description of each Chapter is presented in Table No. 1.5.

TABLE 1.5 – STRUCTURE OF THE EIA REPORT

S. No	Chapters	Title	Particulars
1	Chapter 1	Introduction	Presents, an Introduction along with Scope and Objective of this EIA/EMP Studies
2	Chapter 2	Project Description	Presents the Technical Details of the Project
3	Chapter 3	Description of Environment	Presents the Baseline Status for various Environmental Parameters in the Study Area for One Season (3 Months)
4	Chapter 4	Anticipated Environmental Impacts and Mitigation Measures	Presents the Identification, Prediction and Evaluation of overall Environmental Impacts due to the Proposed Projects Activities. Also presents Proposed Mitigation Measures.
5	Chapter 5	Analysis of Alternatives (Technology & Site)	Presents Analysis of alternatives with respect to site
6	Chapter 6	Environment Monitoring Programme	Present details of post project environment monitoring
7	Chapter 7	Additional Studies	Presents Public Consultation, Risk Assessment and Disaster Management Plan
8	Chapter 8	Project Benefits	Presents project benefits as: Improvements in the Physical Infrastructure, Social Infrastructure Employment Potential –Skilled; Semi-Skilled and Unskilled etc.,
9	Chapter 9	Cost Benefit Analysis	Environmental Cost Benefit Analysis has not been recommended at Scoping Stage – thus no analysis carried out separately in this EIA/EMP Report
10	Chapter 10	Environmental Management Plan	Description of the administrative aspects to ensure the Mitigation Measures are implemented and their effectiveness monitored, after approval of the project.
11	Chapter 11	Summary & Conclusion	Summary of the EIA Report
12	Chapter 12	Disclosure of Consultants Engaged	Disclosure of the Consultants

1.7 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 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 Post monsoon season (Oct – Dec 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 1.6 – ENVIRONMENT ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂	24 hourly samples twice a week for three months at 7 locations
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, Coimbatore
3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 5 ground water and 1 surface water locations 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)	At 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 assessment done for the mining associated activities

Source: Field Monitoring Data

The data has been collected as per the requirement of the ToR issued by SEIAA – TN and Standard ToR Published by MoEF & CC.

1.7.1 Regulatory Compliance & Applicable Laws/Regulations

- 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 of Rough Stone and Gravel quarry has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959
- ToR from SEIAA –
- ToR Letter No. File No. 12987. TOR Identification No. TO25B0108TN5201182N Dated:19.12.2025
- Approved Mining Plan

CHAPTER – 2: PROJECT DESCRIPTION

2.0 General

The Proposed Rough Stone and Gravel Quarry requires Environmental Clearance. There are four proposed and one existing quarry forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 21.02.66 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 projects are site specific and there is no additional area required for this project. There is no effluent generation/discharge from the proposed quarries.

Method is mining is common for all the proposed quarries in the cluster. Rough Stone and Gravel are proposed to be excavated by 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 Quarry is located in Edayarpalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu State.
- The project falls in Toposheet No: 58 F/01.
- The cluster areas fall in the Latitude between 10°54'39.5259"N to 10°54'49.3401"N and Longitude between 77°06'38.4897"E to 77°06'48.1409"E.
- The projects under the cluster are classified as patta land (Non-Forest Land) & does not fall within 10 km radius of any Eco – sensitive zone, Wild life Sanctuary, National Park, Tiger Reserve, Elephant Corridor and Biosphere Reserves.

TABLE 2.1: SITE CONNECTIVITY TO THE QUARRY

Nearest Roadway	NH544 - Palakkad– Coimbatore Road -10.3km-NW SH163 - Kochi – Palladam Road – 4.2km-NE
Nearest Village	Idayarpalayam – 1.0Km- NW
Nearest Town	Suler – 12.4Km – North
Nearest Railway	Chettipalayam Railway station – 8.4Km - West
Nearest Airport	Coimbatore Airport – 15.0Km - NW
Seaport	Kochi- 143 Km-SW

Source: Survey of India Toposheet

The cluster quarries corners co-ordinates are given below.

TABLE 2.2 – BOUNDARY CO-ORDINATES OF PROPOSED PROJECT

S.No	Latitude	Longitude
1	10°54'39.5259"N	77°06'41.8341"E
2	10°54'43.4406"N	77°06'40.4352"E
3	10°54'43.1870"N	77°06'39.6393"E
4	10°54'46.5103"N	77°06'38.6118"E
5	10°54'46.9966"N	77°06'38.4897"E
6	10°54'49.3401"N	77°06'43.7530"E
7	10°54'45.8387"N	77°06'45.0883"E
8	10°54'47.0873"N	77°06'46.6097"E
9	10°54'42.5568"N	77°06'48.1409"E
10	10°54'41.8596"N	77°06'46.4804"E
11	10°54'41.2957"N	77°06'46.4292"E
Datum: UTM-WGS84		

Source: Quarry Lease Plan

FIGURE 2.1: TOPOGRAPHICAL VIEW OF THE PROJECT SITE



FIGURE 2.2: PHOTOGRAPHS OF FENCING & GREEN BELT



FIGURE 2.2: SHOWING GOOGLE IMAGE ROUGH STONE AND GRAVEL QUARRY PROJECT AREAS

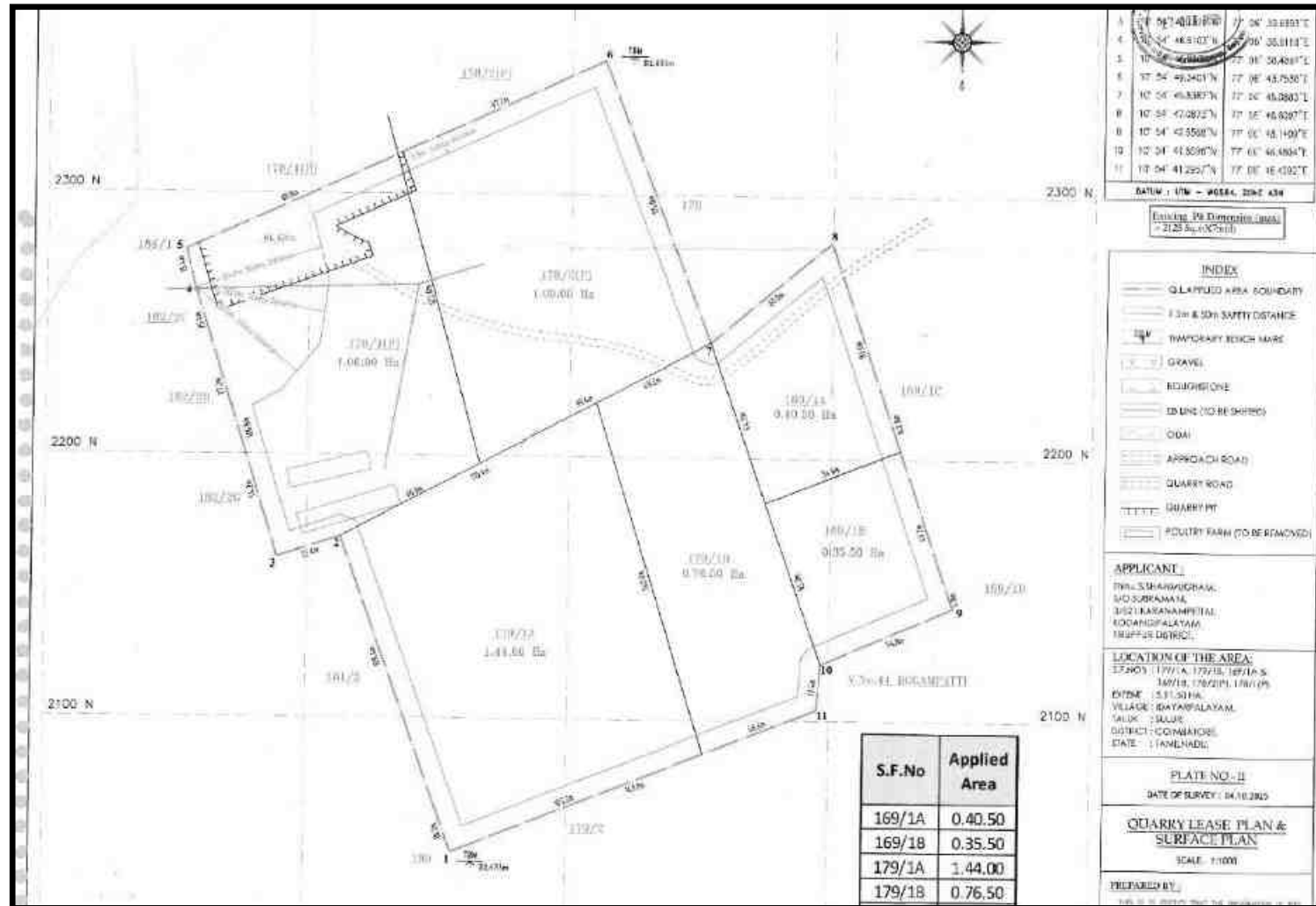
FIGURE 2.3: QUARRY LEASE PLAN

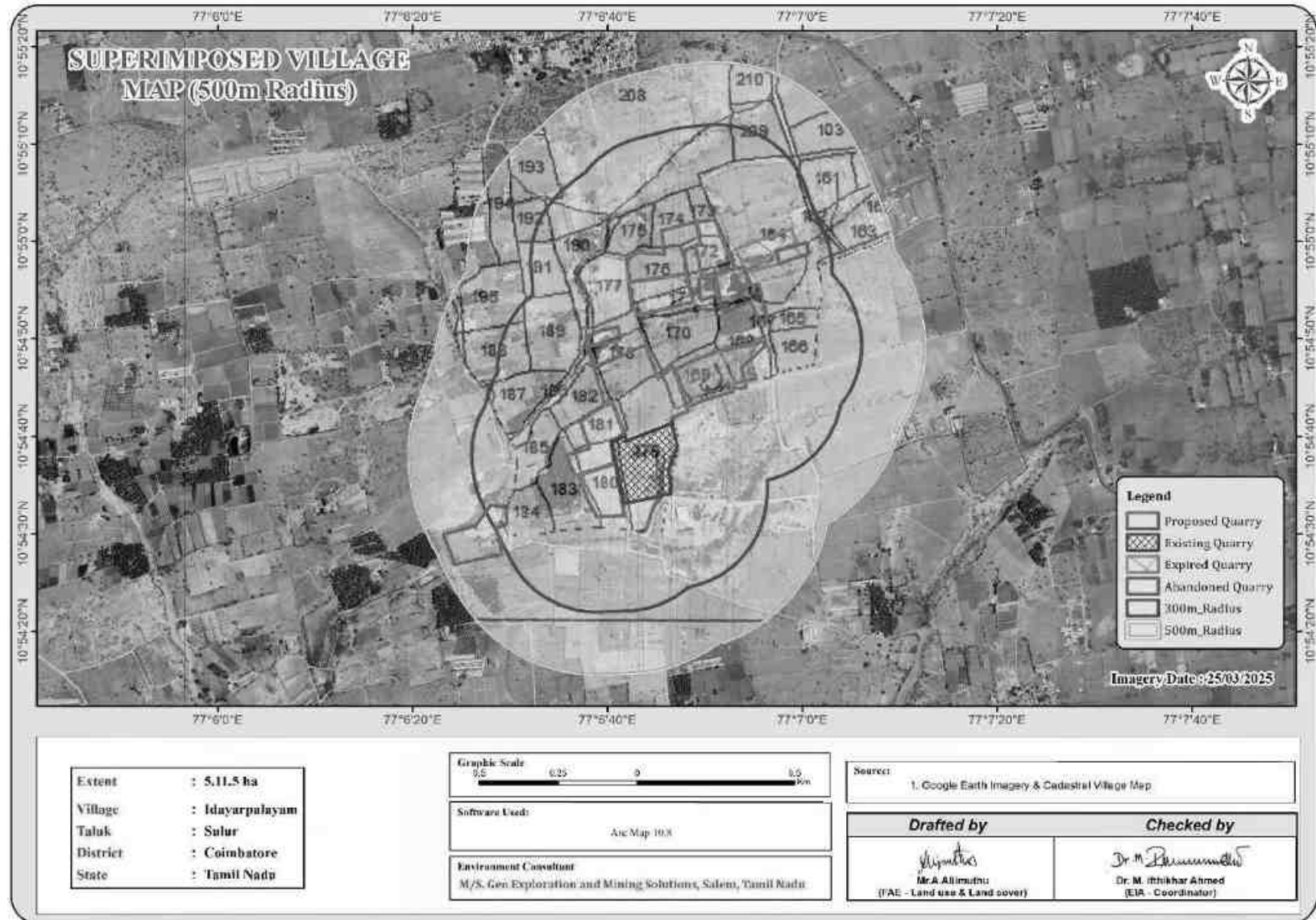
FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE

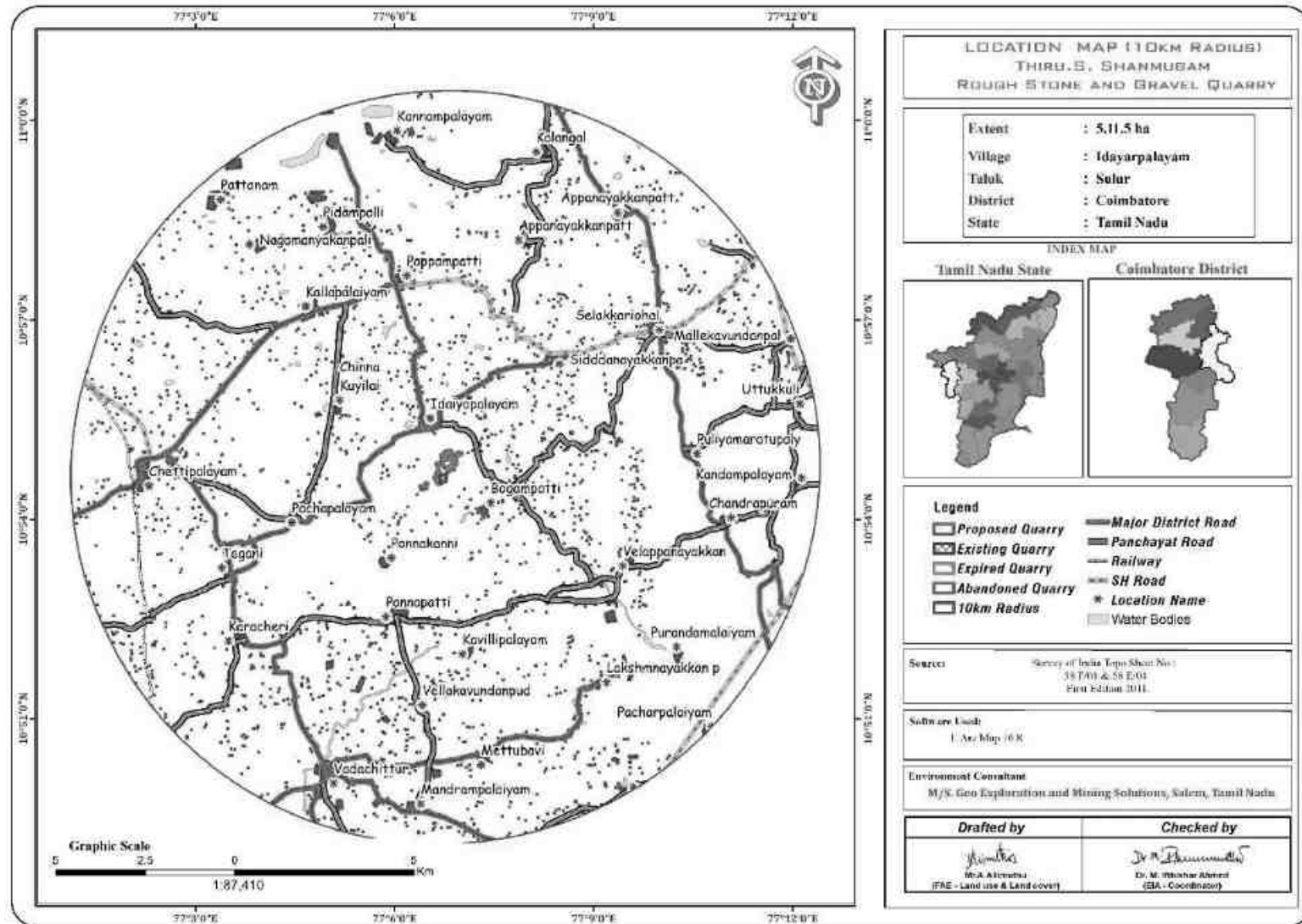
FIGURE 2.5: DIGITIZED MAP OF THE STUDY AREA (10 KM RADIUS FROM PROJECT SITE)

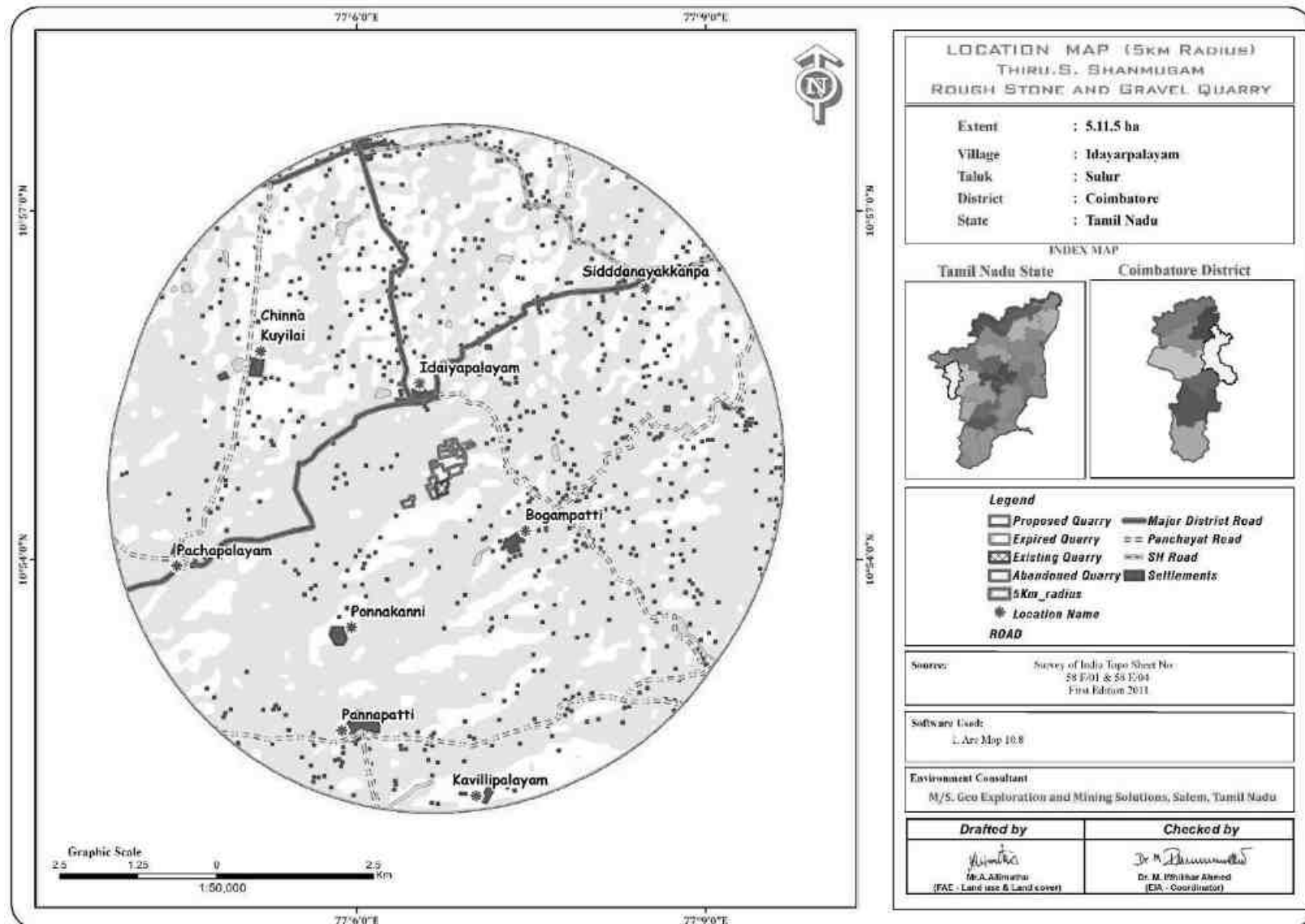
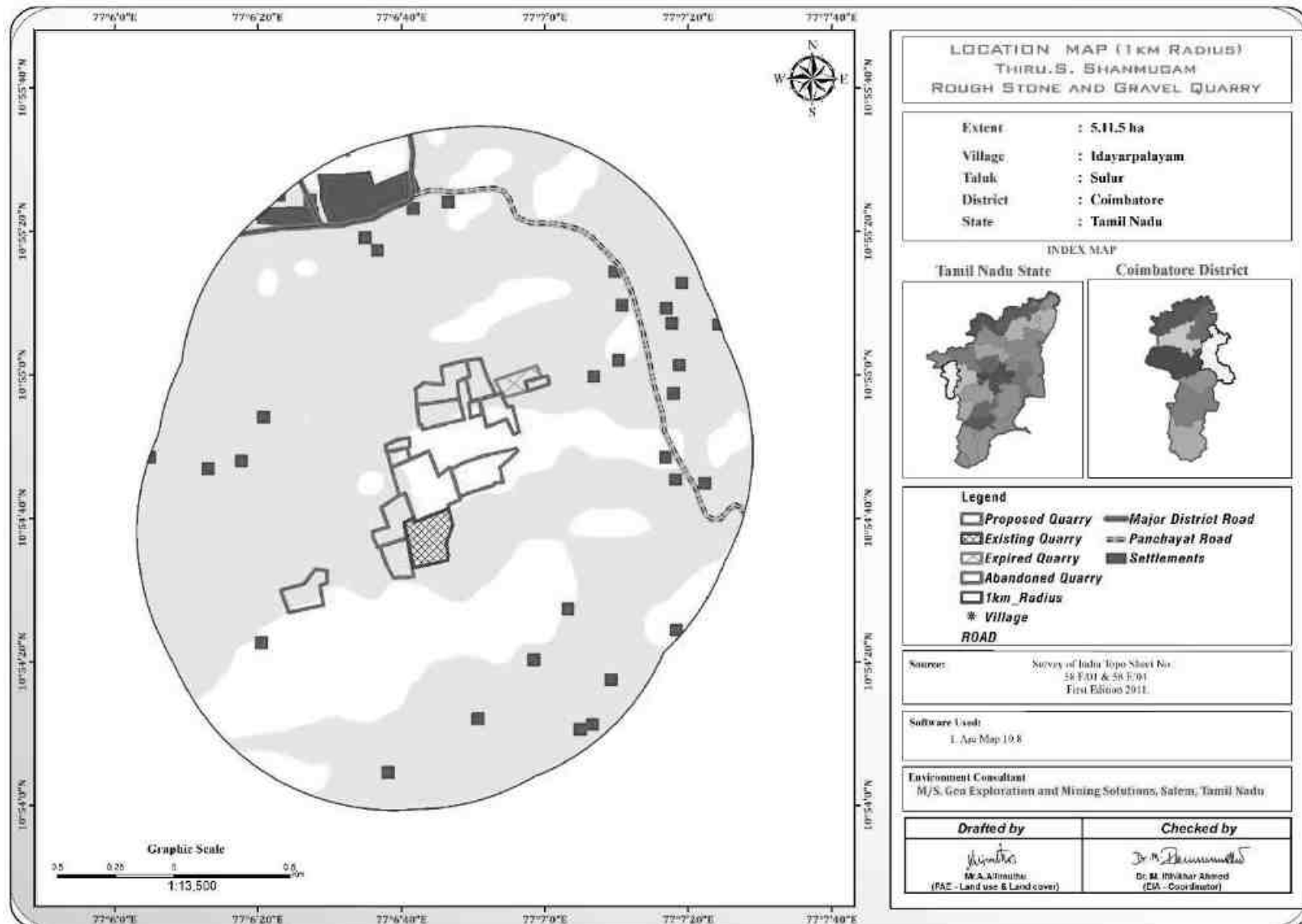
FIGURE 2.6: DIGITIZED MAP OF THE STUDY AREA (5 KM RADIUS FROM PROJECT SITE)

FIGURE 2.7: DIGITIZED MAP OF THE STUDY AREA (1 KM RADIUS FROM PROJECT SITE)

2.2.1 Project Area

- (i) The projects is site specific, there is No beneficiation or processing proposed inside the project area.
- (ii) There is no forest land involved in the proposed project area and is devoid of major vegetation and trees.

TABLE 2.3 – LAND USE PATTERN OF THE PROPOSED PROJECT

Description	Present area in (ha)	Area required during first five years (Ha)	Area at the end of lease period (Ha)
Area under quarrying	0.21.25	2.61.32	4.28.66
Infrastructure	Nil	0.02.00	0.02.00
Roads	0.01.00	0.02.00	0.02.00
Green Belt	Nil	0.35.84	0.75.08
Unutilized area	4.89.25	2.10.34	0.03.76
Grand Total	5.11.5	5.11.5	5.11.5

Source: Approved Mining Plan

2.2.2 Size or Magnitude of Operation

TABLE 2.4: OPERATIONAL DETAILS FOR PROPOSED PROJECTS

PARTICULARS	DETAILS	
	Rough Stone (m ³) (10Year Plan period)	Gravel (m ³) (10 Year Plan period)
Geological Resources	38,25,625 m ³	98,050 m ³
Mineable Reserves	12,58,005 m ³	79,980 m ³
Production for first five years Plan	6,30,780 m ³	47,312 m ³
Production for second five years Plan	6,27,225 m ³	32,668 m ³
Mining Plan Period / Lease Applied Period	10 Years	
Number of Working Days	300 Days	
Production per day	419	27
No of Lorry loads (12m ³ per load)	35	2
Total Depth of mining	77m bgl (2m Gravel + 75m Rough stone)	

Source: approved mining plan

2.3 Geology

2.3.1 Regional Geology

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite body N30°E to S30°W with dipping SE60°.

Stratigraphy of the area –

↑ AGE FORMATION
Recent - Quaternary weathered formation (Gravel)
-----Unconformity-----
Archaean - Charnockite
Peninsular Gneiss complex Geologically, the district is covered by rocks belonging to Archean age comprising the khondalite group, Charnockite Group, migmatite group, Sathayamangalam group, Bhavani Group and Alkali complex of Proterozoic age and Recent to Late Pleistocene rocks of Cainozoic age.

The Charnockite Group of rocks consisting of Charnockite, pyroxene granulites and associated magnetite quartzite, the Knodalite Group comprising gametiferous – sillimanite gneiss, calc-granulite, crystalline limestone, sillimanite quartzites and associated migmatitic gneisses. The rocks are restricted to the central and southern portions of the district, especially around Sullur, Madukkarai and Pollachi taluks.

The fissile homblende gneisses (Peninsular gneiss – younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsite – kyanite quartzites, ferruginous quartzite (Satya Mangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the

district especially around Mettupalayam and Northern areas of Coimbatore. The granites are Proterozoic age and occupy the Western end and Eastern Part of the District as separate bodies and are recognized as Maruthamalai Granite and Punjapuliampatti Granites respectively. The quaternary alluvium is seen in the Western areas of Coimbatore town. The alluvium is more than 30m thick in the Chinnathadagam valley northwest of Coimbatore and in the Siruvani valley west of Coimbatore.

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

2.3.2 Local Geology: -

The study area follows the regional trend and mainly comprises of Hard Rock Formation as a homogeneous formation / Batholith formation of Charnockite. All the project areas is plain terrain, all the project areas is covered with gravel formation of 2m to 3m thickness; Massive Charnockite formation is found after 2 m to 3 m gravel formation which is clearly inferred from the nearby existing quarry pit.

2.3.3 Hydrogeology

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

Quaternary - Laterites, Sands and Clays

Tertiary - Sandstone, Gravels and Clays

Cretaceous - Limestone, Calcareous Sandstone and Clay unconformity.

Archaean - Charnockites, Gneisses, Granites, Dolerites and Pegmatite

- The major part of the area is covered by metamorphic crystalline rocks of charnockite, granitic gneiss of Archaean age intruded by dolerite dykes and pegmatite veins. These rocks are highly metamorphosed and have been subjected to very severe folding, crushing and faulting.
- Ground Water occurs under the phreatic condition and wherever there are deep seated fractures, it occurs under semi-confined to confined conditions.
- Occurrence of Ground Water in hard rock depends upon the intensity and depth of weathering, fractures and fissures present in the rocks.
- Granites and gneisses yield moderately compared to the yield in Charnockites.
- Depth of well in hard rock generally ranges between 8 and 15m below ground level.
- Generally, yield in open wells ranges from 30 to 250m³ /day and in bore well between 260 and 430 m³ /day. The weathered thickness varies from 2.5 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 25 m in the alluvial formation which also form potential aquifers. In some areas, sand stone of tertiary formation are the potential groundwater reservoirs.

Aquifer Systems:

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

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

Alluvial Formations

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

Tertiary Cuddalore sandstone

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

Cretaceous Formations

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

Hard Rock Formations

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

Granitic Gneiss

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

Charnockite

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

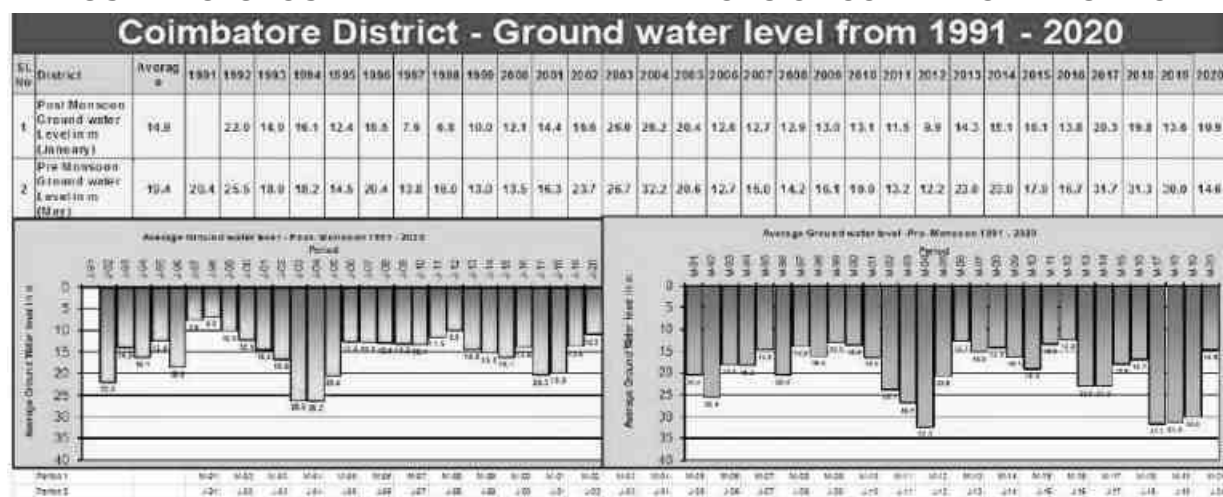
Aquifer Parameters

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

TABLE 2.5: RANGE OF AQUIFER PARAMETERS

Parameters	Range
Well yield in LPM	50-300 lpm
Transmissivity (T) m ² /day	1.49-164.18 m ² /day
Permeability (K) m/day	0.25-26.75 m/day

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

FIGURE 2.8: GROUND WATER LEVEL VARIATIONS OF COIMBATORE DISTRICTSource: <https://www.twadboard.tn.gov.in/content/coimbatore>**TABLE 2.6: GROUND WATER LEVEL VARIATIONS OF COIMBATORE DISTRICT**

Jan 2020	May 2020	Jan 2021	May 2021	Jan 2022	May 2022	Jan 2023	May 2023	Jan 2024	May 2024	5 Years Pre Monsoon Average	5Years Post Monsoon Average
10.92	14.62	9.32	13.04	7.86	11.61	8.90	11.70	9.48	10.24	12.24	9.3

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

FIGURE 2.9: REGIONAL GEOLOGY MAP

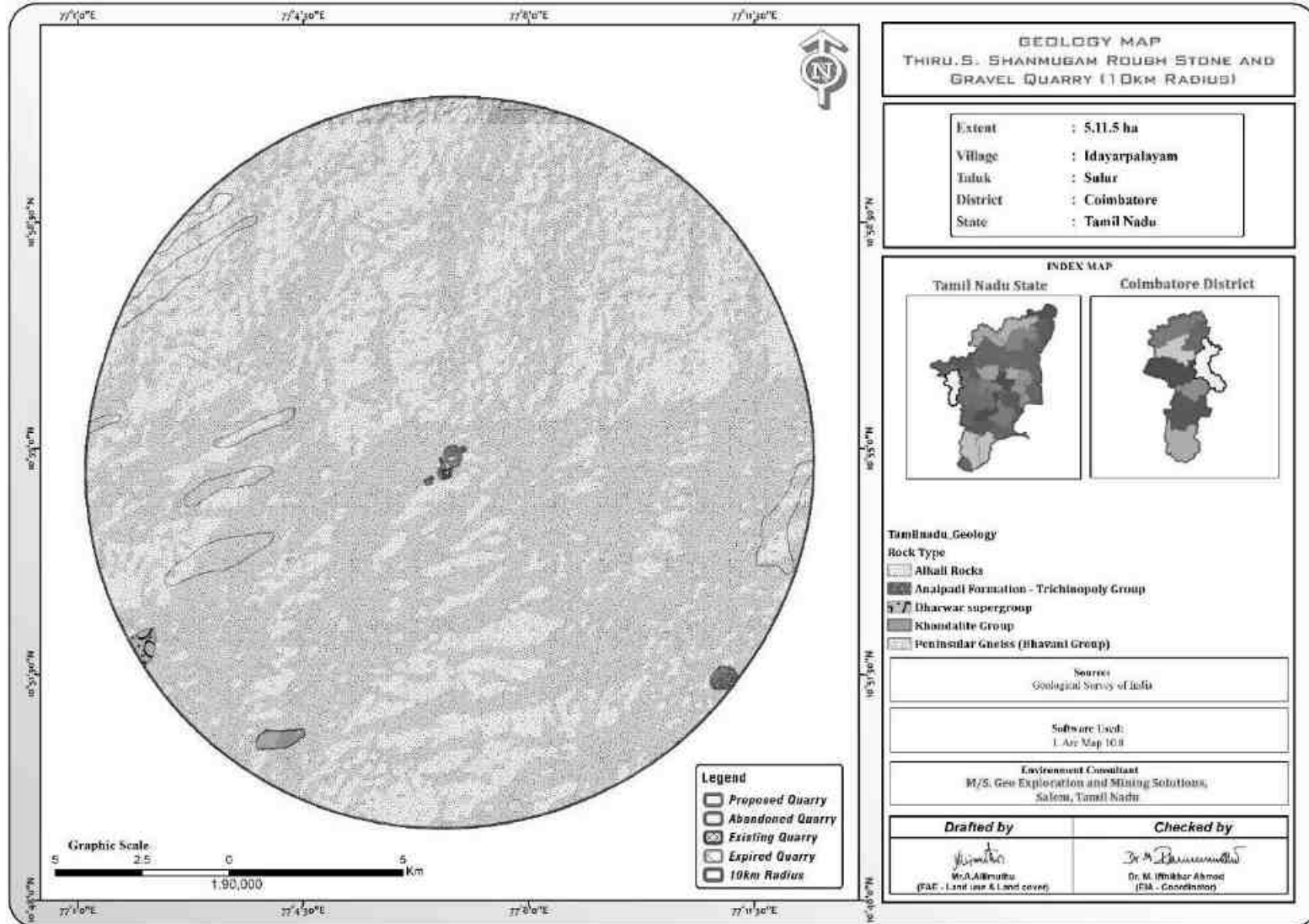


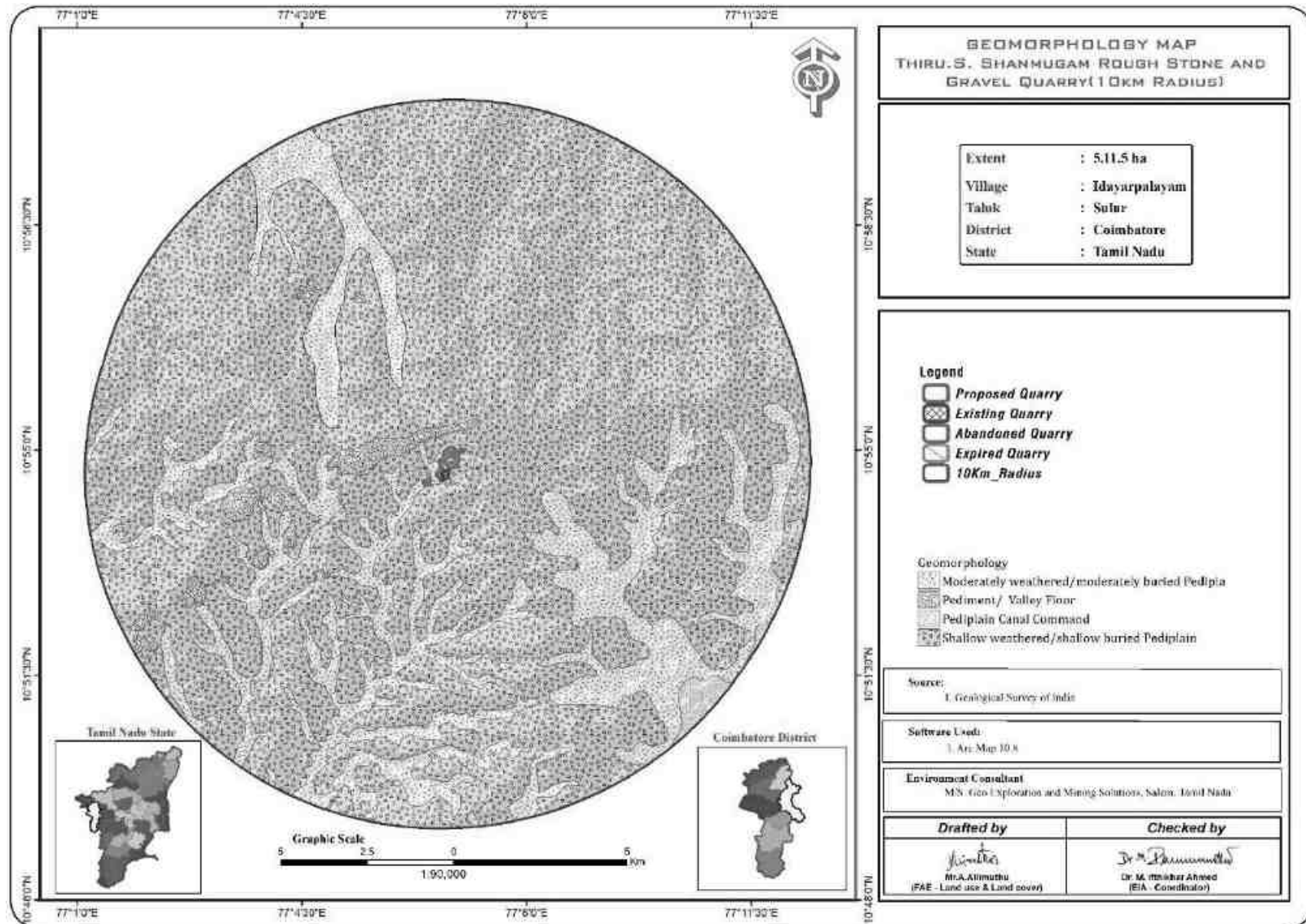
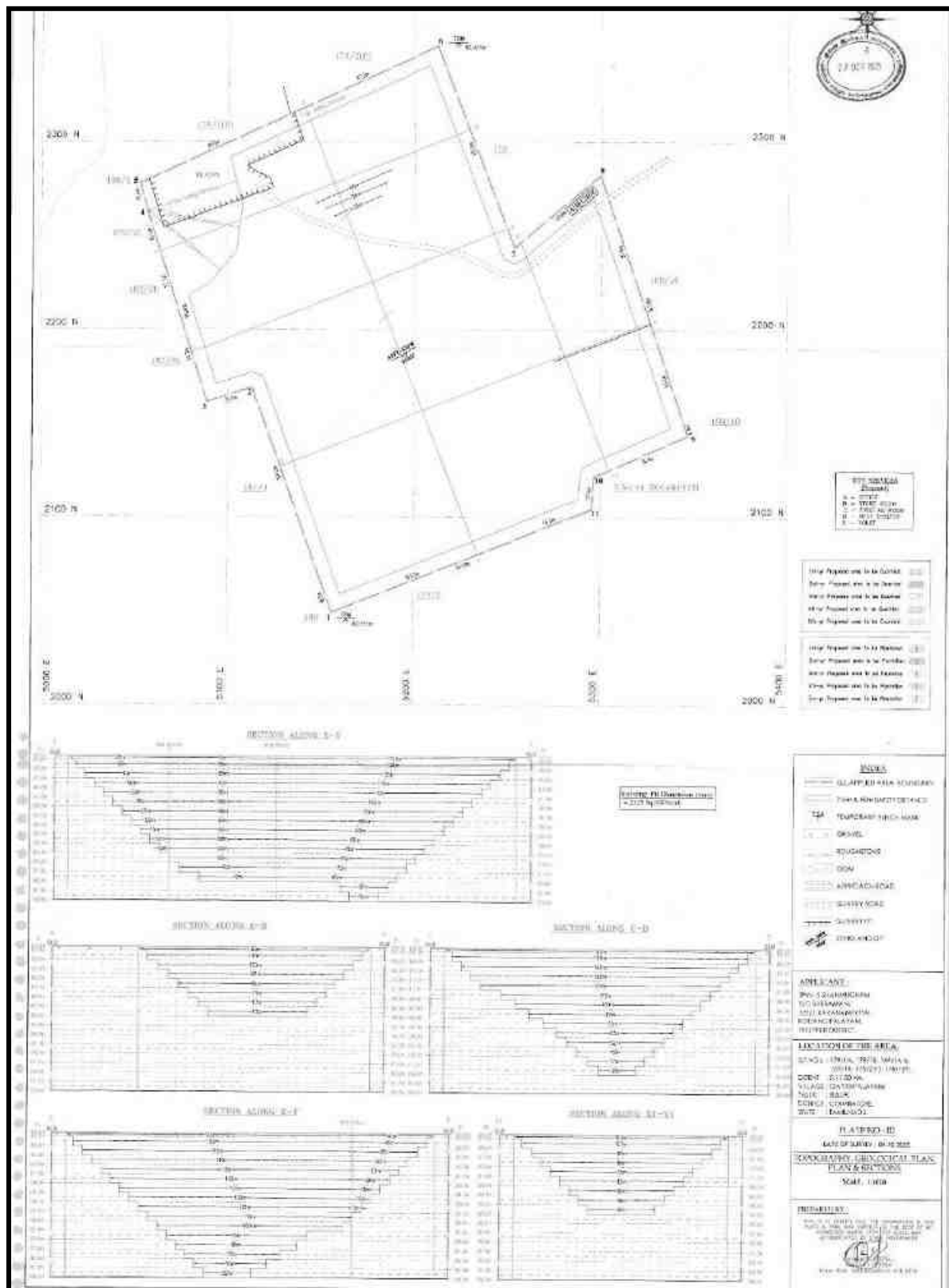
FIGURE 2.10: GEOMORPHOLOGY MAP

FIGURE 2.11: TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT PRODUCTION PLAN AND SECTION



[illegible]

FIGURE 2.11B: YEARWISE DEVELOPMENT & PRODUCTION PLAN AND SECTION FOR SECOND FIVE YEARS

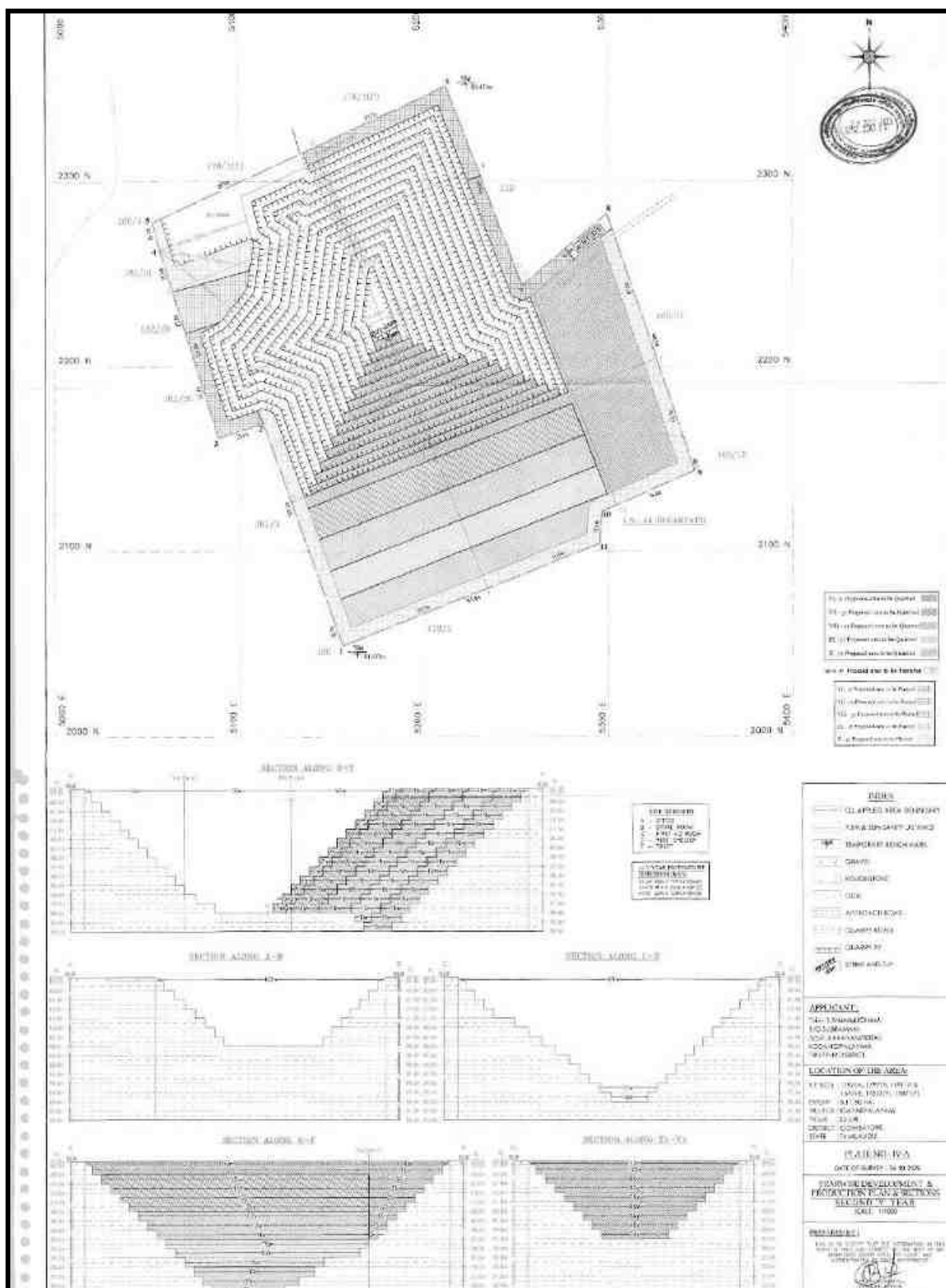
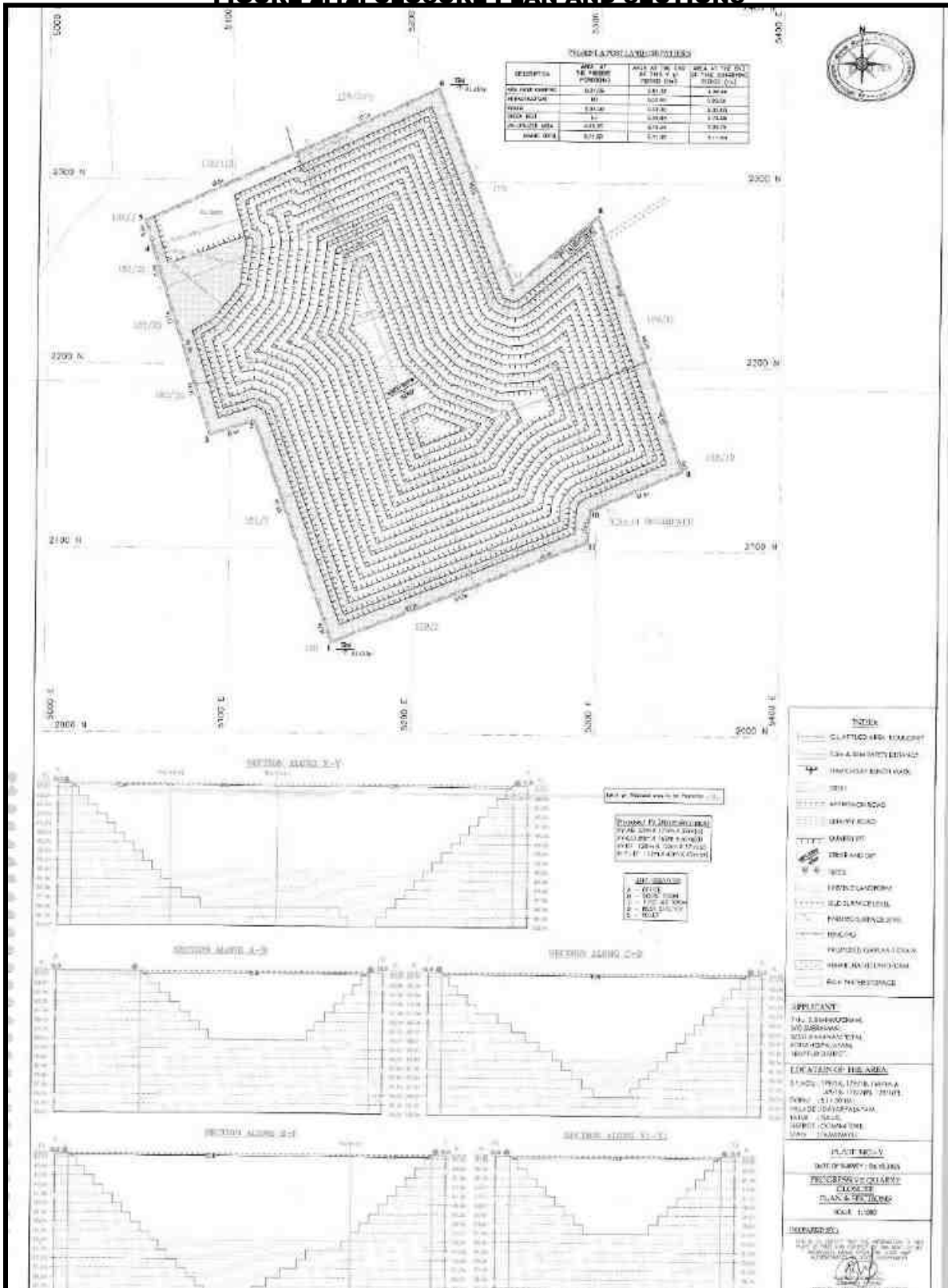


FIGURE 2.12: CLOSURE PLAN AND SECTIONS



2.4 Resources and Reserves of the Proposed Quarry

The available mineable reserves are calculated after leaving necessary safety distances prescribed in the Precise area communication letter.

TABLE 2.7: AVAILABLE GEOLOGICAL RESOURCES OF PROPOSED PROJECT

Description	Rough Stone quarry	Gravel
Geological Resource	38,25,625 m ³	98,050 m ³
Mineable Reserves	12,58,005 m ³	79,980 m ³

Source: Approved Mining Plan

TABLE 2.9: YEAR-WISE PROPOSAL FOR FIRST FIVE YEARS PRODUCTION PLAN

Years	Rough stone in m ³	Gravel in m ³	Depth
I	103740	16244	67m BGL
II	125425	9900	
III	128055	7398	
IV	144210	7650	
V	129350	6120	
Total	6,30,780	47,312	
VI	123800	11860	77m BGL
VII	131025	5508	
VIII	131490	5508	
IX	118830	4896	
X	122080	4896	
Total	6,27,225	32,668	
G.Total	12,58,005	79,980	

Source: Approved Mining Plan

Disposal of Waste

In the entire cluster quarries no waste is anticipated, quarried out materials (Rough stone and Gravel) will be utilized (100%).

Conceptual Mining Plan/ Final Mine Closure Plan

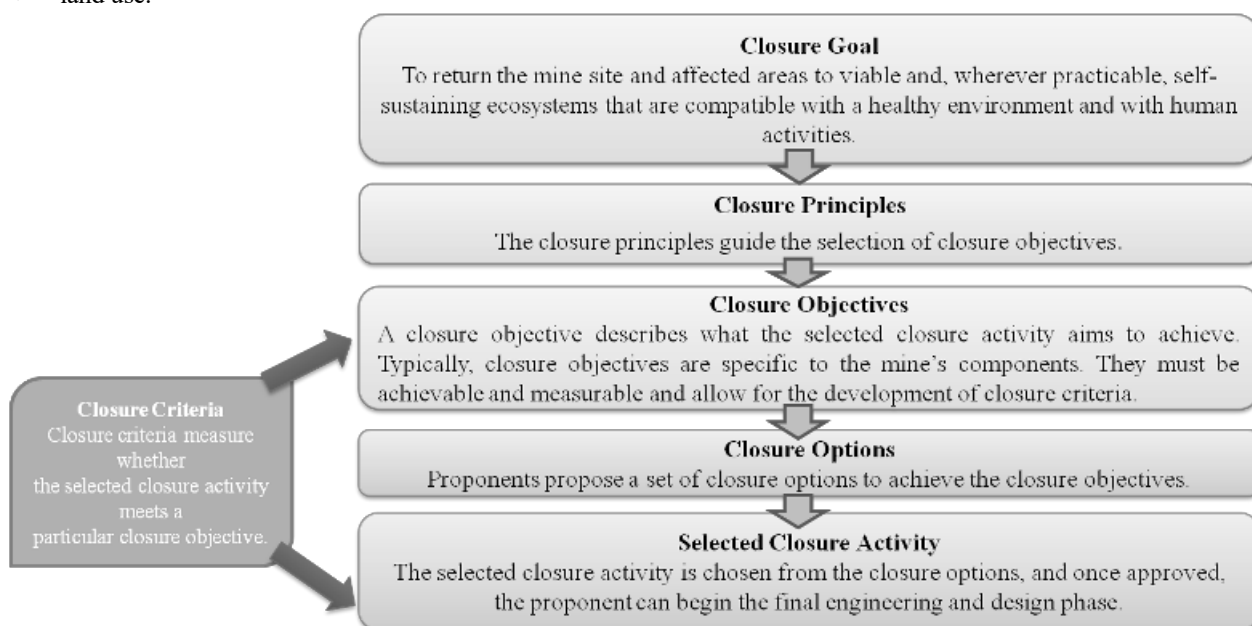
The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.

TABLE 2.10: ULTIMATE PIT DIMENSIONS

	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
XY-AB	53	123	52 m Bgl
XY-CD	58	165	62 m Bgl
XY- EF	128	153	77 m Bgl
X1Y1-EF	113	43	42 m Bgl

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, geo-technically stable, geo-chemically non-polluting/ non-contaminating, and capable of sustaining an agreed post-mining land use.
- land use.



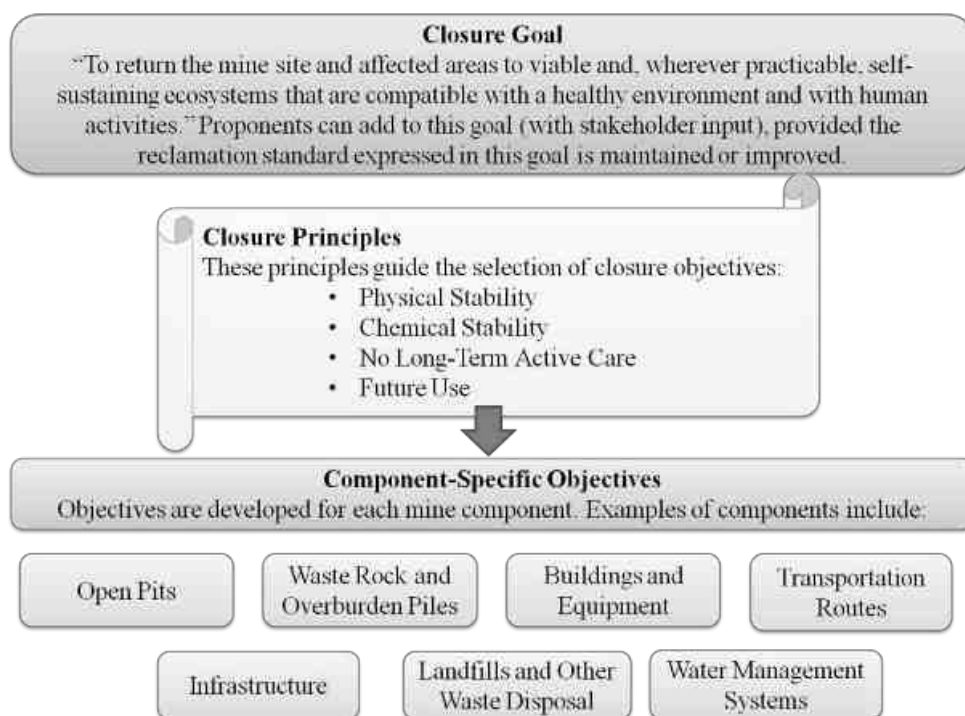
Closure Objectives

- 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
- There is a river on southern side of the project area. The river will not be hindered by any of mine closure activities
- 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



Post-Closure Monitoring –

The purpose of post-closure monitoring with respect to open pit mine workings is to ensure the attainment of closure objectives.

- Monitor physical and geotechnical stability of remnant pit walls.
- Monitor the ground regime in pit walls to confirm achievement of design objectives.
- Monitor water level in pit to confirm closure objectives regarding fish, fish habitat, and wildlife safety are being achieved.
- Sample water quality and quantity at controlled pit discharge points.
- Identify and test unanticipated areas where water management is an issue.

-
- Inspect integrity of barriers such as berms & fences.
 - Monitor wildlife interactions with barriers to determine effectiveness.
 - Inspect aquatic habitat in flooded pits where applicable.
 - Monitor dust levels.

TABLE 2.11: MINE CLOSURE BUDGET

ACTIVITY		YEAR										RATE	AMOUNT (INR)
		I	II	III	IV	V	VI	VII	VIII	IX	X		
Plantation under safety zone	Nos.	975	-	-	-	-						@100 Rs Per sapling	Rs. 1,95,000/-
	Cost	1,95,000	-	-	-	-							
Plantation in around approach road and nearby village roads	Nos	1585	-	-	-	-							Rs. 3,17,000/-
	Cost	3,17,000	-	-	-	-							
Wire Fencing (In Mtrs) 980 Mtrs		2,94,000	-	-	-	-						@300 Rs Per Meter	Rs. 2,94,000/-
Garland drain (In Mtrs) 930 Mtrs		2,79,000	-	-	-	-						@300 Rs Per Meter	Rs. 2,79,000/-
TOTAL													Rs.10,85,000/-

2.5 Method of Mining

The method of mining is common for all the proposed projects – The method of mining is Opencast Mechanized Mining Method is being proposed by formation of 5.0-meter height bench with a bench width 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.

The top layer of overburden (Gravel) will be Excavate directly by Hydraulic Excavators and loaded into tippers directly and sold to needy customers. 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 Excavators attached with Rock Breakers unit will be deployed for breaking large boulders to required fragmented sizes to avoid secondary blasting and 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.

2.5.1 Drilling

Drilling will be carried out as per parameters given below: -

Spacing – 1.2m, Burden –1.0, Depth of hole - 1.5m

2.5.2 Blasting

Blasting will be done as per details below: -

- Controlled blasting parameter: -
 - Spacing – 1.2m
 - Burden – 1.0 m

Depth of hole – 1.5 m

Charge per hole – 0.5Kg

Powder factor – 6.0 tonnes/kg

Dia of hole – 32 mm

Details of blasting design and parameters are discussed in approved mining plan.

No of Holes to be drilled per day: -

Volume of Rough Stone will be excavated from one hole	=	3 Tonnes
Total Volume from proposed quarry	=	12,58,005 m ³
	=	12,58,005 /10
	=	1,25,801/300
	=	419* 2.6
	=	1089 Tonnes per day
Therefore, Number of Holes per day	=	1089/3
	=	363 Holes per day

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

2.5.3 Extent of Mechanization

TABLE 2.13 PROPOSED MACHINERY DEPLOYMENT

S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Hand Jack hammers	4	1.2m to 2.0m	Compressed air
	Wagon Drill Machine	2	Upto 9m	Diesel Drive
2	Compressor	1	400psi	Diesel Drive
3	Excavator with Bucket / Rock Breaker Unit 4	3	300 HP	Diesel Drive
4	Tippers	6	30 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 are available in the Existing quarries and the same infrastructure as per the Mine Rule will be arranged after the grant of quarry lease in the proposed quarries.

2.6.1 Drainage Pattern

The general drainage pattern of the area is dendritic. There are no streams, canals or water bodies crossing within the project area, hence there is no requirement of stream or canals diversion in the near future.

2.6.2 Traffic Density

Traffic density measurements were performed as per IRC 1960 Guidelines at three locations based on the transportation route. Traffic density measurement were made continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift- one person on either direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken.

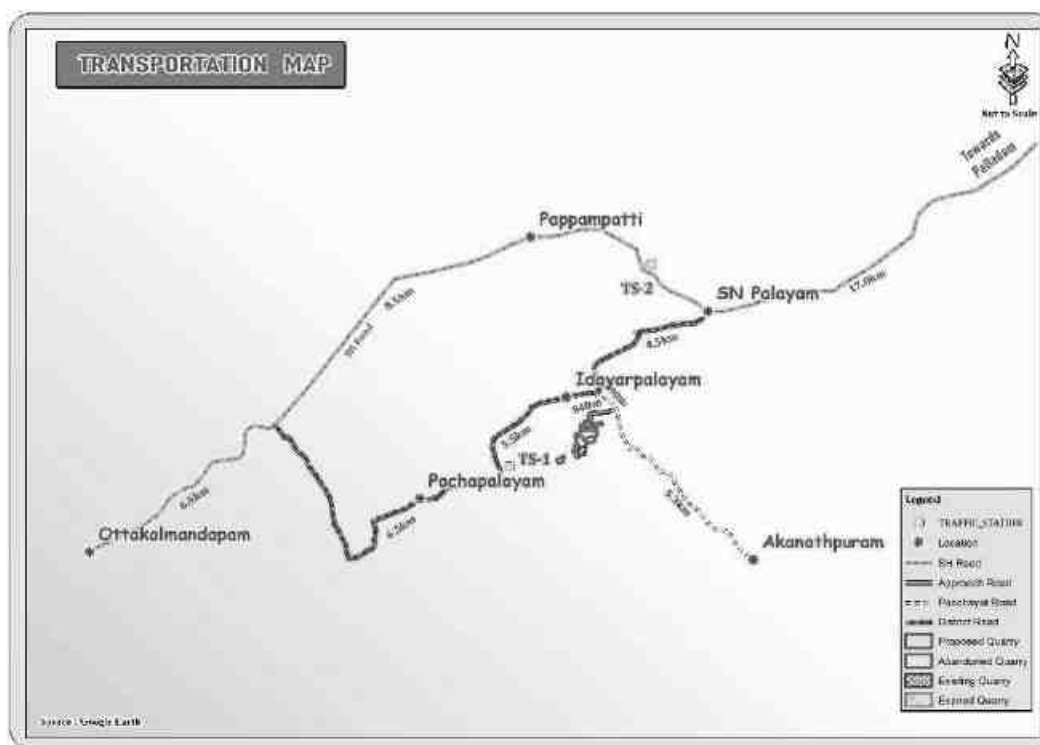
TABLE 2.14 – TRAFFIC SURVEY LOCATION'S

Station code	Station location	Distance and Direction	Type of Road
TS1	Pachapalaym to Ottakalmandapam	2.5km- SW	Major District Road_

	Road		
TS2	Pappampatti to SN Palayam	4 Km-NE	SH Road

Source: On-site monitoring by GEMS FAE & TM

FIGURE 2.13: TRAFFIC SURVEY LOCATIONS & TRANSPORTATION ROUTE MAP



(Source: Survey of India Toposheet)

TABLE 2.15 – EXISTING TRAFFIC VOLUME

Station code	HMV (Hourly Average)		LMV hourly average		2/3 Hourly average		Total PCU per hour
	No	PCU	No	PCU	No	PCU	
TS1	150	450	125	125	140	70	645
TS2	225	675	200	200	180	90	965

Source: On-site monitoring by GEMS FAE & TM

- PCU conversion factor for HMV (Trucks and Bus) = 3, LMV (Car, Jeep and Auto) = 1 and 0.5 for Motor Vehicles (2/3 Wheelers)

TABLE 2.16 – ANTICIPATED TRAFFIC DUE TO THIS PROPOSED PROJECT

Transportation of Rough stone per day		
Capacity of trucks	Cumulative Trips	Volume in PCU
10/20 tonnes	20	60

Source: Anticipated based on Approved Mining Plan Production

TABLE 2.17 – SUMMARY OF TRAFFIC VOLUME

Route	Existing traffic value in PCU	Incremental traffic from the quarry in PCU	Total traffic volume	Hourly Capacity in PCU as per IRC guidelines
TS1	645	156	801	1200
TS2	965	156	1121	1500

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

As per the IRC 1960 this existing 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 transportation.

2.6.3 Mineral Beneficiation and Processing

There is no proposal for the mineral processing or ore beneficiation in this project

2.6.4 Existing Infrastructure

It is a new quarry, no infrastructural facility available within the project area. The infrastructural facilities to be made after the start of the quarrying operations will be prepared outside limit as per the rules and safe distance to be adopted.

2.6.2 Drainage Pattern

The drainage pattern of the area is dendritic – sub dendritic.

2.7 Project Requirement

2.7.1 Water Source & Requirement

Detail of Total water requirements in KLD as given below:

TABLE 2.18 – WATER REQUIREMENT FOR THE CLUSTER PROJECT

*Purpose	Quantity	Source
Dust Suppression	0.9 KLD	From Existing bore wells from nearby area
Green Belt development	1.0 KLD	From Existing bore wells from nearby area
Sanitation & Drinking purpose	0.8 KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	2.7 KLD	

Source: Prefeasibility Report

About 50% water will be required for the suspension of the dust, Water shall be obtained from accumulated rainwater/seepage water in quarry pits. Packaged Drinking Water is available from the nearby approved water vendors.

2.7.2 Power and Other Infrastructure Requirement

The project's does not require power supply for the quarry operation. 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. For the quarrying operation like compressor for drilling Diesel will be utilized.

The temporary infrastructures such as Mine Office, First Aid Room, Rest Shelter etc., will be constructed within the project area before commencing the quarry operation. 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.

2.7.3 Fuel Requirement

High speed Diesel (HSD) will be used for mining machineries. Diesel will be brought from nearby Fuel Stations.

Average diesel consumption is around = 500 Liters of HSD / day per project

2.7.4 Employment Requirement:

The skilled, competent qualified statutory persons will be engaged for quarrying operation, preference will be given to the local community.

TABLE 2.19: EMPLOYMENT POTENTIAL FOR PROPOSED QUARRY

Employment in Nos
42

A total of 18 people will get employment due to this quarry activity.

2.7.5 Project Cost

TABLE 2.20 – PROJECT COST OF PROPOSED PROJECT

Project Cost
Rs. 3,74,13,000/-

Source: Approved Mining Plan & Prefeasibility Report

2.8 Project Implementation Schedule

The commercial operation will commence after the grant of Environmental Clearance. CTO will be obtained from the Tamil Nadu State Pollution Control Board. The conditions imposed during the Environmental Clearance will be complied before the start of mining operation.

TABLE 2.21 – EXPECTED TIME SCHEDULE FOR THE PROPOSED QUARRY

S. No	Particulars lease execution	Time schedule (in month)					Remarks if any
		1st	2nd	3rd	4th	5th	
1	Environmental Clearance						
2	Consent to operate						Production start period

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

CHAPTER – 3: DESCRIPTION OF ENVIRONMENT

3.0 General

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline status of the project environment is described section wise for better understanding of the broad-spectrum conditions. 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 Oct- Dec 2024 with CPCB guidelines. Environmental data has been collected with reference to cluster quarries by Global Lab Consultancy Services Approved by ISO: 9001:2015, NABL, for the below attributes-

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

Study Area

An area of 10 km radius (aerial distance) from the periphery of the cluster is considered for EIA study. The data collection has been used to understand the existing environment scenario around the cluster quarries against which the potential impacts of the project can be assessed. The study area has been divided into two zones viz **core zone** and **buffer zone** where core zone is considered as cluster and 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 **Post Monsoon season** i.e. Oct- Dec 2024.

Study Methodology

Baseline data was generated for various environmental parameters including Land, Soil, Water (surface and groundwater), Air, Noise, Ecology & Biodiversity and Socio-economic status to determine the quality of the prevailing environmental settings. A MoEF accredited Laboratory was used for generating the baseline data.

1. The project area (Core zone) was surveyed in detail with the help of Total Station survey instrument and the boundary pillars were picked up with the help of handheld GPS. 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).
2. Soil samples were collected and analysed for relevant physico-chemical characteristics, exchangeable cations, nutrients & micro nutrients etc., in order to assess the impact of mining activities and proposed greenbelt development
3. Ground water samples were collected during the study period from the open wells and bore wells, while surface water was collected from river and lake in the buffer zone. The samples were analysed for parameters necessary to determine water quality (based on IS: 10500:2012 criteria) and those which are relevant from the point of view of environmental impact of the proposed quarries.
4. A meteorological station was setup in pachapalayam village. Wind speed, Wind direction, Dry and wet bulb temperature, Relative humidity, Rainfall with cloud cover and general weather conditions were recorded throughout the study period.
5. In order to assess the Ambient Air Quality (AAQ), samples of Ambient Air 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

6. 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
7. 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
8. 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 – ENVIRONMENTAL MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data's from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio-Chemical Characteristics	Once during the study period	6 (1 core & 5 buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (1 surface water & 5 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM ₁₀ PM _{2.5} SO ₂ NO _x Fugitive Dust	24 hourly twice a week (Oct – Dec 2024)	7 (2 core & 5 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	7 (2 core & 5 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 Global Lab Consultancy Services in association with GEMS

* All monitoring and testing are 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

To study the land use pattern of the core as well as a buffer zone, land use/land cover details have been identified/ maps have been prepared in accordance with the **Standard ToR point no. 4 & 10 Stating:**

Point No. 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).

Point No. 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.

Current vintage data of Indian Remote Sensing Satellite Resourcesat1 LIII (False Color Composite) has been used for Land Use / Land Cover study. Satellite image has been procured from National Remote Sensing Centre, Hyderabad.

3.1.2 OBJECTIVE

The objectives of the LULC study are as follow:

- ☞ To develop the Land use & Land cover map using land coordinates of the quarry area (Core Zone) and 10 km radius from the quarry site (Buffer area).
- ☞ To Identify and mark the important Land use and Land cover features using the primary and secondary data collected.
- ☞ To evaluate the impacts on existing land use/cover features of the buffer area by the Proposed Project activities.
- ☞ To identify the mitigative measures for the sustainable use of land and to protect the buffer zone from the adverse impacts.

Technical specification of Satellite imagery Data Used:

Current vintage data of Indian Remote Sensing Satellite RESOURCESAT1 (LISS-III) digital FCC (False Color Composite) has been used for preparation of Land use/ Land cover thematic map of study area. Satellite image has been procured from National Remote Sensing Centre, Hyderabad. Survey of India Toposheet as a reference map on 1:50,000 scale has been used for preparation of base layer data like road, rail network; village for geo-referencing of satellite image.

- ☞ Satellite Image - Resourcesat1-LISSIII, 23.5m Resolution
- ☞ Satellite Data Source - NRSC, Hyderabad
- ☞ Satellite Vintage - 14st July 2020, Swath 141km wide.
- ☞ SOI Toposheet No - 58 -F/01
- ☞ Software Used - ArcGIS 10.8

The satellite image (FCC color 3,2,1) of the buffer zone is given in 3.1

The spatial resolution and the spectral bands in which the sensor collects the remotely sensed data are two important parameters for any land use survey. Resourcesat1-LISSIII, 23m Resolution of 23.5m and a 141 km wide swath of the earth in 23.5m resolution covering wide areas the data is collected in 4 visible bands namely band number and Resolution.

TABLE 3.2: Resourcesat1-LISSIII SENSOR characteristics

Band Number	Description	Wavelength	Resolution
Band 1	Green	0.52-0.59 μm	23.5 meters
Band 2	Red	0.62-0.68 μm	23.5meters
Band 3	NIR	0.77-0.86 μm	23.5meters
Band 4	SWIR	1.55-1.70 μm	70meters

Source: NRSC, Hyderabad

3.1.3 METHODOLOGY

The land use / land cover map is prepared by adopting the interpretation techniques of the Satellite image in combination with collateral data such as Survey of India topographical maps. Image classification is done by using visual interpretation techniques and digital classification using any of the image processing software. The various activities for preparation of LULC include preprocessing, rectification, image enhancements and classifying the satellite data for assessing the change in land use land cover due to proposed developmental activities.

- ∞ Preliminary/primary data collection of the study area
- ∞ Satellite data procurement from NRSC
- ∞ Secondary data collection from authorized bodies
- ∞ Survey of India Toposheet (SOI)
- ∞ Mine Layout
- ∞ Cadastral / Khasra map
- ∞ GPS Coordinates of Lease Boundary
- ∞ Processing of satellite data using ArcGIS 10.8 and preparing the Land Use & Land cover maps (e.g. Plant/Mine area, Existing Quarry, Settlements, Agriculture land, Non agriculture land, water bodies, etc.) by Digital Image Processing (DIP) technique.
- ∞ Geo-Referencing of the Survey of India Toposheet
- ∞ Geo-Referencing of satellite Imagery with the help of Geo-Referenced Toposheets
- ∞ Enhancement of the Satellite Imagery
- ∞ Base Map layer creation (Roads, Railway, Village Names, and other Secondary data, etc.)
- ∞ Data analysis and Classification using Digital interpretation techniques.
- ∞ Ground truth studies or field Verification.
- ∞ Error fixing / Reclassification
- ∞ Final Map Generation.

The land use/Land cover Map of the buffer zone is given in 3.3. Land Use Pattern of the Buffer Zone (Study area) Details of the same are given in Table - 3.3 and the map is shown in Figure - 3.3.

TABLE: 3.3 LAND USE / LAND COVER DETAILS OF STUDY AREA

S.No	CLASSIFICATION	AREA_HA	AREA_%	AREA_HA	AREA_%
BUILTUP					
1	Builtup Urban	315.07	0.93	0.00	0.00
2	Builtup Rural	1054.32	3.11	63.68	4.68
3	Builtup Mining	346.79	1.02	13.67	1.01
AGRICULTURAL LAND					
4	Crop Land	19816.84	58.38	688.00	50.58
5	Agricultural	3655.31	10.77	11.2257	0.83

	Plantation				
6	Fallow Land	7558.23	22.27	506.46	37.23
BARREN/WASTE LANDS					
7	Barren Rocky	13.93	0.04	74.06	5.44
8	Scrub Land	1033.26	3.04	0.00	0.00
WETLANDS/ WATER BODIES					
9	Waterbodies	151.04	0.44	3.23	0.24
TOTAL		33944.80	100.00	1360.33	100.00

Source: Bhuvan, NRSC.

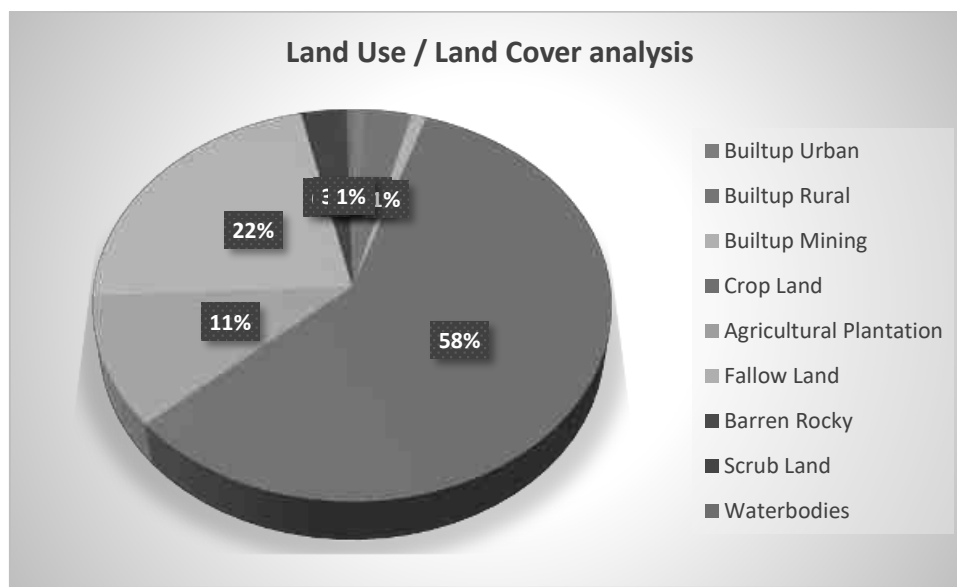


FIGURE 3.1: CHART SHOWING LANDUSE/LANDCOVER ANALYSIS USING LISS III .Data

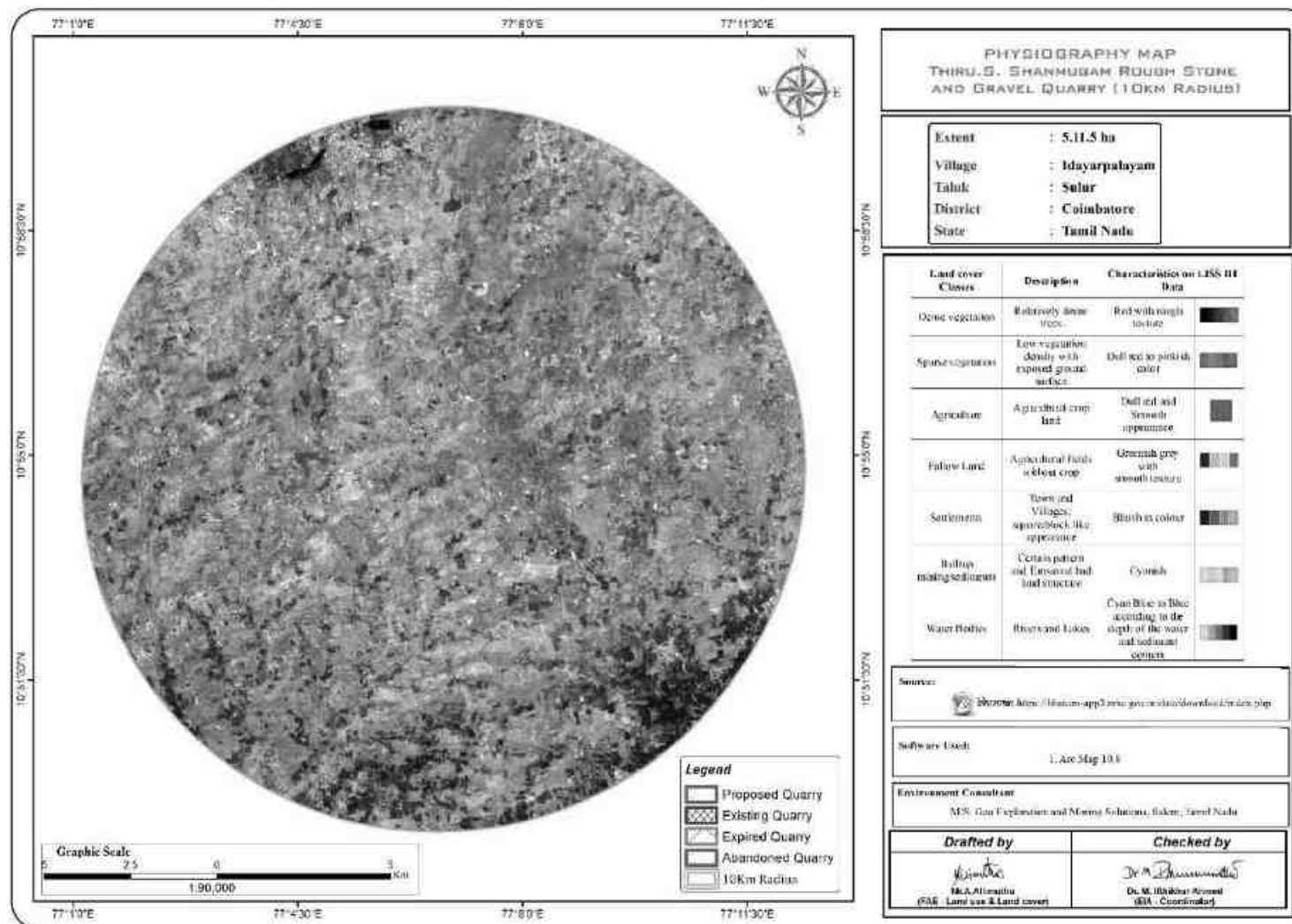
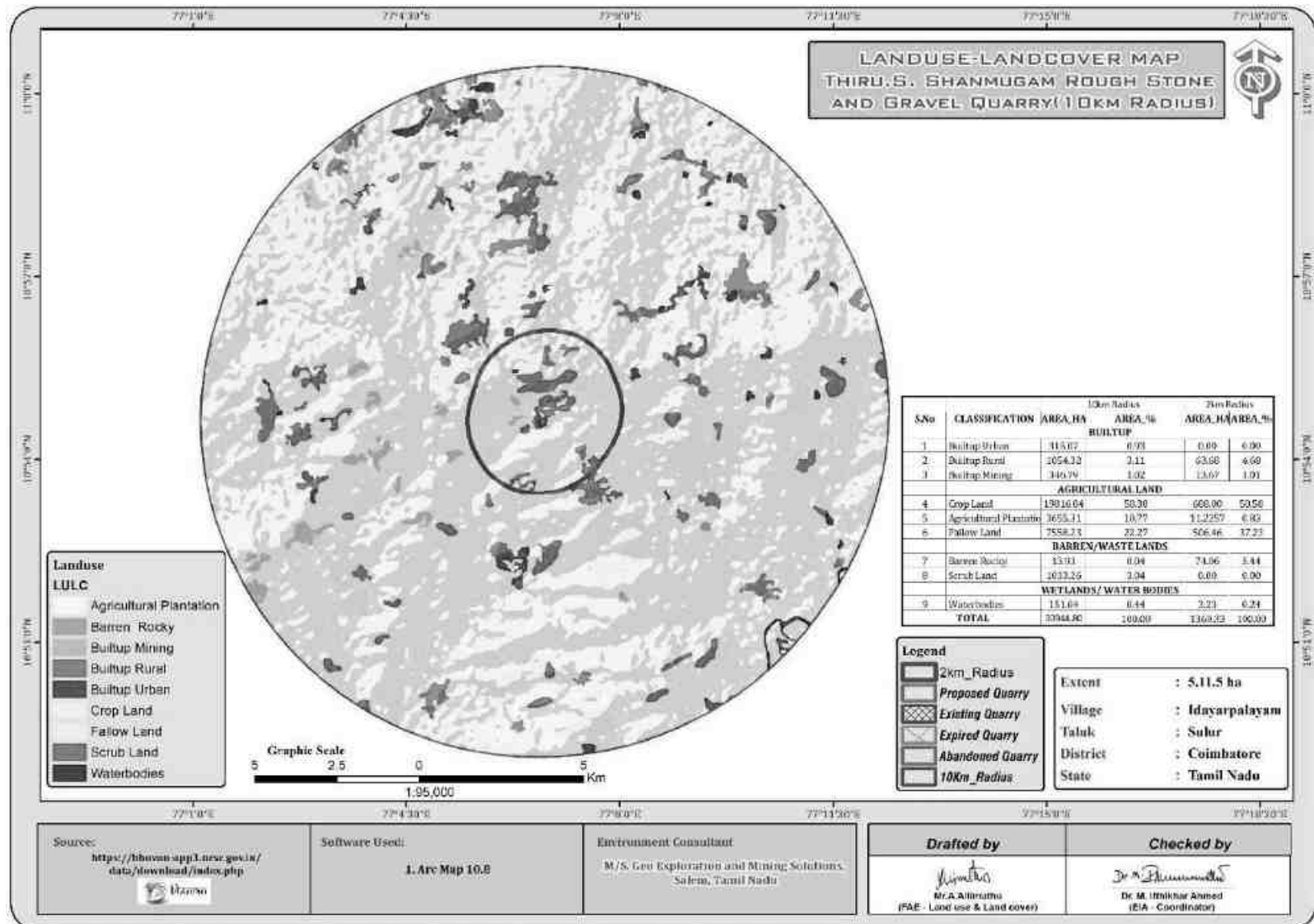
FIGURE 3.2: MAP SHOWING FALSE COLOR COMPOSITE (3,2,1) SATELLITE IMAGERY OF THE STUDY AREA

FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS

3.1.4 Interpretation

- ☞ The 10 km radius study area mainly comprises of crop land & Agriculture Plantation land accounting of 58.38% & 10.77% of the total study area. The study area also consists of fallow land of 22.27%.
- ☞ The buffer zone studied has no ecological sensitive area (National Park, Wildlife Sanctuary, Biosphere Reserve/ etc.).
- ☞ Water Bodies such as Odai, ponds/ lakes comprise of 0.44% of the total buffer area. There are some lake found in the study area like Pallapalayam lake (9km-NW), Kammampalayam Lake (9.5km-NW) of the total study area.
- ☞ The Scrub land accounts of 3.04%. As per the primary survey, it was observed the scrub land is mainly occupied by the stony waste and left-over domestic waste generated by the nearby areas.
- ☞ The Barren rocky area covered is about 0.04% in buffer zone.
- ☞ 1.02% of the total study area is occupied by the mine industries. The area occupied by Mainly Roughstone of the total buffer area. As also observed within the primary survey, the 10 km buffer area is also occupied by the medium scaled roughstone and small Brick kiln industries also located in the study area.
- ☞ 4.04% of the area is covered under the Builtup Land including rural area. The nearest village within the 3km from the project site boundary is observed to be villages Edayarpalayam, Bogampatti, Kalipalayam, Chinnakuyili villages etc.

The project site falls under the Roughstone and gravel region. Therefore, the area is appropriate for developing Road development and building etc., it shows that the region has good prospects in the future. Due to proposed Roughstone in this region, economic condition of locals is expected to be improved directly & indirectly. Hence project will prove to be the best economic proposal for the coming times.

3.1.5 Cropping Pattern of the Buffer Zone

The district has a total Geographical area of 367097Ha with net cultivated area of about 165260Ha. Coconut is the major plantation crop cultivated in an area of about 85831Ha. The other Agricultural crops cultivated are Millets, Pulses, Oilseeds, Cotton and Sugarcane. Coimbatore is perhaps one of the very few districts in the State which is covered with thick forest (> 20 per cent of the total districts' area). The forests here are abundant in commercially significant trees such as Teak, Sandalwood, Rosewood, Bamboo etc. The cinchona department is raising a cinchona plantation in forests of Pollachi range to jungles of shrubs in Udumalpet. Apart from this, there are one or two tea plantations and coffee plantations.

Source: TNRTP-Coimbatore DDR, 2019

3.1.6 Topography

The project area is almost plain terrain with gentle gradient towards Southeast – Southwestern side, maximum elevation of the area is 400-450 m above Mean Sea level There are no hilly regions in and around the area.

3.1.7 Drainage Pattern of the Area

There are no developed surface drainage channels in the study area. Noyyal, a non-perennial pass 12.0km-North from the project site. The area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The area is mostly dry in all seasons except rainy seasons.

The general drainage pattern of the area is of sub dendritic and dendritic pattern. No prominent water course or nallah is inferred. During rainy season the surface runoff flows in W to E direction. The drainage pattern of the study area is given in Fig. 3.5. The quarrying activity will not hinder the natural flow of rainwater.

3.1.8 Environmental Features in the Study Area

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

3.1.9 Seismic Sensitivity

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

TABLE 3.3 – DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE PROJECT AREA

Sl. No	Sensitive Ecological Features	Name	Arial Distance in km from Mine Lease Boundary
1	National Park / Wild life Sanctuaries	None	Indiragandi (Anamalai) Wildlife sanctuary-44km-S
2	Reserve Forest	None	Boluvampatti R.F-20km-SW
3	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10Km Radius
4	Critically Polluted Areas	None	Nil within 10Km Radius
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	Defence Installation	None	Nil within 10Km Radius

Source: Survey of India Toposheet, Village Cadastral Map& Google Earth/Maps

TABLE 3.4 – WATER BODIES WITHIN THE PROPOSED QUARRY

S.No	LABEL	DISTANCE & DIRECTION	Habitation
1	Odai	50m Safety NW	510m NE
2	Niyaviyal Odai	60m North	
3	Odai	930m SE	
4	Pallapalayam Lake	9.2Km NW	
5	Kannampalayam Lake	9.8Km North	
6	P.A.P Canal	9.0Km SE	

Source: Village Cadastral Map and Field Survey, PFR Report

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 3.4 and Figure 3.3.

TABLE 3.5 – SOIL SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Core Zone	Near Project Area	10°54'55.48"N 77° 6'42.85"E
2	S-2	Bogampatti	1.3km SE	10°54'17.35"N 77° 7'26.31"E
3	S-3	SN Palayam	4.2km NE	10°56'22.11"N 77° 8'22.92"E
4	S-4	Lakshminaickenpalayam	4.6km East	10°55'14.50"N 77° 9'15.07"E
5	S-5	Panapatti	3.8km SW	10°52'43.98"N 77° 6'2.22"E
6	S-6	Chinnakuyili	2.8km NW	10°55'35.80"N 77° 5'14.84"E

Source: On-site monitoring/sampling by **Global Lab & Consultancy Services** Laboratories in association with GEMS

FIGURE 3.18: PHOTOGRAPHS OF SOIL SAMPLING COLLECTIONS

The objective of the soil sampling is -

1. To determine the baseline soil characteristics of the study area;
2. To determine the impact of proposed activity on soil characteristics and;

To determine the impact on soil more importantly agriculture production point of view.

Methodology –

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the proposed quarry 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 sealed 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 3.5.

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 Global Lab Consultancy Services

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 classification of soil and physico-chemical characteristics of the soils are presented below in Table 3.6 & Test Results in Table 3.7.

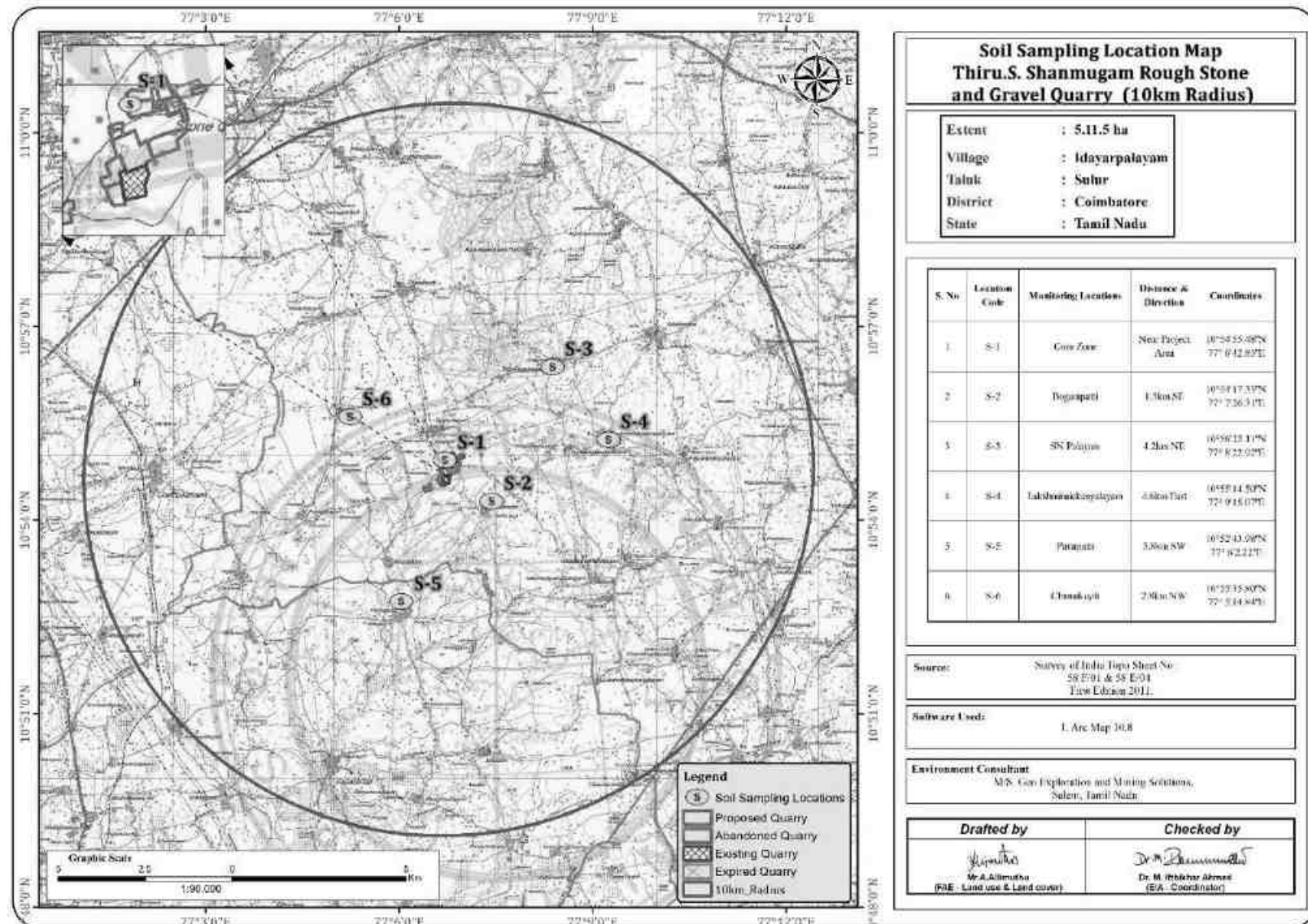
FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

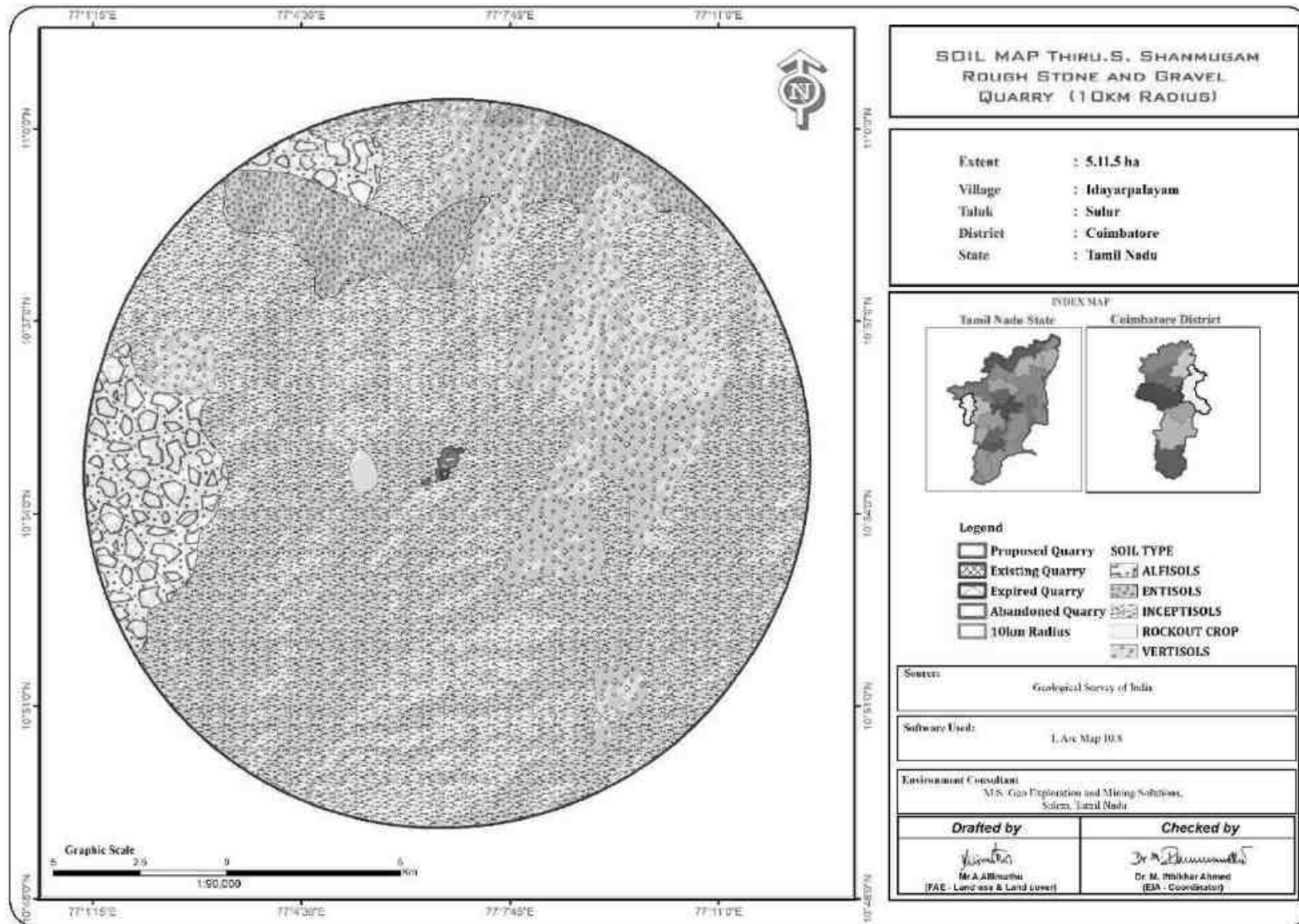
FIGURE 3.6: SOIL MAP

TABLE 3.7 – SOIL QUALITY MONITORING DATA

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	S1-Core Zone	S2- Bogampatti	S3-SN Palayam	S4- Lakshminaicken palayam	S-5 Panapatti	S6- Chinnakuyili
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	401.41	326	238	288.5	313.6	213
2	Available Phosphorous (as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	4.9	11.6	8.4	5.9	5.8	9.2
3	Boron	USEPA-6010D:2014	mg/kg	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	11.2
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.12	1.1	1.16	1.18	1.15	1.16
5	Cadmium	USEPA-6010 D-2014	mg/kg	9.7	12.7	6.0	4.7	7.7	1.9
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	32.77	36.6	34.4	37	27.0	23.6
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	2.8	2.7	5.4	3.7	3.6	5.2
8	Chromium	USEPA-6010D-2014	mg/kg	9.5	17.7	16.5	22.3	28.4	26.7
9	Copper	USEPA-6010D :2014	mg/kg	6.7	7.2	5.0	2.5	8.2	15.2
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	2.4	2.9	3.1	2.8	3.4	3.7
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	0.8	1.3	1.6	0.9	0.5	1.0
12	Iron	USEPA-6010 D-2014	mg/kg	21.7	52.0	28.0	36.5	19.9	44
13	Lead	USEPA-6010D-2014	mg/kg	3.2	2.5	0.75	5.9	5.2	4.8
14	Manganese	USEPA-6010 D-2014	mg/kg	13.5	16.4	13.0	18.9	13.9	10.2
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.72	0.8	0.41	0.57	0.34	0.68
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	1.24	1.38	0.71	0.98	0.59	1.17
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	7.92	8.14	8.06	7.63	7.84	8.26
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	0.78	1.23	1.73	1.38	0.78	1.22
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	µS/cm	468	424	398	412	468	536
20	Sulphate (as SO4)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	4.8	5.8	4.7	4.5	6.7	6.8
21	Texture : Clay	GLCS/SOP/S/015 ; Issue no:02: 2024	%	15.0	25.75	22.0	27.0	24.25	23.95
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	32.6	34.25	40.0	36.62	36.0	35.0
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	52.4	40.0	38.0	36.38	39.75	41.05
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	62	56	68	52	60.0	52
25	Zinc	USEPA-6010D-2014	mg/kg	13.5	16.9	14.8	16.4	12.2	10.9

Source: Sampling Results by Global Lab Consultancy Services

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 to Sandy Soil and Bulk Density of Soils in the study area varied between 15 to 27 % and 1.1– 1.18 g/cc. The Water Holding Capacity 52 to 68%

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline in nature with pH range 7.63 to 8.26
- The available Nitrogen content range between 213 to 401.41 kg/ha
- The available Phosphorus content range between 4.9 to 11.6 mg/kg
- The available Potassium range between 0.78 to 1.73 mg/100g

Whereas, the micronutrient as zinc (Zn), iron (Fe) and copper (Cu) were found in the range of 10.9 to 16.9mg/kg; 19.9 to 52 mg/kg and; 2.5 to 15.2 mg/kg

Wilting co efficient in significant level would mean that the soil would support the vegetation. The soil properties in the buffer zone reveal that the soil can sustain vegetation. If amended suitability the core area can also withstand plantation.

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:

Amaravathi river lies at 43.0 Km SE from the project cluster. The area is studded with few tanks that serve as the source for agriculture and also their surplus feeds adjoining tanks. The rainfall over the area is moderate, the rainwater storage in open wells, trenches is in practice over the area and the stored water acts as source of freshwater for couple of months after rainy season.

3.2.2 Ground Water Resources:

The terrain is underlain by hard rock formations, Fissured and fractured crystalline rocks constitute the important aquifer systems in the Coimbatore region. Ground water occurs under phreatic to semi-confined conditions in these formations and is being developed by means of dug wells and filter points. Proterozoic formation is the basement rocks which consist of quartzite, crystalline limestone, calc-granulite, hornblende – biotite gneiss, charnockite or pyroxene granulite, granite and pegmatite. Weathered, a fissured crack, shear zones and joints in the basement rock act as a good groundwater potential zone in the study area.

The study area falls in the Sulur block which is categorized as over-exploited zone as per G.O (MS) No 113 dated 09.06.2016.

3.2.3 Methodology

Reconnaissance survey was undertaken to collect the sampling and locations were finalized based on;

1. Drainage pattern;
2. Location of residential areas representing different activities/likely impact areas; and
3. Likely areas, which can represent baseline conditions

One (1) surface water and five (5) ground water samples were collected in the study area and physico-chemical, heavy metals and bacteriological parameters were analysed. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012 and 'Standard methods for the Examination of Water and Waste water' published by American Public Health Association (APHA). The water sampling locations are given in Table 3.8 and shown as Figure 3.5.

TABLE 3.8 – WATER SAMPLING LOCATIONS

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	SW-1	Pallapalayam Lake	9.2km NW	10°59'25.25"N 77° 4'43.75"E
2	WW-1	Edaiyarpalayam	1.3km North	10°55'32.16"N 77° 6'48.21"E
3	WW-2	Lakshminaickenpalayam	4.2km East	10°55'22.78"N 77° 8'58.13"E
4	WW-3	Chinnakuyili	3.2km NW	10°55'30.38"N 77° 5'4.07"E
5	BW-1	Core Zone	270m NE	10°54'50.77"N 77° 6'54.48"E
6	BW-2	Panapatti	3.8km SW	10°52'42.12"N 77° 5'56.69"E

Source: On-site monitoring/sampling by Global Lab Consultancy Services

Note: SW- Surface water, WW – Well Water, BW – Bore well

FIGURE 3.18: PHOTOGRAPHS OF WATER SAMPLING COLLECTIONS



TABLE 3.9 – SURFACE WATER ANALYSIS RESULTS

SL.No	TEST PARAMETER	TEST METHOD	UNITS	SW-1 Pallapalayam lake
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	0.031
2	Ammoniacal Nitrogen as NH ₃ -N	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL:1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	0.051
5	Biochemical Oxygen Demand (BOD) at 27°C for 3 Days	IS 3025 (Part 44): 2023	mg/l	9
6	Boron as B	IS 3025 (Part 57): 2021	mg/l	BDL (DL:0.1)
7	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
8	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	60
9	Chemical Oxygen Demand (COD)	IS 3025 (Part 58): 2023	mg/l	30
10	Chloride as Cl ⁻	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	215
11	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
12	Color	IS 3025 (Part 4): 2021	CU	<1
13	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
14	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL (DL:0.02)
15	Dissolved Oxygen (DO)	IS 3025 (Part 38): 1989 (Reaffirmed 2019)	mg/l	6.2
16	Electrical Conductivity	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	μS/cm	1502
17	Fluoride as F ⁻	GLCS/SOP/W/015; Issue no :02: 2024	mg/l	0.29
18	Free Residual Chlorine as Cl ₂	IS 3025 (Part 26): 2021	mg/l	BDL (DL:1.0)
19	Iron as Fe	IS 3025 (Part 53): 2024	mg/l	0.17
20	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
21	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	56
22	Manganese as Mn	IS 3025 (Part 59): 2023	mg/l	BDL (DL:0.1)
23	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
24	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
25	Nitrate as NO ₃	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL:2.0)
26	Odor	IS 3025 (Part 5): 2018	-	Agreeable
27	pH	IS 3025 (Part 11): 2022	-	8.12
28	Phenols	IS 3025 PART 43 SECTION 1: 2022	mg/l	BDL (DL:0.1)
29	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.005)

30	Sulphate as SO ₄	IS 3025 (Part 24) SECTION 1: 2022	mg/l	82
31	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL (DL:1.0)
32	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 2023	mg/l	420
33	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	975
34	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	380
35	Total Suspended Solids	is 3025 part 17: 2022	mg/l	24
36	Turbidity	IS 3025 (Part 10): 2023	NTU	12
37	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
1	Escherichia coli	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	<2
2	Total Coliforms	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	<2

TABLE 3.9 – GROUND WATER ANALYSIS RESULTS

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	WW-1	WW-2	WW-3	BW-1	BW-2
1	Aluminium	GLCS/SOP/W/62 No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
2	Ammoniacal Nitrogen as NH ₃ -N	IS 3025 PART 34/Sec 1: 2023	mg/l	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
3	Arsenic as As	GLCS/SOP/W/62 No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)	BDL (DL:0.002)	BDL (DL:0.002)	BDL (DL:0.002)	BDL (DL:0.002)
4	Barium as Ba	GLCS/SOP/W/62 No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	0.026	0.022	0.025
5	Boron as B	IS 3025 (Part 57): 2021	mg/l	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
6	Cadmium as Cd	GLCS/SOP/W/62 No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
7	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	80	92	88	112	100
8	Chloride as Cl ⁻	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	180	205	225	270	215
9	Chromium as Cr	GLCS/SOP/W/62 No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
10	Color	IS 3025 (Part 4): 2021	CU	<1	<1	<1	<1	<1
11	Copper as Cu	GLCS/SOP/W/62 No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
12	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)
13	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	μS/cm	1258	1328	1330	1578	1410
14	Fluoride as F ⁻	GLCS/SOP/W/015; Issue No:02: 2024	mg/l	0.24	0.21	0.16	0.32	0.34
15	Free Residual Chlorine as Cl ₂	IS 3025 (Part 26): 2021	mg/l	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
16	Iron as Fe	IS 3025 (Part 53): 2024	mg/l	0.4	0.26	0.30	BDL (DL:0.1)	BDL (DL:0.1)
17	Lead as Pb	GLCS/SOP/W/62 No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
18	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	56	61	58	61	58
19	Manganese as Mn	IS 3025 (Part 59): 2023	mg/l	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
20	Mercury as Hg	GLCS/SOP/W/62 No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)	BDL (DL:0.002)	BDL (DL:0.002)	BDL (DL:0.002)	BDL (DL:0.002)
21	Molybdenum as Mo	GLCS/SOP/W/62 No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
22	Nitrate as NO ₃	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL:2.0)	BDL (DL:2.0)	BDL (DL:2.0)	BDL (DL:2.0)	BDL (DL:2.0)
23	Odor	IS 3025 (Part 5): 2018	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
24	pH	IS 3025 (Part 11): 2022	-	7.48	7.32	7.58	7.16	7.27
25	Phenols	IS 3025 PART 43 Section 1: 2022	mg/l	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)

26	Selenium as Se	GLCS/SOP/W/62 No:1:Dated:10.09.2022	Issue	mg/l	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)
27	Sulphate as SO ₄	IS 3025 (Part 24) Section 1: 2022		mg/l	59	59	42	96	84
28	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023		mg/l	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
29	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 2023		mg/l	390	440	410	480	460
30	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023		mg/l	816	860	864	1026	916
31	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009 (Reaffirmed 2019)		mg/l	430	480	460	530	490
32	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022		mg/l	BDL (DL:2.0)	BDL (DL:2.0)	BDL (DL:2.0)	BDL (DL:2.0)	BDL (DL:2.0)
33	Turbidity	IS 3025 (Part 10): 2023		NTU	<1	<1	<1	<1	<1
34	Zinc as Zn	GLCS/SOP/W/62 No:1:Dated:10.09.2022	Issue	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
35	Escherichia coli	IS: 1622 – 1981(Reaffirmed 2019)		MPN/100ml	<2	<2	<2	Absent	Absent
36	Total Coliforms	IS: 1622 – 1981(Reaffirmed 2019)		MPN/100ml	<2	<2	<2	Present	Present

* 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.

Source: Sampling Results by Global Lab Consultancy Services

3.2.4 Interpretation & Conclusion

Surface Water

The pH of surface 8.12 while turbidity found within the standards. Total Dissolved Solids 975 mg/l and Chloride 215 mg/l. Nitrates BDL (DL:2.0)mg/l, while sulphates 82 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.16 to 7.58 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 816 - 1026 mg/l in all samples. The Total hardness varied between 430 – 530 mg/l for all samples.

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

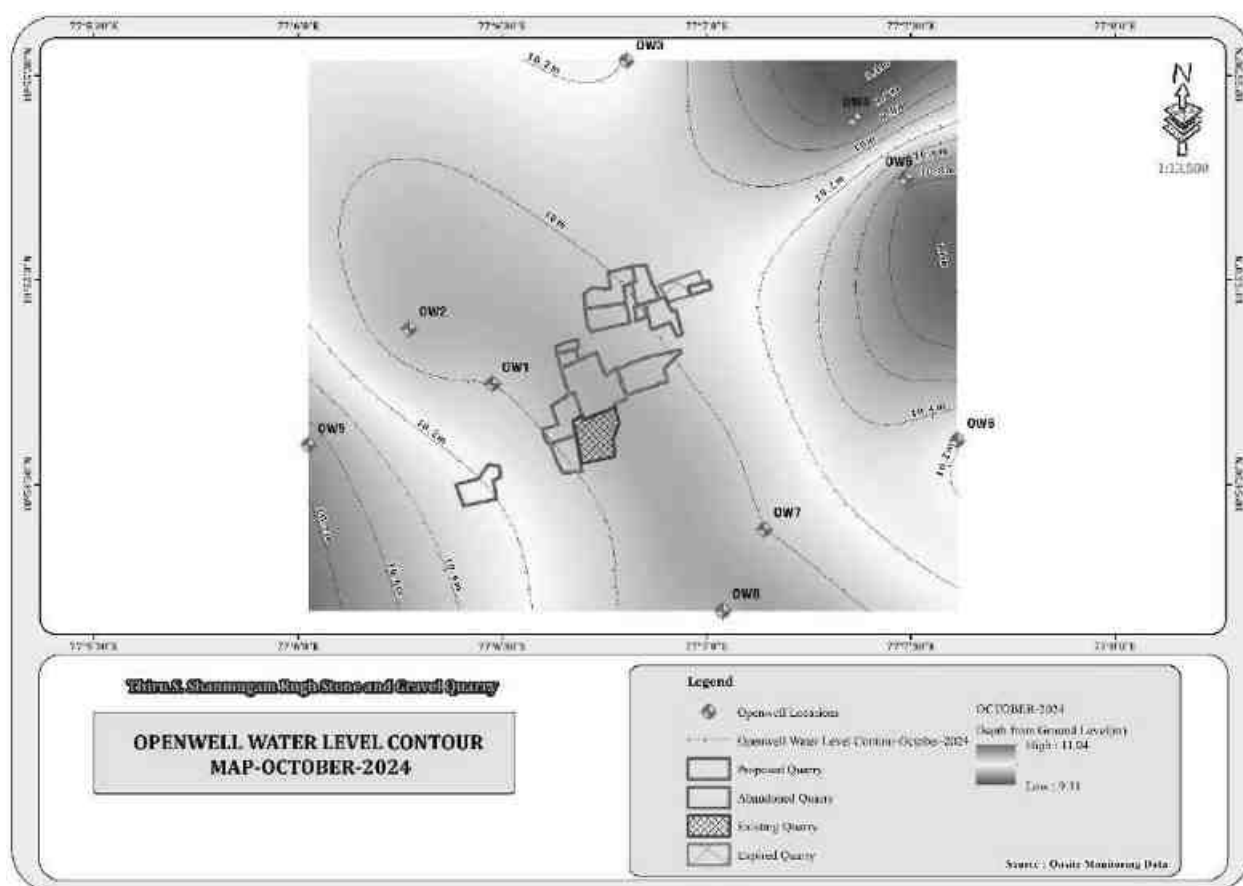
3.2.5 Hydrology and Hydrogeological studies

The district is underlain by hard rock formation Fissured and Fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 25-40m. the quarrying operations is restricted upto 38m 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. There is no necessity of stream, channel diversion due to this upcoming project.

During the rainy season there is a possibility of collection of seepage water from the subsurface levels this is due to the high intensity of fracture and weathered portion upto a depth of 10m thus the collected seepage water will be stored in the mine sump pits and will be used for dust suppression and greenbelt development and during the end of the life of the mine this collected water will be as a temporary reservoir in that area.

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

S.No	LABEL	LONGITUDE	LATITUDE	Oct 24	Nov 24	Dec 24
1	OW-1	77° 06' 28.5919" E	10° 54' 44.7024" N	10	10.8	11.4
2	OW-2	77° 06' 16.3687" E	10° 54' 52.8234" N	9.9	10.7	11.3
3	OW-3	77° 06' 48.2838" E	10° 55' 32.1937" N	10.2	11	11.6
4	OW-4	77° 07' 21.8547" E	10° 55' 23.5820" N	9.5	10.3	10.9
5	OW-5	77° 07' 29.4179" E	10° 55' 14.8673" N	10.8	11.6	12.2
6	OW-6	77° 07' 36.8816" E	10° 54' 36.4535" N	10.2	11	11.6
7	OW-7	77° 07' 08.5083" E	10° 54' 23.3749" N	10	10.8	11.4
8	OW-8	77° 07' 02.4318" E	10° 54' 11.4104" N	9.9	10.7	11.3
9	OW-9	77° 06' 01.5088" E	10° 54' 35.7345" N	10.7	11.5	12.1

FIGURE 3.8: POST MONSOON WATER LEVEL OF OPENWELLS 1 KM RADIUS

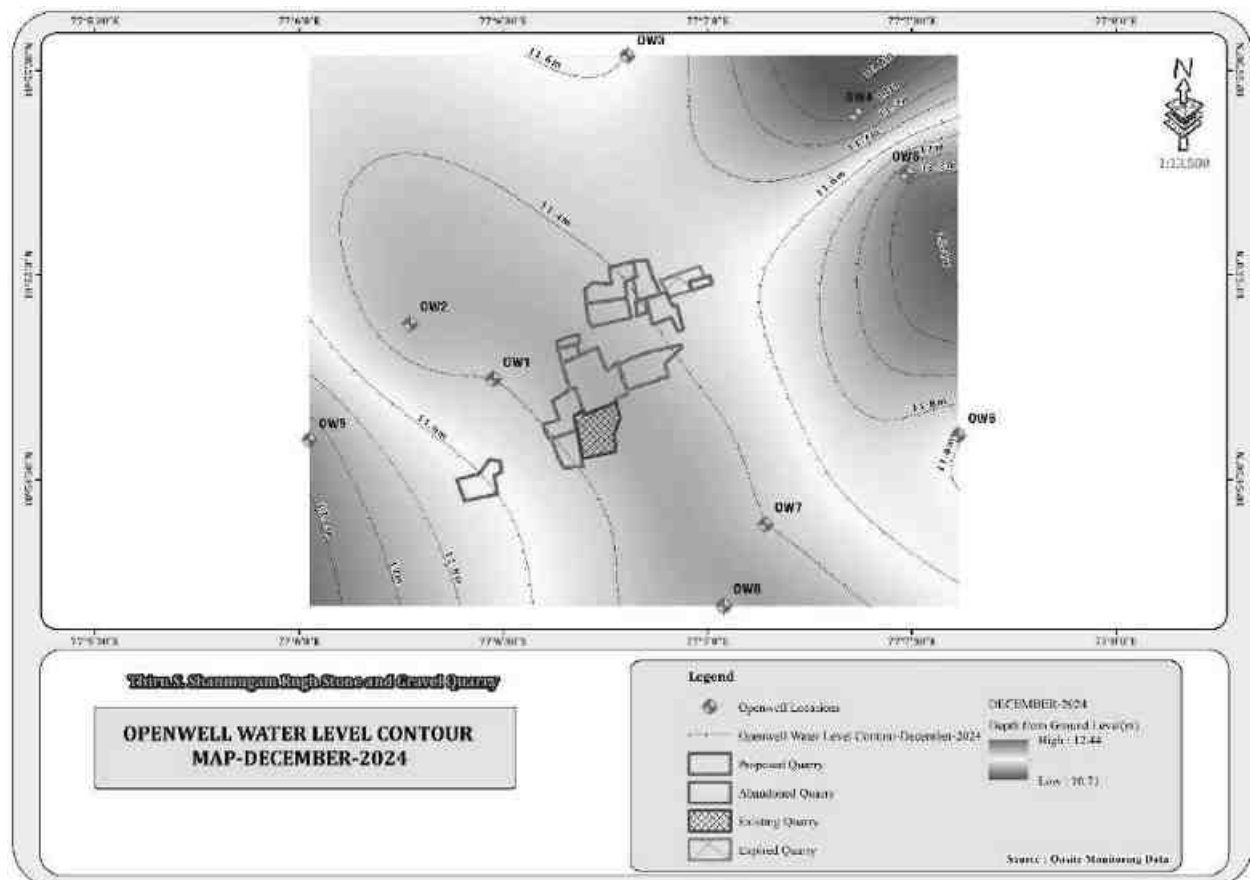
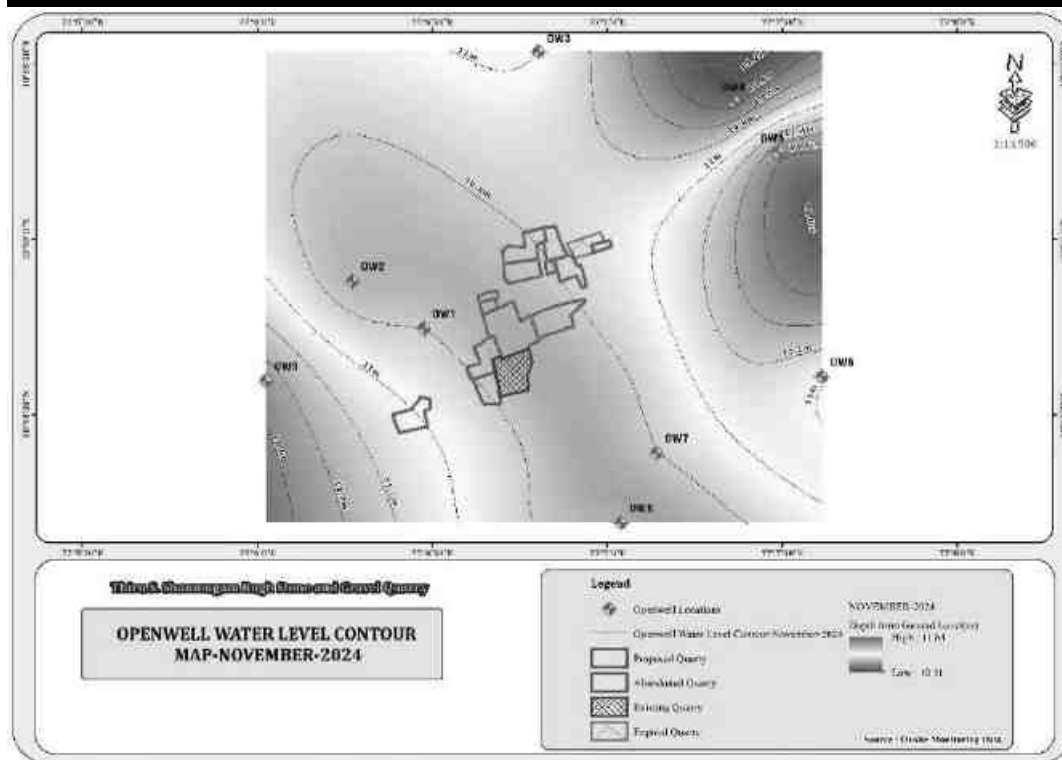
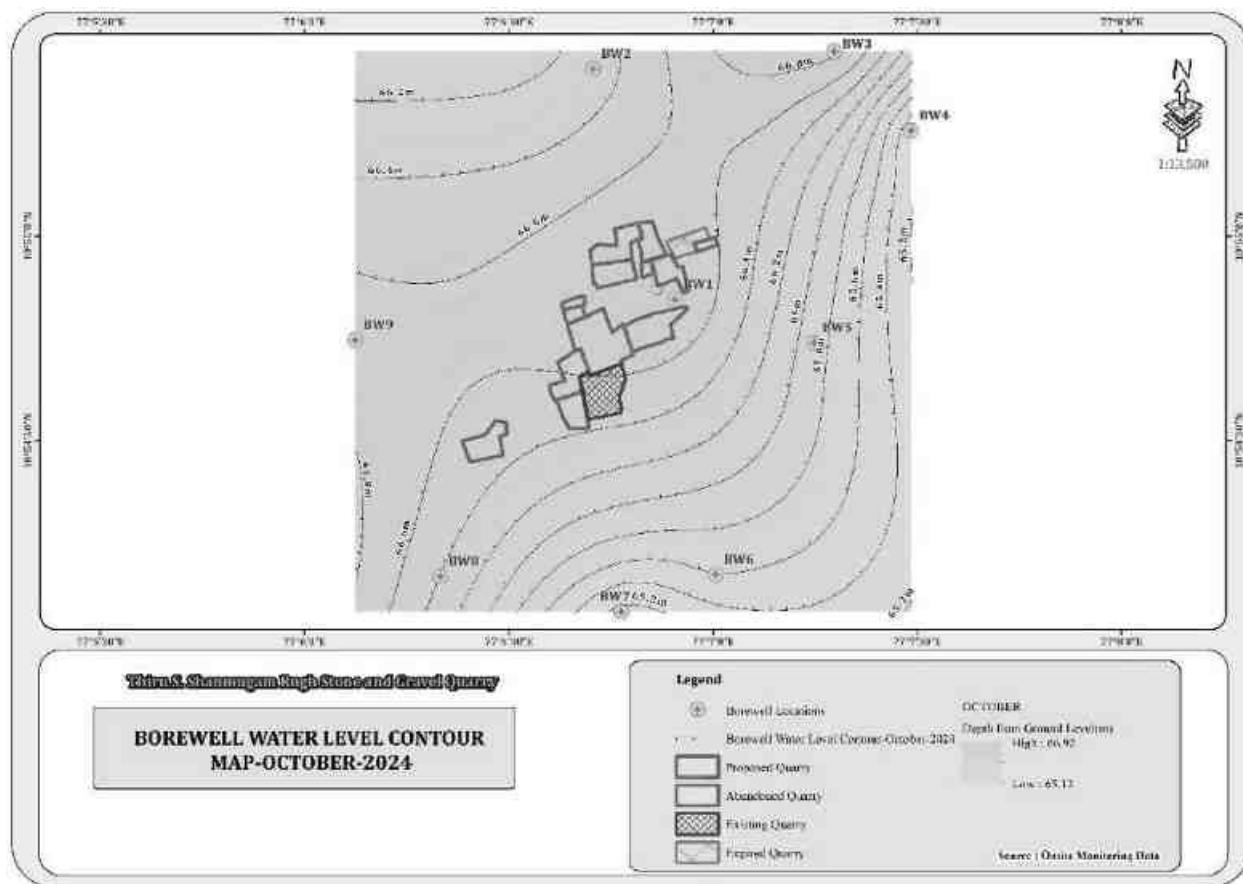


TABLE 3.12: POST MONSOON WATER LEVEL OF BOREWELLS 1 KM RADIUS

S.No	LABEL	LONGITUDE	LATITUDE	Oct 24	Nov 24	Dec 24
1	BW-1	77° 06' 54.4383" E	10° 54' 50.7308" N	66.8	67.6	68
2	BW-2	77° 06' 42.3724" E	10° 55' 24.5966" N	66.3	67.1	67.5
3	BW-3	77° 07' 17.7844" E	10° 55' 27.1822" N	66.9	67.7	68.1
4	BW-4	77° 07' 29.0935" E	10° 55' 15.5528" N	65.2	66	66.4
5	BW-5	77° 07' 14.8467" E	10° 54' 44.3829" N	65.9	66.7	67.1
6	BW-6	77° 07' 00.3829" E	10° 54' 10.3183" N	65.6	66.4	66.8
7	BW-7	77° 06' 46.4843" E	10° 54' 04.8828" N	65.1	65.9	66.3
8	BW-8	77° 06' 19.9196" E	10° 54' 10.0440" N	66.4	67.2	67.6
9	BW-9	77° 06' 07.3899" E	10° 54' 44.7831" N	66.7	67.5	67.9

FIGURE 3.9: CONTOUR MAP OF BORE WELL WATER LEVEL

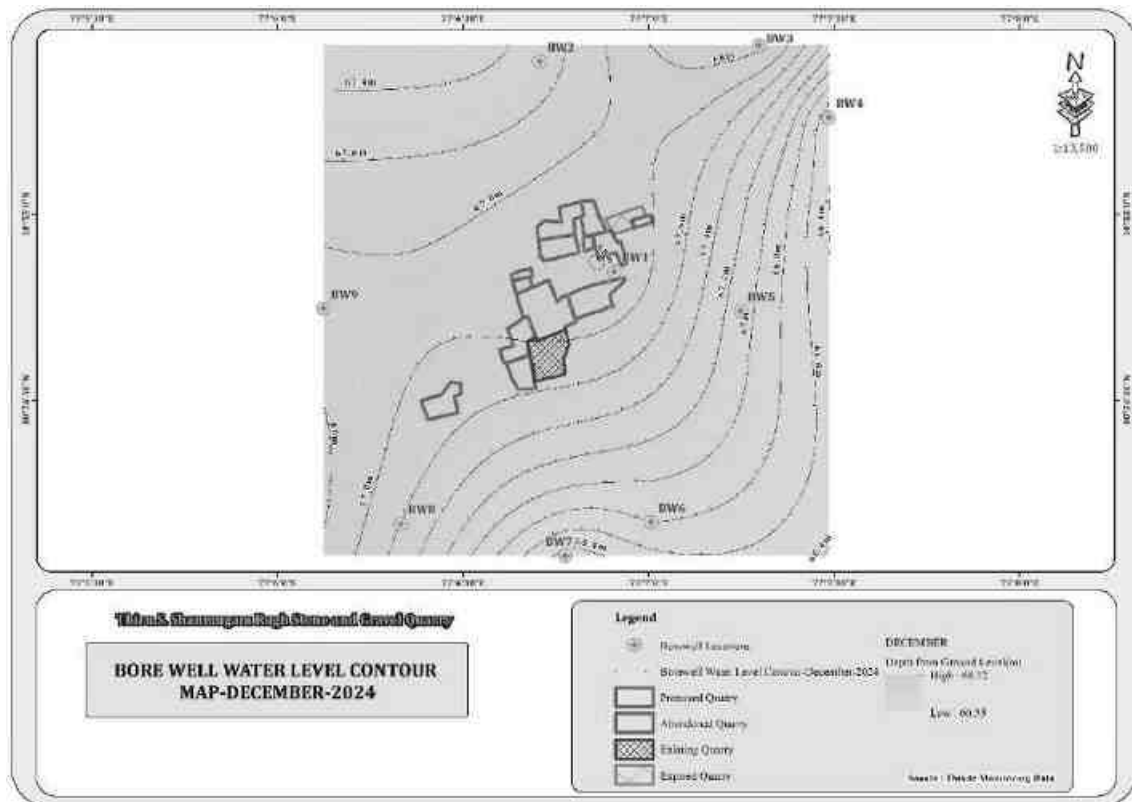
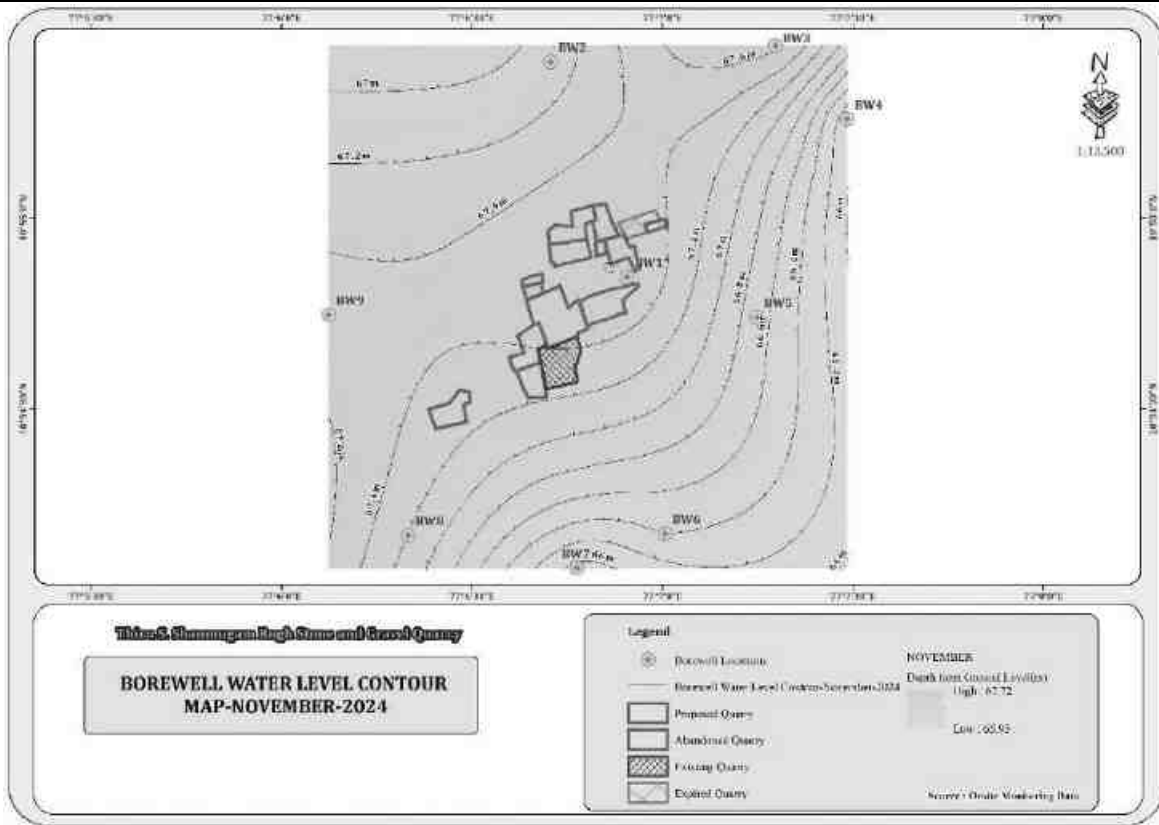
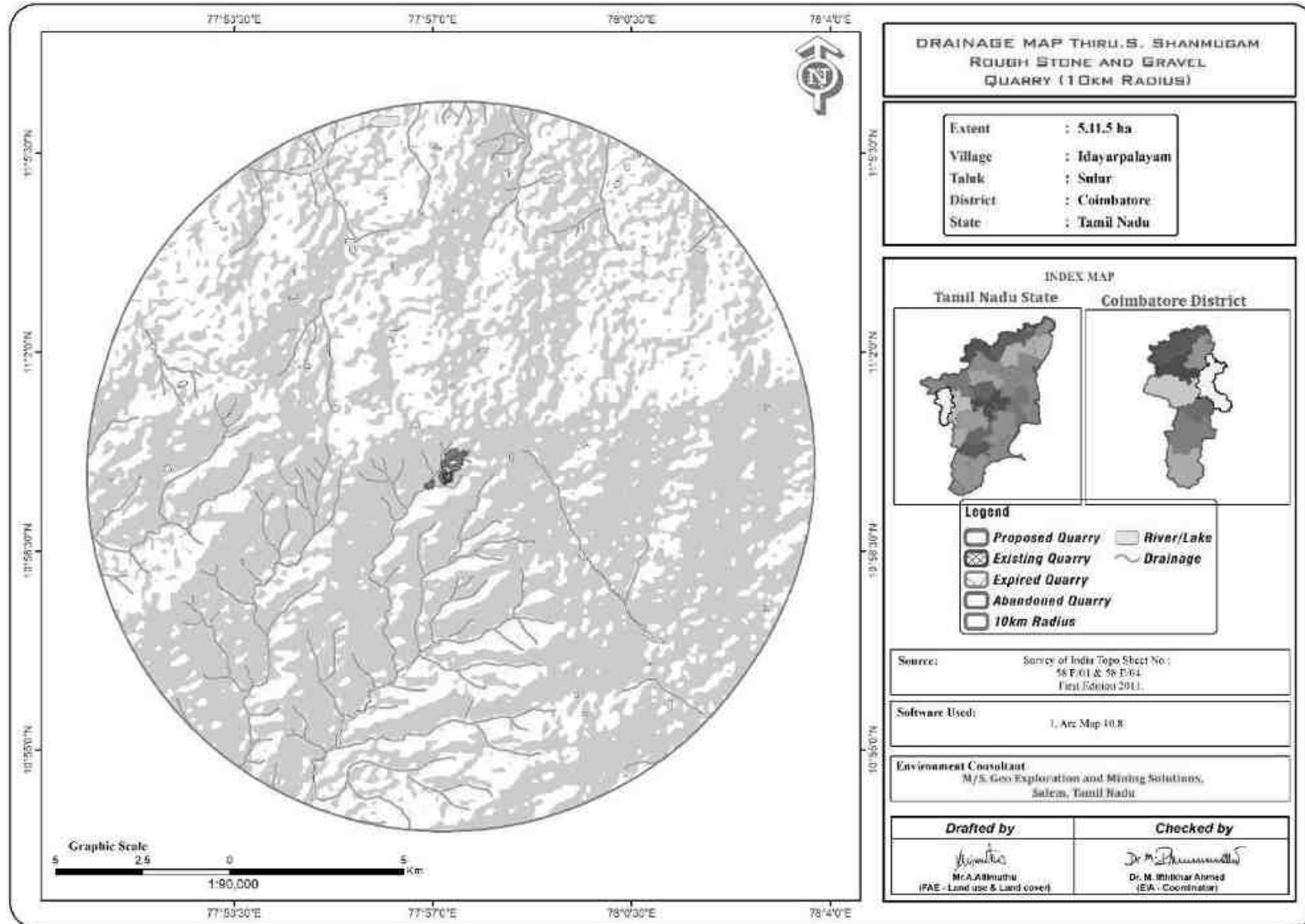


FIGURE 3.10: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE

3.2.5.1 Methodology and Data Acquisition

Electric Resistivity Method is well established for delineating lateral as well vertical discontinuities in the resistive structure of the Earth's subsurface. The present study makes use of vertical electric sounding (VES) to delineate the Vertical Resistivity structure at depth. Schlumberger electrode set up was employed for making sounding measurements. Since it is least influenced by lateral inhomogeneities 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 inhomogeneities that is consistent with the measured data.

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

$$\rho_a = \frac{GAV}{I}$$

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 106 ohmmeter as intermediate conductors and 106 to 1012 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

ϕ = Fractional pore volume

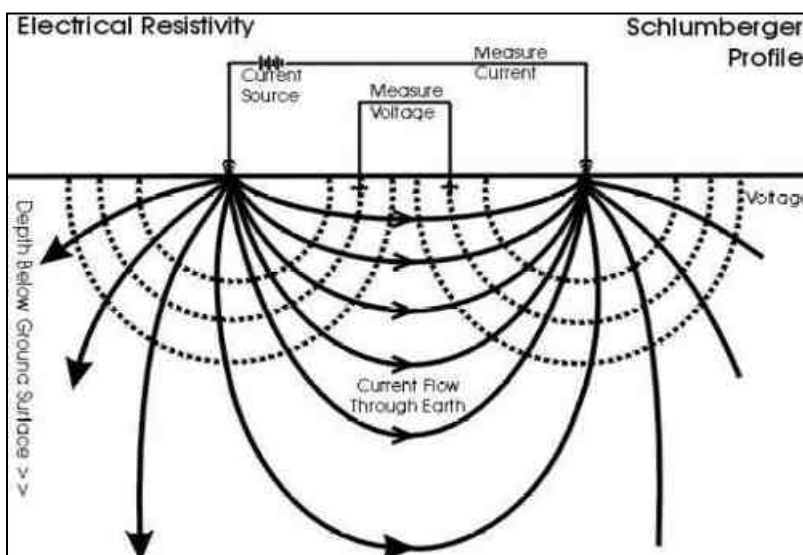
A = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

The layout for a resistivity survey depends on the choice of the current and potential electrode arrangement, which is called electrode array. Here the present study is considered with Schlumberger array. In which the distance may be used for current electrode separation while potential electrode separation is kept on third to one fifth of the same. One interesting aspect in VES is the principle of reciprocity, which permits interchange of the potential and current electrode without any effect on the measured apparent resistivity.

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 $[1, (1+2)/2, (1+2+3)/3 \dots (1+2+\dots+16)/16]$ 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.

RESISTIVITY SURVEY PROFILE



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 60-65m. The maximum depth of proposed project is 47 m 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.

3.3 Air Environment

The ambient air quality with respect to the study area of 10 km radius including the cluster quarries forms the baseline information. The prime objective of baseline air quality monitoring is to assess existing air quality of the area. This will also be useful in assessing the conformity to standards of the ambient air quality during the operations

The existing ambient air quality of the area is important for evaluating the impact of mining activities on the ambient air quality. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of Existing and proposed quarries within the radius of 500m.

The sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic & agricultural activities. This section describes the identification of sampling locations, methodology adopted during the monitoring period and sampling frequency.

The baseline status of the ambient air quality has been assessed through scientifically designed ambient air quality network. The design of monitoring network in the air quality surveillance program has been based on the following considerations:

- Meteorological conditions.
- Topography of the study area.

- Likely impact area.

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. The station was installed at a height of 4 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 –

- Coimbatore's climate is classified as tropical. The summers here have a good deal of rainfall, while the winters have very little.
 - The Köppen-Geiger climate classification is Aw. The average annual temperature in Coimbatore is 25.4 °C | 77.8 °F. The annual rainfall is 952 mm | 37.5 inch.
 - This region, situated near the equator line, is characterized by difficult-to-define summer seasons. The best time to visit is October, November, December 2024.
 - Precipitation is the lowest in January, with an average of 13 mm | 0.5 inch. Most of the precipitation here falls in October, averaging 181 mm | 7.1 inch.
 - At an average temperature of 28.9 °C | 84.1 °F, April is the hottest month of the year. December is the coldest month, with temperatures averaging 23.2 °C | 73.7 °F.
- <https://en.climate-data.org/asia/india/tamil-nadu/coimbatore-2788/>

Rainfall –

The average annual rainfall and the 5 years rainfall is as follows:

TABLE 3.13 – RAINFALL DATA

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

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

TABLE 3.14 – METEOROLOGICAL DATA RECORDED AT SITE

S.No	Parameters		Oct–2024	Nov–2024	Dec–2024
1	Temperature (°C)	Max	26.16	24.65	23.95
		Min	22.01	21.74	20.57
		Avg	24.08	23.19	22.26
2	Relative Humidity (%)	Avg	85.3	84.06	84.54
3	Wind Speed (m/s)	Max	3.63	3.71	2.45
		Min	0.67	1.21	0.59
		Avg	2.15	2.46	1.52
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		WSW,W	ENE,NE	ENE,E

Source: On-site monitoring/sampling by **Global Lab Consultancy Services** Laboratories in association with GEMS

Correlation between Secondary and Primary Data

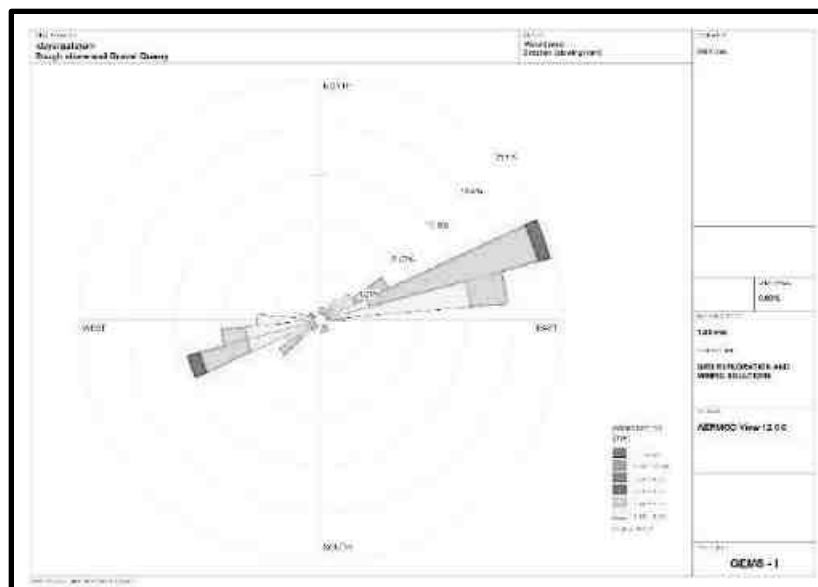
The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Coimbatore. A comparison of site data generated during the three months with that of IMD, Coimbatore Agro reveals the following:

- The average maximum and minimum temperatures of IMD, Coimbatore agro showed a higher in respect of on-site data i.e. in Pachapalayam village.

- The relative humidity levels were lesser at site as compared to IMD, Coimbatore agro.
- The wind speed and direction at site shows similar trend that of IMD, Coimbatore agro.

Windrose diagram of the study site is depicted in Figure. 3.8. Predominant downwind direction of the area during study season is North East to South West.

FIGURE 3.12: WINDROSE DIAGRAM



Environmental In the abstract of collected data wind rose were drawn on presented in figure No.3.14 during the monitoring period in the study area

1. Predominant winds were from ENE, WSW, ESE, E, WSW, W
2. Wind velocity readings were recorded between 0.50 to 5.70 km / hour
3. Calm conditions prevail of about 0.00% of the monitoring period
4. Temperature readings ranging from 22.26⁰ to 24.08⁰C
5. Relative humidity ranging from 84.06 to 85.3%
6. The monitoring was carried out continuously for three months (Oct - Dec 2024)

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 AIR QUALITY ANALYSIS

Parameter	Method	Instrument
PM _{2.5}	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM ₁₀	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO ₂	IS-5182 Part II	Respirable Dust Sampler withgaseous attachment

	(Improved West & Gaeke method)	
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 **Global Lab & Consultancy Services** & 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) PM ₁₀ (µg/m ³)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than 2.5 µm PM _{2.5} (µg/m ³)	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

Source: NAAQS CPCB Notification No. B-29016/20/90/PCI-I Dated: 18th Nov 2009

*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 values 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 seven (7) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period Oct – Dec 2024 The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂).

3.3.5 Ambient Air Quality Monitoring Stations

Seven (7) monitoring stations were set up in the study area as depicted in Figure 3.6.1 for assessment of the existing ambient air quality. Details of the sampling locations are as per given below.

TABLE 3.17 – AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ-1	Core Zone	Near Project Area	10°54'52.83"N 77° 6'43.96"E
2	AAQ-2	Core Zone	Near Project Area	10°54'44.79"N 77° 6'52.63"E
3	AAQ-3	SN Palayam	4.1km NE	10°56'23.05"N 77° 8'23.14"E
4	AAQ-4	Bogampatti	1.4km SE	10°54'17.60"N 77° 7'27.62"E
5	AAQ-5	Lakshminaickenpalayam	4.6km East	10°55'15.25"N 77° 9'15.62"E
6	AAQ-6	Panapatti	3.7km SW	10°52'43.85"N 77° 6'1.60"E
7	AAQ-7	Chinnakuyili	3.1km NW	10°55'39.11"N 77° 5'13.51"E

Source: On-site monitoring/sampling by **Global Lab & Consultancy Services** in association with GEMS

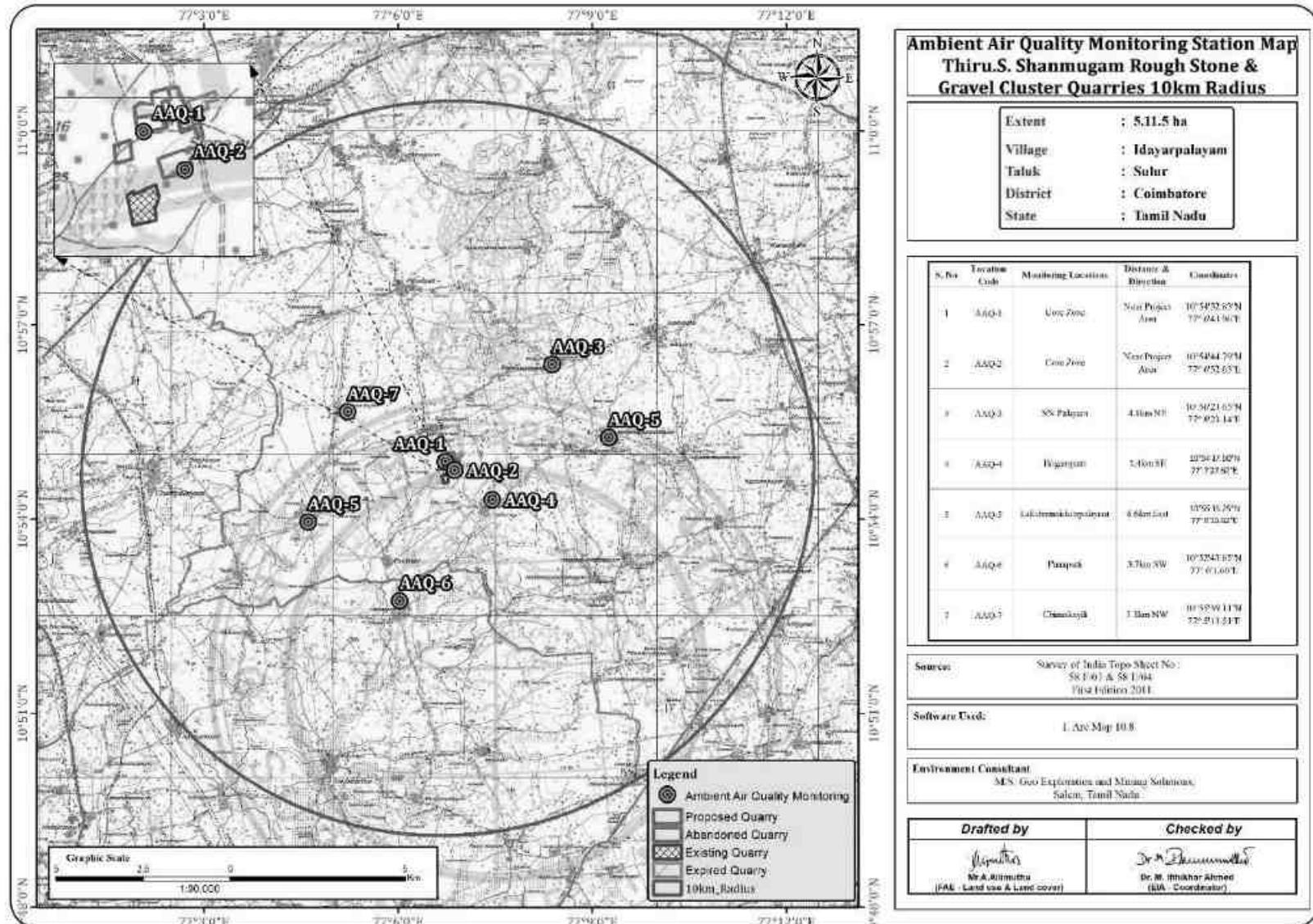
FIGURE 3.14 AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

TABLE 3.26 – ABSTRACT OF AMBIENT AIR QUALITY DATA

1	Parameter	PM ₁₀	PM _{2.5}	SO ₂	NO ₂
2	No. of Observations	260	260	260	260
3	10th Percentile Value	41.6	20.4	4.2	18.2
4	20th Percentile Value	42.8	21.6	4.4	18.9
5	30th Percentile Value	43.6	22.5	4.5	19.3
6	40th Percentile Value	44.2	23.3	4.7	19.7
7	50th Percentile Value	44.8	24.1	4.8	20.1
8	60th Percentile Value	45.2	24.5	5.0	20.5
9	70th Percentile Value	46.0	25.4	5.1	20.7
10	80th Percentile Value	46.6	25.8	5.2	21.2
11	90th Percentile Value	47.2	26.6	5.5	22.1
12	95th Percentile Value	47.8	27.0	5.8	23.0
13	98th Percentile Value	48.3	27.9	6.2	24.1
14	Arithmetic Mean	45.3	24.5	5.0	20.7
15	Geometric Mean	45.2	24.4	5.0	20.6
16	Standard Deviation	2.1	2.4	0.6	1.8
17	Minimum	41.6	20.4	4.2	18.2
18	Maximum	48.3	27.9	6.2	24.1
19	NAAQ Norms*	100.0	60.0	80.0	80.0
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

Legend:PM_{2.5}-Particulate Matter size less than 2.5 µm; PM₁₀-Respirable Particulate Matter size less than 10 µm; SO₂-Sulphur dioxide; NO₂-Nitrogen Dioxide; CO-Carbon monoxide; O₃-Ozone; NH₃-Ammonia; Pb-Particulate Lead; As-Particulate Arsenic; Ni-Particulate Nickel; C₆H₆-Benzene & BaP- Benzo (a) pyrene in particulate phase levels were monitored below their respective detectable limits.

* NAAQ Norms-National Ambient Air Quality Norms-Revised as per GSR 826(E) dated 16.11.2009 for Industrial, Residential, Rural and other Area.

TABLE 3.27 –SUMMARY OF AMBIENT AIR QUALITY DATA

PM ₁₀	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	41.9	43.1	44.7	45.4	45.5	45.2	45.0
Minimum	40.2	41.0	42.1	42.6	41.3	40.8	42.2
Maximum	48.4	49.8	48.0	47.8	48.1	48.3	48.2
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0

PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	20.6	21.5	23.6	24.8	24.9	24.4	24.0
Minimum	18.7	19.5	21.2	20.8	20.4	19.5	21.2
Maximum	22.9	24.1	27.0	27.8	27.9	27.0	27.0
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SO₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	4.6	4.4	4.8	5.0	4.9	5.0	5.0
Minimum	4.1	4.1	4.1	4.3	4.1	4.1	4.3
Maximum	5.4	4.9	6.0	5.8	6.2	6.2	5.5
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	19.8	19.8	20.2	20.3	20.4	20.1	20.5
Minimum	16.9	17.6	17.8	17.9	18.4	17.8	18.0
Maximum	23.6	23.6	26.2	23.3	23.1	22.4	24.7
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0

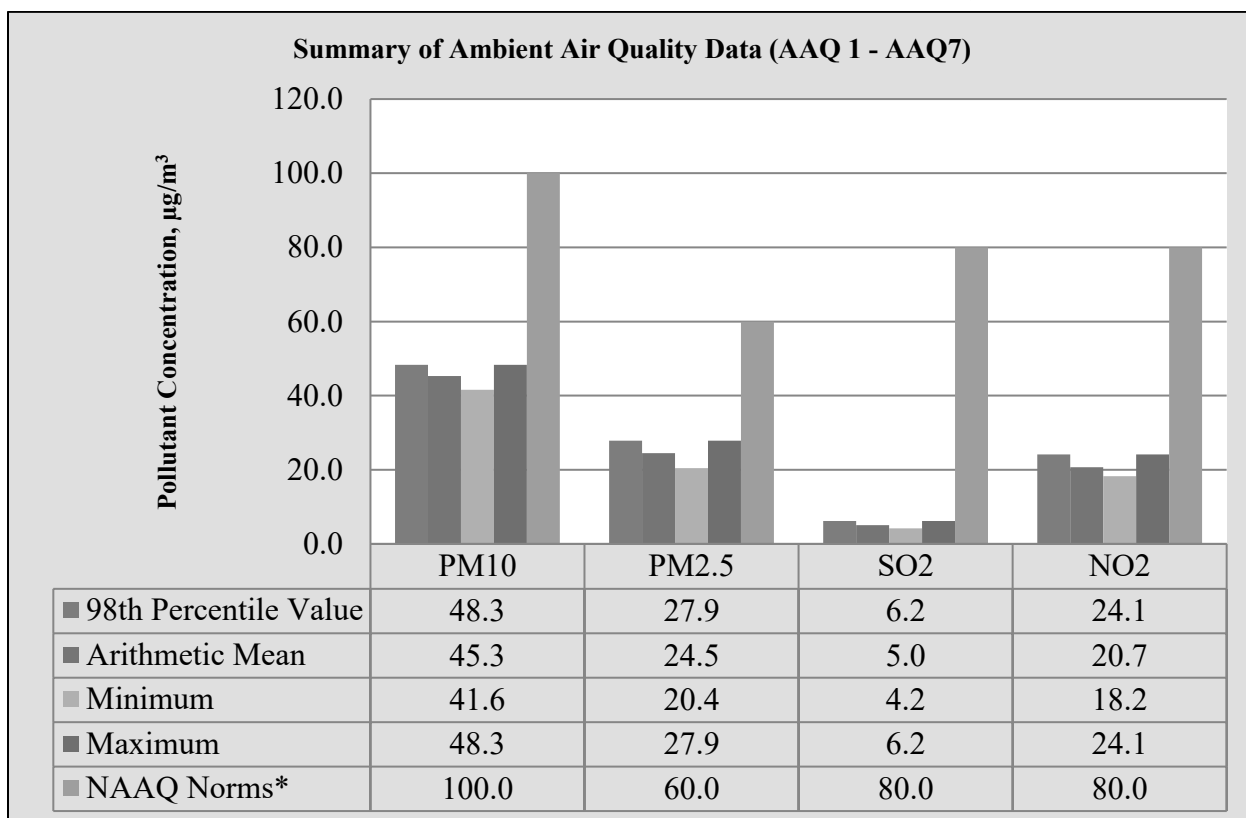
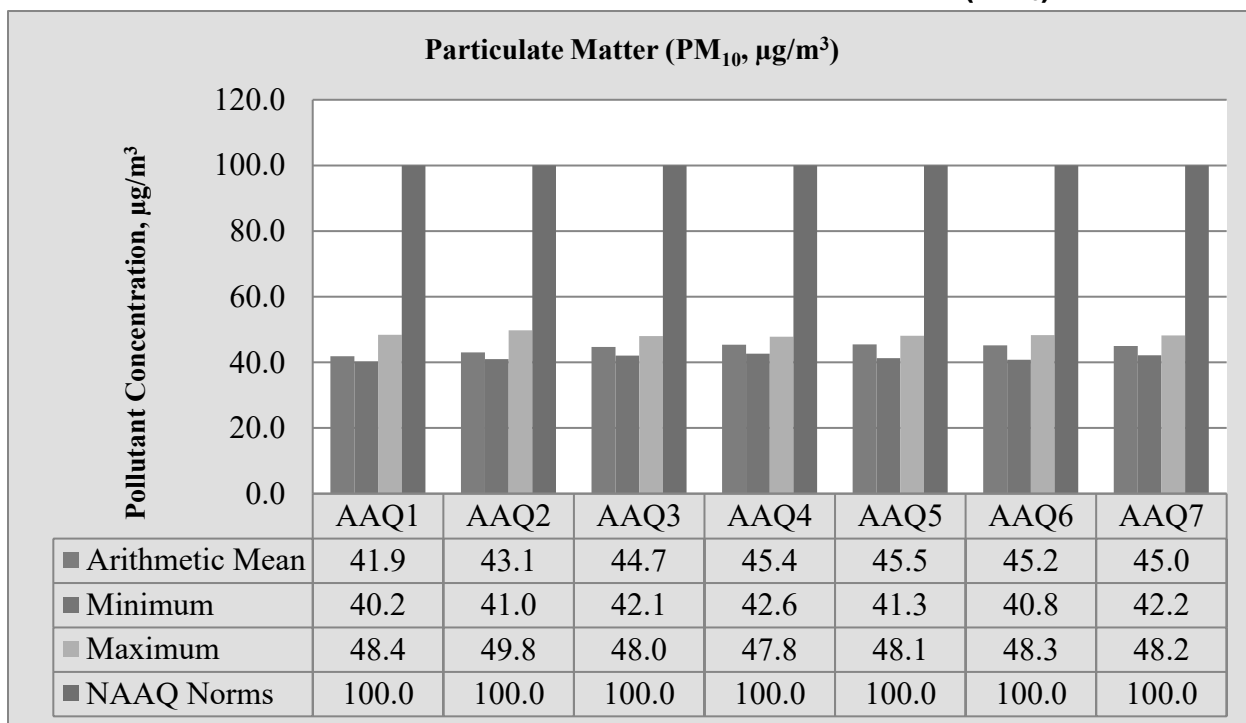
FIGURE 3.15 : BAR DIAGRAM OF SUMMARY OF AAQ**FIGURE 3.16: BAR DIAGRAM OF PARTICULATE MATTER (PM₁₀)**

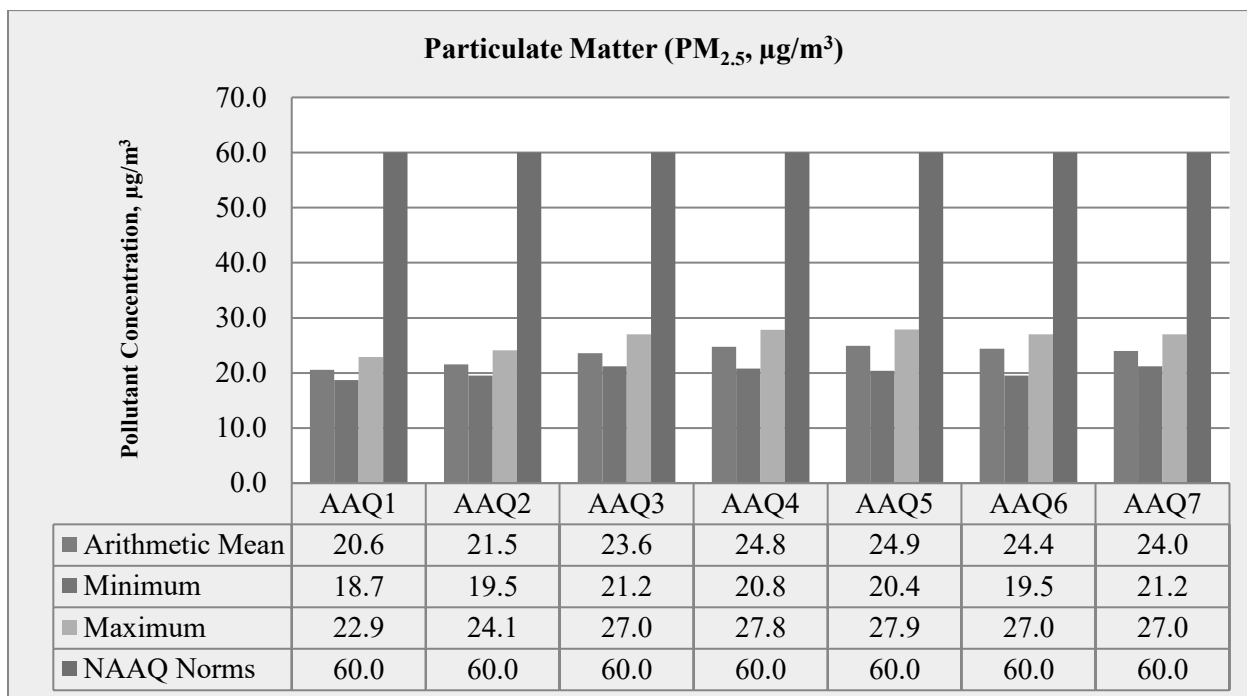
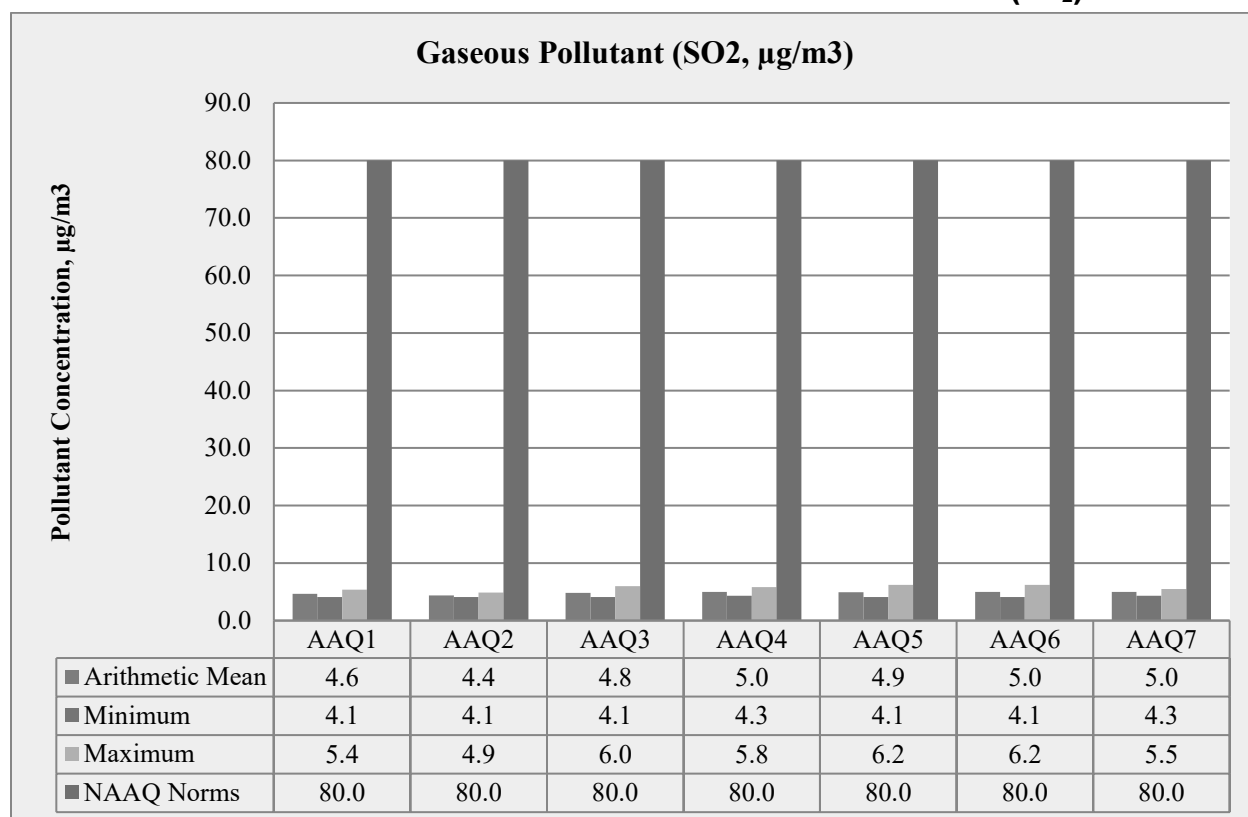
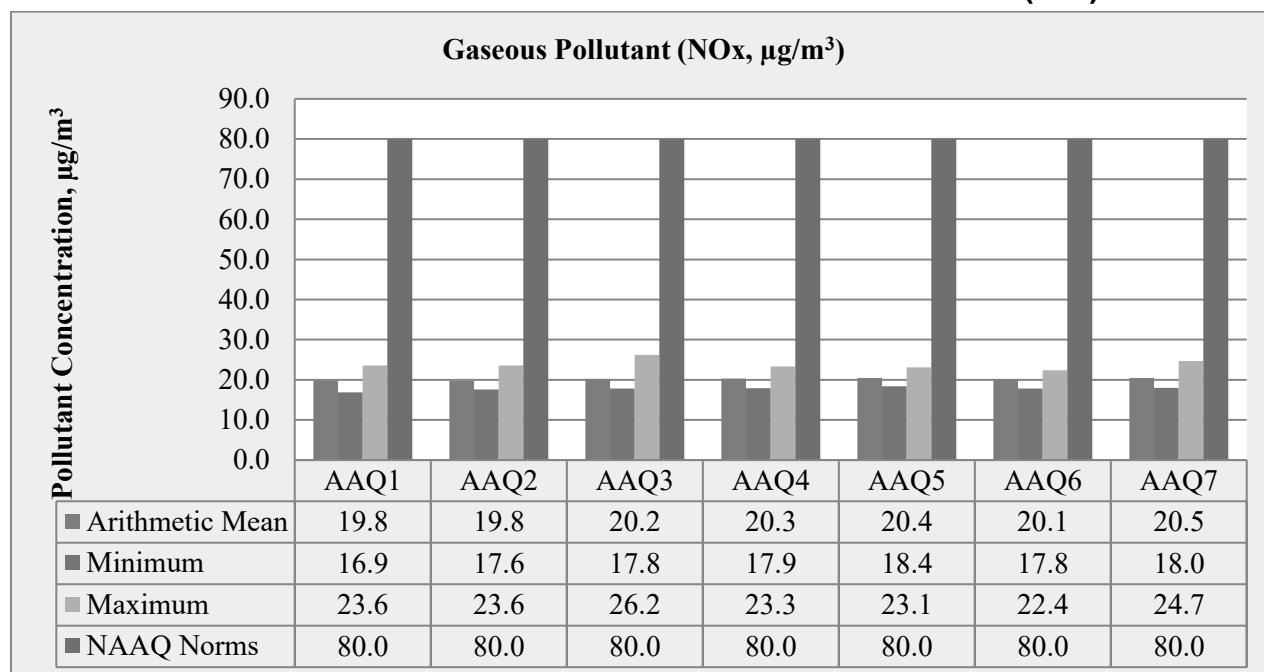
FIGURE 3.16 A : BAR DIAGRAM OF PARTICULATE MATTER (PM_{2.5})**FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER (SO₂)**

FIGURE 3.17 A: BAR DIAGRAM OF PARTICULATE MATTER (NO₂)

3.3.6 Interpretations & Conclusion

As per monitoring data, PM₁₀ ranges from 41.9 µg/m³ to 45.5µg/m³, PM_{2.5} data ranges from 20.6 µg/m³ to 24.9 µg/m³, SO₂ ranges from 4.4 µg/m³ to 5.0 µg/m³ and NO₂ data ranges from 19.8 µg/m³ to 20.5 µg/m³. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB. The minimum & maximum concentrations of PM₁₀ were found to be 41.9 µg/m³ in Core Zone & 45.5µg/m³ in Lakshminaickenpalayam respectively. The minimum & maximum concentrations of PM_{2.5} were found to be 20.6 µg/m³ in Core Zone & 24.9 µg/m³ in Lakshminaickenpalayam respectively. The maximum concentration in the core zone is due to the cluster of quarries situated within 500m radius.

3.4 Noise Environment

The vehicular movement on road and mining activities is the major sources of noise in study area, the environmental assessment of noise from the mining activity and vehicular traffic can be undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses.

The main objective of noise monitoring in the study area is to establish the baseline noise level and assess the impact of the total noise expected to be generated during the project operations around the project site.

3.4.1 Identification of Sampling Locations

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at seven (7) locations. 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 3.31 – DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	N-1	Core Zone	Near Project Area	10°54'55.64"N 77° 6'43.26"E
2	N-2	Core Zone	Near Project Area	10°54'46.62"N 77° 6'47.59"E
3	N-3	SN Palayam	4.1km NE	10°56'23.14"N 77° 8'22.82"E
4	N-4	Bogampatti	1.4km SE	10°54'17.66"N 77° 7'27.41"E
5	N-5	Lakshminaickenpalayam	4.6km East	10°55'15.52"N 77° 9'15.45"E
6	N-6	Panapatti	3.7km SW	10°52'43.62"N 77° 6'1.10"E
7	N-7	Chinnakuyili	3.1km NW	10°55'39.20"N 77° 5'13.11"E

Source: On-site monitoring/sampling by Global Lab & Consultancy Services in association with GEMS

FIGURE 3.18: PHOTOGRAPHS OF AMBIENT NOISE MONITORING LOCATIONS

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.

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

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

T = Time interval of observation

3.4.3 Analysis of Ambient Noise Level in the Study Area

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 3.6

Day time : 6:00 hours to 22.00 hours.

Night time : 22:00 hours to 6.00 hours

TABLE 3.32 – NOISE MONITORING RESULTS IN CORE AND BUFFER ZONE

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
N-1	Core Zone	39.4	34.7	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
N-2	Core Zone	44.0	36.9	
N-3	SN Palayam	45.7	35.0	

N-4	Bogampatti	49.5	38.0	Residential Day Time– 55 dB (A) Night Time- 45 dB (A)
N-5	Lakshminaickenpalayam	48.9	37.1	
N-6	Panapatti	47.0	35.9	
N-7	Chinnakuyili	44.5	36.1	

Source: On-site monitoring/sampling by Global Lab & Consultancy Services in association with GEMS

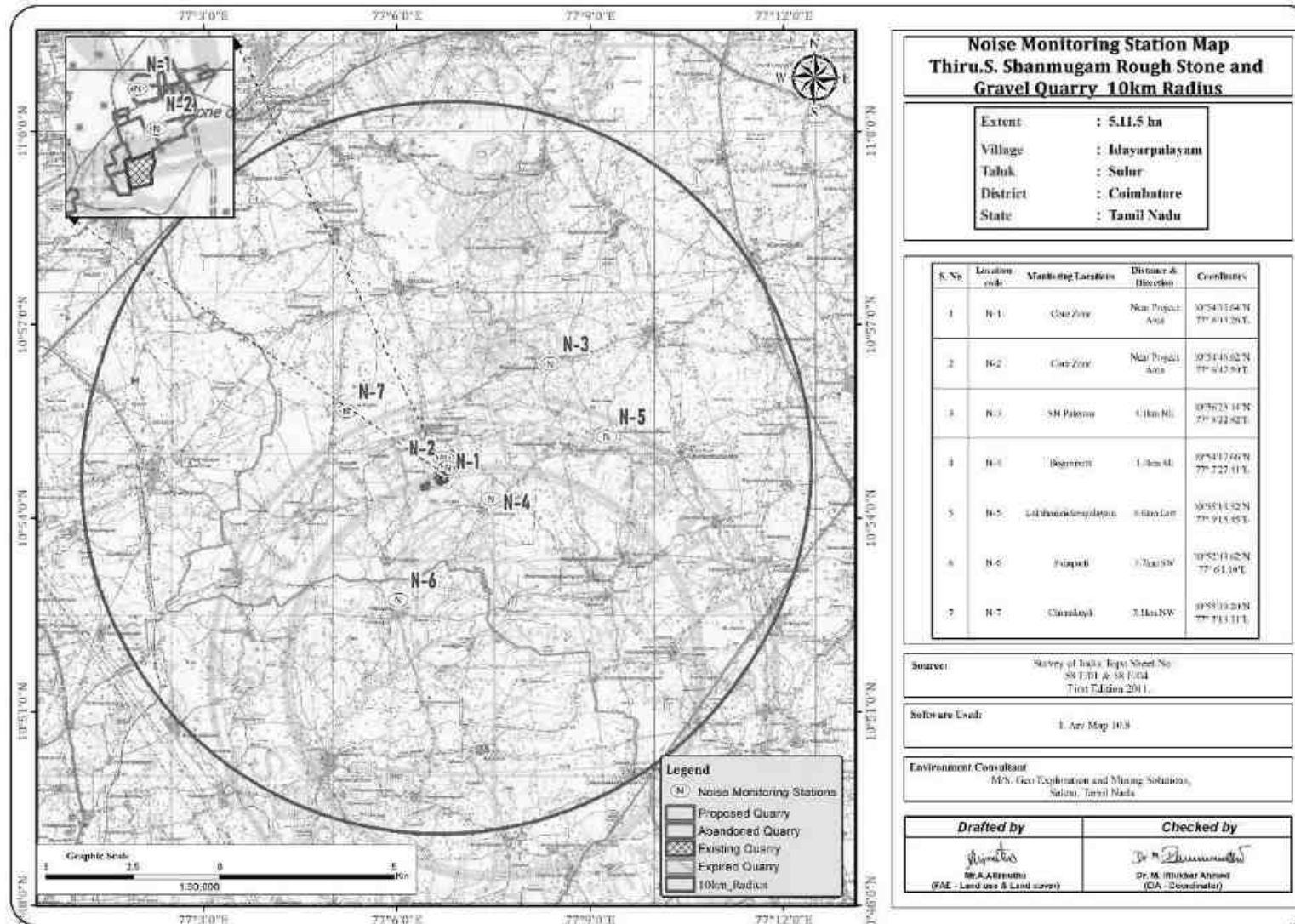
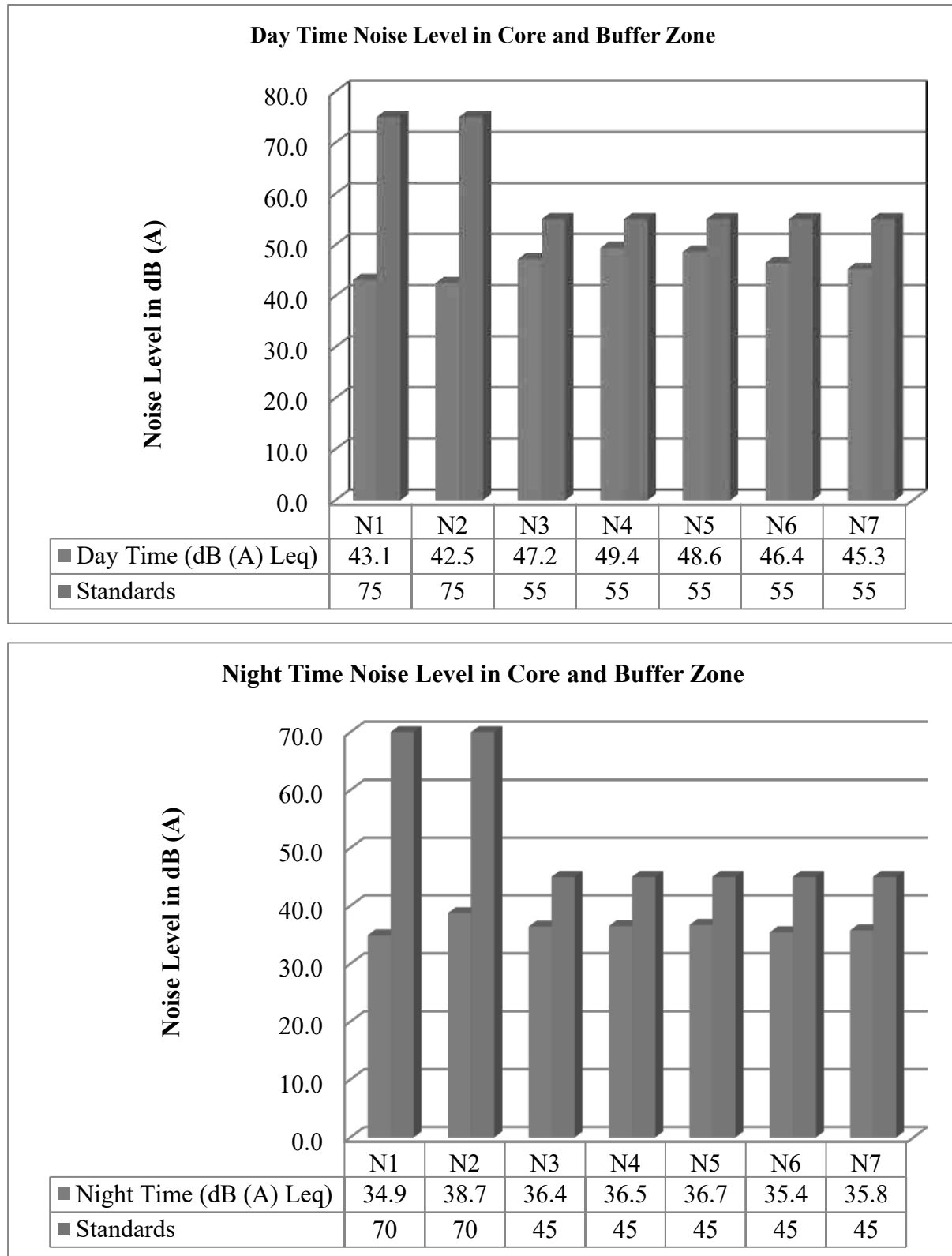
FIGURE 3.19: NOISE MONITORING STATIONS AROUND 10 KM RADIUS

FIGURE 3.20: DAY & 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 project area considering quarries. Noise levels recorded in core zone during day time were from 42.5 – 43.1 dB (A) Leq and during night time were from 34.9-38.7 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 45.3 – 49.4dB (A) Leq and during night time were from 35.4-36.7 dB (A) Leq.

The values of noise observed in some of the areas are primarily owing to quarrying activities due to cluster of quarries within 500m radius, movement of vehicles and other anthropogenic activities. Noise monitoring results reveal that the maximum & minimum noise levels at day time were recorded in the range of 49.4 dB(A) in Bogampatti village and 45.3 dB(A) in chinnakuili Village respectively. 35.4 dB(A) in Panapatti and 36.7 dB(A) in Lakshminaickenpalayam Village respectively in night time. 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 1.84.0 Ha of Rough stone and Gravel quarry 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 area applied area exhibits plain topography. 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 the 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 ordinales. 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).

a) 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.

b). 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.

c) 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.

d) Observations from Sampling

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

e) Equipment/ References

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

3.5.4.2. Modified Pollard Walk – for Butterflies

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

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

VES is a time-constrained sampling technique (Campbell and Christman, 1982; Corn and Bury, 1990). It needs a systematic search through an area or habitat for a prescribed time period (Campbell and Christman, 1982). The result of VES is measured against the time spent 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 of trees, Shrubs, and herbs respectively.

Table No: 3.33 Flora in the Core zone of Rough Stone and Gravel Quarry

Sl.No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Velvet mesquite	Mullu Maram	<i>Prosopis juliflora</i>	Fabaceae
2.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	Fabaceae
3.	Neem or Indian lilac	Vembu maram	<i>Azadirachta indica</i>	Meliaceae
4.	Millettia Pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
Shrubs				
1.	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae
2.	Devil's trumpet	Umathai	<i>Datura metel</i>	Solanaceae
3.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
Herbs				
1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Fish poison	Kolinch	<i>Tephrosia purpurea</i>	Fabaceae
3.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
4.	Devil's thorn	Nerunji	<i>Tribulus terrestris</i>	Zygophyllales
5.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
6.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
7.	Malabar catmint	Pie Viratti	<i>Anisomeles malabarica</i>	Lamiaceae
Grasses				
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
2.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae

3.5.5.1 Flora Composition in the Core Zone

Taxonomically a total of 16 species belonging to 10 families have been recorded from the core mining lease area. The proposed area applied area exhibits plain topography. This land is fit for vegetation and cultivation. Based on the habitat classification of the enumerated plants the majority of species were Herbs 7 followed by Shrubs 3, Trees 4, and Grasses 2. Details of flora with the scientific name were mentioned in Table No. 3.33 The result of the core zone of flora studies shows that Fabaceae and Poaceae, Lamiaceae are the main dominating species in the study area mentioned in Table No.3.33 No species found as threatened category.



a. *Calotropis gigantea*



b. *Prosopis juliflora*



c. *Vachellia leucophloea*



d. *Azadirachta indica*



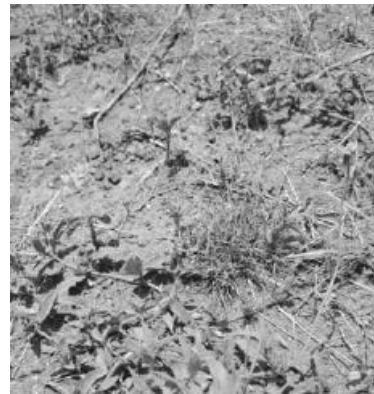
e. *Euphorbia hirta*



f. *Bromus diandrus*



g. *Tephrosia purpurea*



h. *Tridax procumbens*

Fig No: 3.21 Flora species observation in the core zone area

Table No: 3.34 Flora in Buffer Zone of Rough Stone and gravel quarry.

Sl.No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Velvet mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
2.	Neem or Indian lilac	Vembu	<i>Azadirachta indica</i>	Meliaceae
3.	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae
4.	Wild Tamarind	Savundal	<i>Leucaena latisiliqua</i>	Mimosaceae
5.	Tree of heaven	Perumaram	<i>Ailanthus excelsa</i>	Simaroubaceae
6.	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae
7.	Madras thorn	Kudukapuli	<i>Pithecellobium dulce</i>	Fabaceae
8.	River tamarind	Soundal maram	<i>Leucaena leucocephala</i>	Fabaceae
9.	Indian siris	Eayal vaagai	<i>Albizia lebbek</i>	Mimosaceae
10.	Monkey pod tree	Thungumoonchi	<i>Samanea saman</i>	Fabaceae
11.	Cutch tree	Karangali	<i>Acacia chundra</i>	Mimosaceae
12.	Portia tree	Poovarasam	<i>Thespesia Populnea</i>	Malvaceae
13.	Sage-leaved alangium	Alangi	<i>Alangium salviifolium</i>	Alangiaceae
14.	Jack fruit	Bala maram	<i>Artocarpus integrifolia</i>	Moraceae
15.	Indian siris	Vagai	<i>Albizia lebbek</i>	Mimosaceae
16.	Bitter Albizia	Unja, Usilai	<i>Albizia amara</i>	Mimosaceae
17.	Tree of heaven	Perumaram	<i>Ailanthus excelsa</i>	Simaroubaceae
18.	Velvet mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
19.	Yellow Flame	Vagai	<i>Peltophorum pterocarpum</i>	Caesalpiniaceae
20.	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae
21.	Jamun Fruit Plant	Naval maram	<i>Syzygium cumini</i>	Myrtaceae
22.	Gum arabic tree	Karuvelam	<i>Vachellia nilotica</i>	Fabaceae
23.	Yellow oleander	Ponarali	<i>Cascabela thevetia</i>	Apocynaceae
24.	Rain Tree	Mazlhimaram	<i>Samanea saman</i>	Mimosaceae
25.	Chinese chaste tree	Nochi	<i>Vitex negundo</i>	Verbenaceae
26.	Umbrella thorn	Umbrella thorn	<i>Acacia planifrons</i>	Mimosaceae
27.	Golden shower tree	Sarakonnai	<i>Cassia fistula</i>	Caesalpiniaceae
28.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	Arecaceae
29.	Curry tree Plant	Karuveppilai	<i>Murraya koenigii</i>	Rutaceae
30.	Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae
31.	Indian mulberry	Nuna maram	<i>Morinda tinctoria</i>	Rubiaceae

32.	Drumstick tree	Murunga maram	<i>Moringa oleifera</i>	Moringaceae
33.	Guava	Koyya	<i>Psidium guajava</i>	Myrtaceae
34.	Indian-almond	Inguti	<i>Terminalia catappa</i>	Combretaceae
35.	Cat Spider Flower	Cleome	<i>Cleome felina</i>	Capparaceae
36.	Eucalyptus	Thailam maram	<i>Eucalyptus tereticornis</i>	Myrtaceae
37.	Pongamia pinnata	Pongam	<i>Millettia pinnata</i>	Fabaceae
38.	Horsetail She-oak	Savukku maram	<i>Casuarina equisetifolia</i>	Casuarinaceae
39.	Henna	Marudaani	<i>Lawsonia inermis</i>	Lythraceae
40.	Indian gooseberry	Nelli	<i>Phyllanthus emblica</i>	Phyllanthaceae
41.	Peepal	Asoka maram	<i>Ficus religiosa</i>	legume
42.	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes
43.	Rosewood	Eeti, Thodagathi, Tawadi	<i>Dalbergia latifolia</i>	Fabaceae
44.	Butter Tree	Kattu illupai	<i>Madhuca indica</i>	Sapotaceae
45.	Conkerberry	Sirukilaa	<i>Carissa spinarum</i>	Apocynaceae
46.	Malayan Cherry	Ten Pazham	<i>Muntingia calabura</i>	Muntingiaceae
47.	Sacred fig	Arasa maram	<i>Ficus religiosa</i>	Moraceae
48.	Jujube Trees	Elantha Pazham	<i>Ziziphus Mauritiana</i>	Rhamnaceae
49.	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae
50.	Mountain date	Malai eecham,	<i>Phoenix loureirii</i>	Arecaceae
51.	Java olive tree	Kutiraippitukku	<i>Sterculia foetida</i>	Malvaceae
52.	Ceylon satinwood	Purush, Porasu	<i>Chloroxylon swietenia</i>	Rutaceae
53.	Banana tree	Vazhaimaram	<i>Musa acuminata</i>	Musaceae
54.	Amati	Agathi keera	<i>Sesbania grandiflora</i>	Fabaceae
55.	Custard apple	Seethapazham	<i>Annona reticulata</i>	Annonaceae
56.	Manilkara zapota	Sapota	<i>Manilkara zapota</i>	Sapotaceae
57.	Indian-almond	Badam	<i>Terminalia catappa</i>	Combretaceae
58.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae
59.	Jack fruit	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae
Shrubs				
1.	Giant reed	Mudaampul	<i>Arundo donax</i>	Poaceae
2.	Devil's trumpet	Umathai	<i>Datura metel</i>	Solanaceae
3.	Senna Coffee	Payaveri	<i>Cassia occidentalis</i>	Caesalpiniaceae
4.	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae
5.	Water-hyacinth	Agayathamara	<i>Eichhornia crassipes</i>	Pontederiaceae
6.	Kangkong	Sarkaraivalli	<i>Ipomeae aquatica</i>	Convolvulaceae

7.	Castor bean	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae
8.	-	Vellai indu	<i>Acacia pennata</i>	Mimosaceae
9.	Green amaranth	Kuppaikerai	<i>Amaranthus vividis</i>	Amaranthaceae
10.	Jungle geranium	Idly Poo	<i>Ixora coccinea</i>	Rubiaceae
11.	Birch-Leaved Cat Tail	Aathaathazhai	<i>Acalypha fruticosa</i>	Euphorbiaceae
12.	Horn of Plenty	Karu Umathai	<i>Datura metel</i>	Solanaceae
13.	Devil's claw	Thael kodukkukai	<i>Martynia annua</i>	Pedaliaceae
14.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae
15.	Asian Bushbeech	Sirukumalaan	<i>Gmelina asiatica</i>	Verbenaceae
16.	Wild jasmine	Kattumalli	<i>Jasminum trichotomum</i>	Oleaceae
17.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
18.	Rough cocklebur	Marlumuttu	<i>Xanthium indicum</i>	Asteraceae
19.	Mexican prickly poppy	Bramathndu	<i>Argemone mexicana</i>	Papaveraceae
20.	Orange Jasmine	Mock Orange	<i>Murraya paniculata</i>	Rutaceae
21.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae
22.	Cypress vine	Mayil maanikam	<i>Ipomoea quamoclit</i>	Convolvulaceae
23.	Indian Balm of Gilead	Mulkilluvai	<i>Commiphora berryi</i>	Burseraceae
24.	Malabar catmint	Pei veratti	<i>Anisomeles malabarica</i>	Lamiaceae
25.	Dwarf Heliotrope	Theelkoduku	<i>Heliotropium supinum</i>	Boraginaceae
26.	Clustered Morning Glory	Onan kodi	<i>Ipomoea staphylina</i>	Convolvulaceae
27.	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae
28.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
29.	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae
30.	Rosary pea	Kundumani	<i>Abrus precatorius</i>	Fabaceae
31.	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae
32.	West Indian Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
33.	Rough cocklebur	Marlumutt	<i>Xanthium indicum</i>	Asteraceae
Herbs				
1.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
2.	Sessile Joyweed	Ponnankanni	<i>Alternanthera sessilis</i>	Amaranthaceae
3.	Billygoat weed	Pumpillu	<i>Ageratum conyzoides</i>	Asteraceae
4.	Aloe barbadensis	Katrashai	<i>Aloe vera</i>	Asphodelaceae
5.	Madagascar Periwinkle	Nithyakalyani	<i>Catharanthus roseus</i>	Apocynaceae
6.	Indian Mercury	Kuppamani	<i>Acalypha indica</i>	Euphorbiaceae
7.	Indian nettle	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae

8.	Chloris barbata	Kodai pul	<i>Chloris barbata</i>	Poaceae
9.	Spreading hogweed	Mookkaratti	<i>Boerhavia diffusa</i>	Nyctaginaceae
10.	Bui	Ciru-pulai	<i>Aervalanata</i>	Amaranthaceae
11.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
12.	Spiny amaranth	Mullu keera	<i>Amaranthus spinosus</i>	Amaranthaceae
13.	Prickly chaff flower	Uthrani	<i>Achyranthes aspera</i>	Amaranthaceae
14.	Malabar spinach	Pasalaikeera, Paasaangalli	<i>Basella alba</i>	Basellaceae
15.	Tropical milkweed	Blood Flower	<i>Asclepias curassavica</i>	Asclepiadaceae
16.	Mexican prickly poppy	Mullu umathai	<i>Argemone mexicana</i>	Papaveraceae
17.	Dwarf morning-glory	Vishnu kiranthi	<i>Evolvulus alsinoides</i>	Convolvulaceae
18.	Datura metel	Oomathai	<i>Datura metel</i>	Solanaceae
19.	Carry me seed	Kizhar nelli	<i>Phyllanthus amarus</i>	Phyllanthaceae
20.	Malabar catmint	Peymarutti	<i>Anisomeles malabarica</i>	Lamiaceae
21.	Black-jack	Mukkuthi Asteraceae	<i>Bidens pilosa</i>	Aizoaceae
22.	Yellow elder	Manjarali	<i>Tecoma stans</i>	Apocynaceae
23.	Green amaranth	Kuppai keera	<i>Amaranthus viridis</i>	Amaranthaceae
24.	Obscure Morning Glory	Siruthaali	<i>Ipomoea obscura</i>	Convolvulaceae
25.	Cleome viscosa	Nai kadugu	<i>Celome viscosa</i>	Capparidaceae
26.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
27.	Waterhyssop	Nilappachai	<i>Bacopa monnieri</i>	Scrophulariaceae
28.	Century plant	Agave	<i>Agave america</i>	Agavaceae
29.	Sand Herbage	Manal keera	<i>Gisekia pharnaceoides</i>	
30.	Fish poison	Kollukaivelai	<i>Tephrosia purpureae</i>	Papilionaceae
31.	Elephant Climber	Vettai chedi, Kanvali poo	<i>Argyreia cuneata</i>	Convolvulaceae
32.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
33.	Porcupine flower	Shemmuli	<i>Barleria prionitis</i>	Acanthaceae
34.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
35.	Peanut	Kadalai	<i>Arachis hypogaea</i>	Fabaceae
36.	Red Hogweed	Mukurattai	<i>Boerhavia diffusa</i>	Nyctaginaceae
37.	Tridax daisy	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
38.	Gale of the wind	Keelaneeli	<i>Phyllanthus niruri</i>	Phyllanthaceae
39.	Eggplant	Kathirikai	<i>Solanum melongena</i>	Solanaceae
40.	European black nightshade	Manathakkali	<i>Solanum nigrum</i>	Solanaceae
Climber/ Creeper				
1.	Ivy gourd	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae

2.	Cucumis maderaspatanus	Musumusukkai	<i>Mukia maderaspatana</i>	Cucurbitaceae
3.	Indian atalantia	Kattu naarangam,	<i>Atalantia monophylla</i>	Rutaceae
4.	Butterfly pea	Sangu poo	<i>Clitoria ternatea</i>	Fabaceae
5.	Wild water lemon	Siruponaikaali	<i>Passiflora foetida</i>	Passifloraceae
6.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
7.	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae
8.	Rosary Pea	Gundumani	<i>Abrus precatorius</i>	Fabaceae
9.	Shatavari	Thaneervittaan	<i>Asparagus racemosus</i>	Liliaceae
10.	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae
11.	Wild bitter	Pavarkai	<i>Momordica charantia</i>	Cucurbitaceae
Grass				
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
2.	Giant reed	Elephant grass	<i>Arundo donax</i>	Poaceae
3.	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae
4.	Nut grass	Korai	<i>Cyperus rotundus</i>	Poaceae
5.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae
Cactus				
1.	Prickly pear	Nagathali	<i>Opuntia dillenii</i>	Cactaceae
2.	Triangular spruce	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae

**E- Economical, M- Medicinal, EM- Both Economical and Medicinal, NE- Not evaluated.*

3.5.5.2 Flora Composition in the Buffer Zone

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 buffer zone study area contains a total of 150 species that have been recorded from the buffer zone. The floral (150) varieties of them Trees 59, herbs 40, shrubs 33, Climbers 11, Grasses 5, and Cactus 2 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Poaceae, Mimosaceae is the main dominating species in the study area mentioned in Table No.3.35. 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 a primary survey (site observations) and discussion with local people (Secondary data). The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table 3.35 and their % distribution is shown in Figure 3.22.

Table 3.35 Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	59
2	Shrubs	33
3	Herbs	40
4	Climber	11
6	Grass	5
7	Cactus	2
Total No. of Species		150

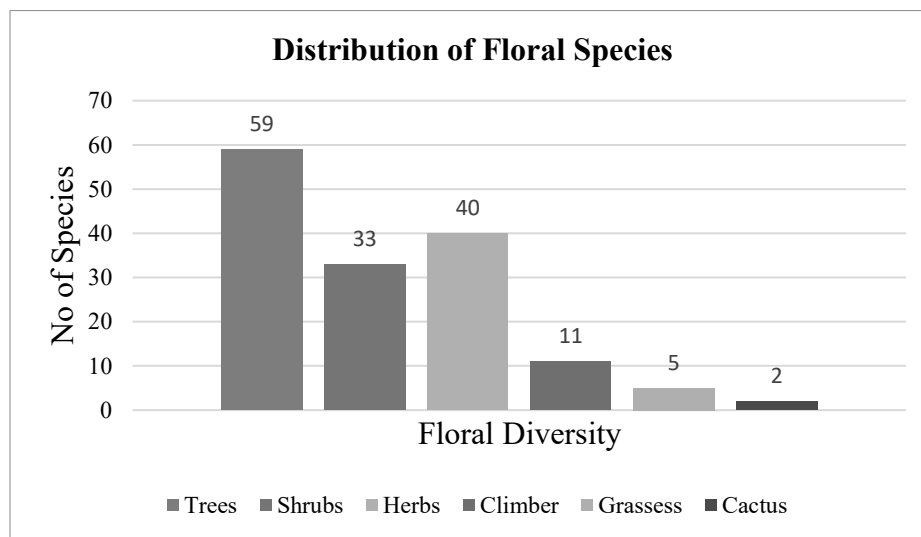


Fig No. 3.22: Graph showing % distribution of floral life forms



a. *Ziziphus Mauritiana*



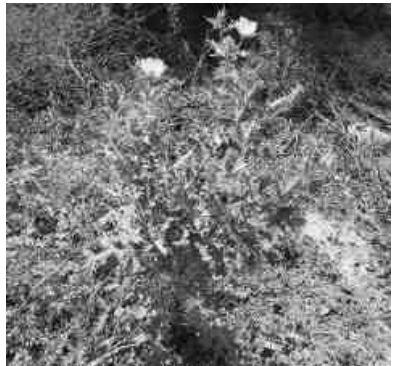
b. *Azadirachta indica*



c. *Euphorbia hirta*



d. *Leucas aspera*



e. *Argemone Mexicana*



f. *Cissus quadrangularis*



g. *Senna auriculata*



h. *Euphorbia antiquorum*



i. *Parthenium hysterophorus*



j. *Cocos nucifera*



k. *Musa acuminata*



l. *Prosopis juliflora*

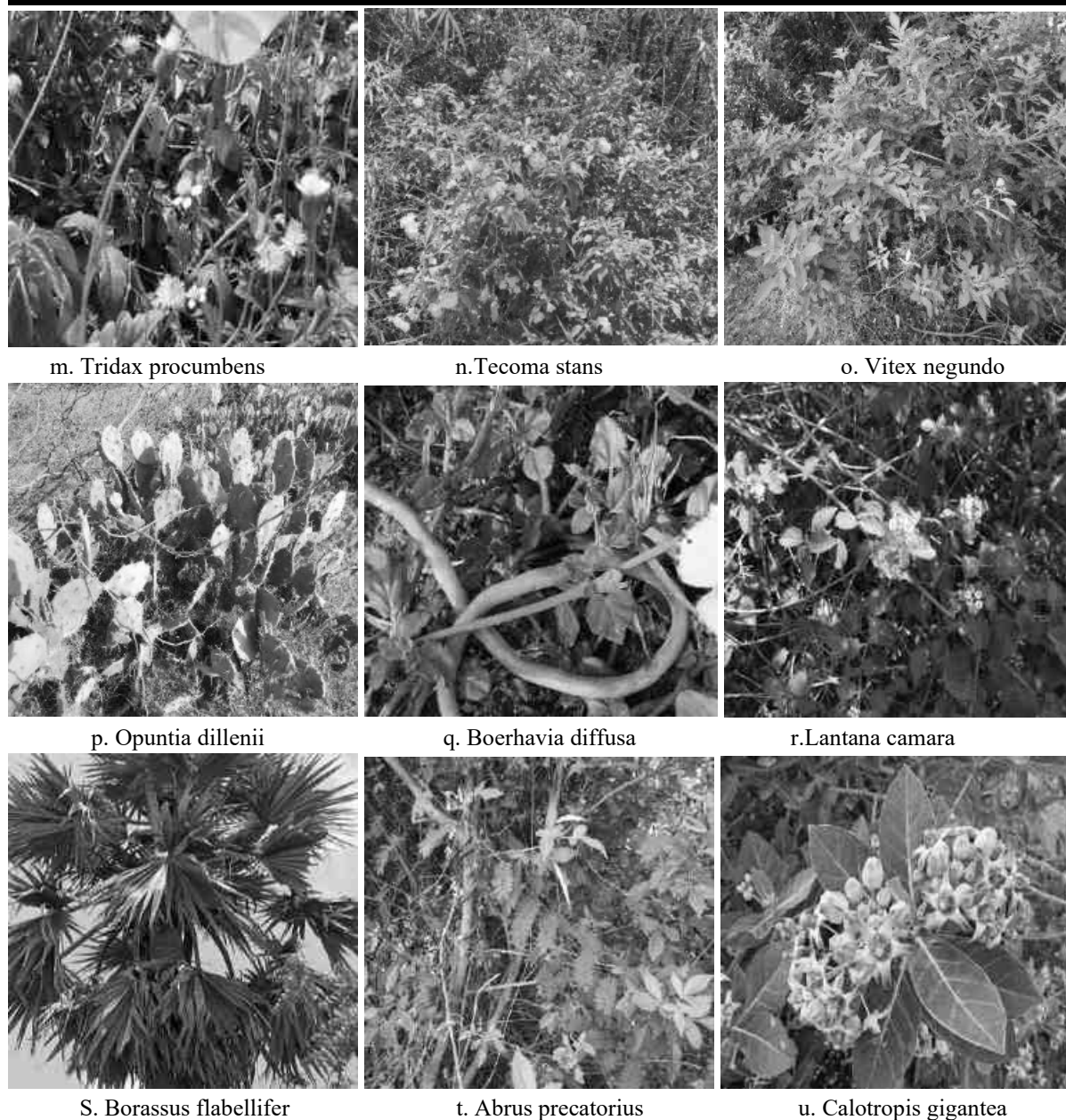


Fig No: 3.23. Flora species observation in the Buffer zone area

3.5.5.3 The vegetation in the RF / PF areas, ecologically sensitive areas

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

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 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.

3.5.6 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 Red Data Book and Indian Wildlife Protection Act, 1972. There are no rare, endangered, threatened (RET), and endemic species present in the core area.

3.5.6.1. Fauna Composition in the Core Zone

Core Zone: During the study, it was found that the faunal diversity in the core site was limited to Butterflies, insects, and some species of mammals & reptiles among them numbers Insects 8, Reptiles 3, Mammals 3, and Avian 9. The core site has avifauna species like crow, Black drongo, Koel, etc. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and 12 species are under Schedule IV according to the Indian Wildlife Act 1972. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

Table No: 3.36. Fauna in the Core zone of Rough Stone and Gravel Quarry

Sl. No	Common Name	Scientific Name	Schedule list WLPC 1972
Insects			
1.	Common Tiger	<i>Danaus genutia</i>	NL
2.	Red-veined darter	<i>Sympetrum fonscolombii</i>	NL
3.	Tawny coster	<i>Danaus chrysippus</i>	Schedule IV
4.	House fly	<i>Musca domestica</i>	-
5.	Dragonfly	<i>Agriansp</i>	-
6.	Striped tiger	<i>Danaus plexippus</i>	Schedule IV
7.	Grey pansy	<i>Junonia atlites</i>	LC
8.	Common Tiger	<i>Danaus genutia</i>	LC
Reptiles			
1.	Oriental garden lizard	<i>Calotes versicolor</i>	NL
2.	Indian forest skink	<i>Sphenomorphus indicus</i>	NL
3.	House lizards	<i>Hemidactylus flaviviridis</i>	Schedule IV
Mammals			
1.	Indian Field Mouse	<i>Mus booduga</i>	Schedule IV
2.	Asian Small Mongoose	<i>Herpestes javanicus</i>	Schedule (Part II)
3.	Squirrel	<i>Funambulus palmarum</i>	Schedule IV
Aves			
1.	Rose-ringed parakeet	<i>Psittacula krameri</i>	Schedule IV
2.	Common myna	<i>Acridotheres tristis</i>	NL
3.	Blue-rock pigeon	<i>Colombalivia</i>	Schedule IV
4.	Yellow wagtail	<i>Motacilla flava</i>	Schedule IV
5.	Pond heron	<i>Ardeolagravii</i>	Schedule IV
6.	Asian koel	<i>Eudynamysscolopacea</i>	Schedule IV
7.	Koel	<i>Eudynamys</i>	Schedule IV
8.	Black drongo	<i>Dicrurus macrocercus</i>	Schedule IV
9.	House crow	<i>Corvussplendens</i>	NL

*NL- Not listed, LC- Least Concern (**Sources:** Species observation in the field study)

3.5.6.2. 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 is 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 Cattle egret, Asian Koel, House crow, Black drangos, Crows, Rose-ringed Parakeet etc.

The list of bird species recorded during the field survey and literature from the study area are given in Table 3.38 The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.41 The list of insect species recorded during the field survey and literature from the study area are given in Table 3.40. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.8. 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 84 species recorded were from the buffer zone area. Based on habitat classification the majority of species were Insects 5, followed by birds 46, Reptiles 10, Mammals 5, Amphibians 7, and Butterflies 11. There are five Schedule II species, and 61 species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 46 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 seven amphibian 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 3.37. List of Fauna & Their Conservation Status, Mammals: (*directly sighted animals & Secondary data)

Sl. No	Common Name	Scientific Name	Schedule list WLPA 1972
1.	Brown rat	<i>Rattus norvegicus</i>	Schedule IV
2.	Indian palm squirrel	<i>Funambulus palmarum</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.	Indian Field Mouse	<i>Mus booduga</i>	Schedule IV

Status assigned by the IUCN, where – CR – Critically Endangered; EN – Endangered; LC – Least Concern; NT – Near Threatened; VU – Vulnerable, DA – Data Deficient, NE – Not Evaluated

Table 3.38 Listed birds

Sl. No	Common Name	Scientific Name	Schedule list WLP 1972
1.	Rose-ringed Parakeet	<i>Psittaculakrameria</i>	Schedule IV
2.	Little grebe	<i>Tachybaptusruficollis</i>	Schedule IV
3.	Large cormorant	<i>Phalacrocorax carbo</i>	Schedule IV
4.	Jungle Myna	<i>Acridotheres fuscus</i>	Schedule IV
5.	Anthus campestris	<i>Anthus campestris</i>	Schedule IV
6.	Grey heron	<i>Ardeacineria</i>	Schedule IV
7.	Cattle egret	<i>Bubulcus ibis</i>	Schedule IV
8.	Indian roller	<i>Coracias benghalensis</i>	Schedule IV

9.	Night heron	<i>Ncticoraxncticorax</i>	Schedule IV
10.	Greater Coucal	<i>Centropus sinensis</i>	Schedule IV
11.	Cinnyris asiaticus	<i>Cinnyris asiaticus</i>	Schedule IV
12.	Yellowbrowed Bulbul	<i>Acritillas indica</i>	Schedule IV
13.	Large egret	<i>Casmerodiusalbus</i>	Schedule IV
14.	Coot	<i>Fulicaatra</i>	Schedule IV
15.	Red-necked halarope	<i>Phalaropuslobatus</i>	Schedule IV
16.	Greater Flameback	<i>Chrysocolaptes lucidus</i>	Schedule IV
17.	Tree Pipit	<i>Anthus trivialis</i>	Schedule IV
18.	Common Iora	<i>Aegithina tiphia</i>	Schedule IV
19.	Forest Wagtail	<i>Dendronanthus indicus</i>	Schedule IV
20.	Yellow wagtail	<i>Motacilla flava</i>	Schedule IV
21.	Spotted owlet	<i>Athene brama</i>	Schedule IV
22.	House Sparrow	<i>Passer domesticus</i>	Schedule IV
23.	Common HawkCuckoo	<i>Hieroccyx varius</i>	Schedule IV
24.	White-eyed Buzzard	<i>Butastur teesa</i>	Schedule IV
25.	Whitebellied Drongo	<i>Dicrurus caerulescens</i>	Schedule IV
26.	Brown Shrike	<i>Lanius cristatus</i>	Schedule IV
27.	Plain Prinia	<i>Prinia inornata</i>	Schedule IV
28.	Thickbilled Warbler	<i>Iduna aedon</i>	Schedule IV
29.	Spotted dove	<i>Streptopeliachinensis</i>	Schedule IV
30.	Shikra	<i>Accipiter badius</i>	Schedule IV
31.	Indian Swiftle	<i>Aerodramus unicolor</i>	Schedule IV
32.	Squaretailed Black Bulbul	<i>Hypsipetes ganeesa</i>	Schedule IV
33.	Longtailed Shrike	<i>Lanius schach</i>	Schedule IV
34.	Asian koel	<i>Eudynamysscolopacea</i>	Schedule IV
35.	Small-blue kingfisher	<i>Alcedoatthis</i>	Schedule IV
36.	White-breasted kingfisher	<i>Halcyon smyrnensis</i>	Schedule IV
37.	Ashy Drongo	<i>Dicrurus leucophaeus</i>	Schedule IV
38.	Common Flamback	<i>Dinopium javanensis</i>	Schedule IV
39.	Blue-rock pigeon	<i>Colombalivia</i>	Schedule IV
40.	Dicrurus aeneus	<i>Dicrurus aeneus</i>	Schedule IV
41.	Golden-backed wood Pecker	<i>Dinopiumbenghalensis</i>	Schedule IV
42.	House crow	<i>Corvussplendens</i>	Schedule IV
43.	Jungle crow	<i>Corvusmacrorhynchos</i>	Schedule IV
44.	Robin	<i>Copsychussaularis</i>	Schedule IV
45.	Pond heron	<i>Ardeolagrayii</i>	Schedule IV
46.	Orange-headed thrush	<i>Zoothera citrine</i>	Schedule IV

Table 3.39 List of Reptiles either spotted or reported from the study area

SI. No	Common Name	Scientific Name	Schedule list WLPA 1972
1.	Oriental garden lizard	<i>Calotes versicolor</i>	NL
2.	Common krait	<i>Bungarus caeruleus</i>	Schedule IV
3.	House lizards	<i>Hemidactylus flaviviridis</i>	Schedule IV
4.	Indian cobra	<i>Naja naja</i>	Sch II (Part II)
5.	Green vine snake	<i>Ahaetulla nasuta</i>	Schedule IV
6.	Russell's viper	<i>Vipera russeli</i>	Sch II (Part II)
7.	Rat snake	<i>Ptyas mucosa</i>	Sch IV (Part II)
8.	Common skink	<i>Mabuya carinatus</i>	NL
9.	Bornze Grass Skink	<i>Eutropis macularia</i>	Schedule IV
10.	Keeled / Common Grass Skink	<i>Eutropis carinata</i>	Schedule IV

Table.3.40. List of Butterflies reported from the study area

SI. No	Common Name	Scientific Name	Schedule
1.	Crimson tip	<i>Colotisdanae</i>	-
2.	Common Tiger	<i>Danaus genutia</i>	-
3.	Milkweed butterfly	<i>Danainae</i>	-
4.	Striped tiger	<i>Danaus plexippus</i>	-
5.	Common emigrant	<i>Catopsiliapomona</i>	-
6.	Common Indian crow	<i>Euploea core</i>	-
7.	Indian palm bob	<i>Suastusgremius</i>	-
8.	Common rose	<i>Pachlioptaaristolochiaee</i>	-
9.	Great orange tip	<i>Hebomoia glaucippe</i>	-
10.	Common jay	<i>Graphium doson</i>	-
11.	Spotless grass yellow	<i>Euremalaeta</i>	-

Table 3.41 List of insects either spotted or reported from the study area

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

3.5.7. Aquatic Ecology

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

3.5.7.1 Objectives of Aquatic Studies

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

3.9.2. Macrophytes

The macrophytes observed within the study area are tabulated in Table 3.10.

Table No.3.41 Description of Macrophytes

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

3.5.8 Aquatic Faunal Diversity

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

Table no. 3.42. Amphibians Observed/Recorded from the Study Area

SI. No	Common Name	Scientific Name	Schedule list WLPC 1972
1.	Indian Burrowing frog	<i>Sphaerotheca breviceps</i>	Schedule IV
2.	Green pond frog	<i>Euphlyctis hexadactylus</i>	Schedule IV
3.	Common Indian Toad	<i>Bufo melanostictus</i>	Schedule IV
4.	Indian bull Frog	<i>Hoplobatrachus tigerinu</i>	Schedule IV
5.	Paddyfield / Cricket Frog	<i>Limnonectes limnocharis</i>	Schedule IV
6.	Ornate Narrow-mouthed Frog	<i>Microhyla ornata</i>	Schedule IV
7.	Southern Burrowing Frog	<i>Sphaerotheca rolandea</i>	Schedule IV

*Status assigned by the IUCN, where – CR – Critically Endangered; EN – Endangered; LC – Least Concern; NT – Near Threatened; VU – Vulnerable, DA – Data Deficient, NE – Not Evaluated

3.5.9 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 10 Km 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 10 km 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.

3.5.10 Conclusion

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

3.6 Socio Economic Environment

The major developmental activities in mining /Industrial 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 Roughstone and Gravel quarry project region is an important part of 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.
- e) To study the socio-economic status of the people living in the study area Rough Stone and Gravel Quarry project region
- f) To assess the impact on socio-economic environment due to Rough Stone and Gravel Quarry project region

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 Edayarpalayam Village, Suler Taluk, Coimbatore District, Tamilnadu 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).

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 3.6.1 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 180 degree 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, Coimbatore, Cuddalore and Vellore. The alluvial plains of the Cauvery Delta extending over Thanjavur and part of Tiruchirappally districts and dry southern plains in Madurai, Dindigul, Ramanathapuram, Sivaganga, Virudhnagar, 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 – Coimbatore, Namakkal, Coimbatore, Perambalur, Viluppuram, Thiruvavur, 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 Coimbatore District

Coimbatore is the third largest city of the state, one of the most industrialized cities in Tamil Nadu, known as the textile capital of South India or the Manchester of the South India, the city is situated on the banks of the river Noyyal, Coimbatore existed even prior to the 2nd or 3rd century AD by Karikalan, the first of the early Cholas. Among its other great rulers were Rashtrakutas, Chalukyas, Pandyas, Hoysalas and the Vijayanagara kings. When Kongunadu fell to the British along with the rest of the state, its name was changed to Coimbatore and it is by this name that it is known today, in local Tamil language it is also called as Kovai.

Coimbatore serves as an entry and exit point to neighboring Kerala State and the very popular hill station of Udthagamandalam (Ooty) is 70 kms from Coimbatore. It is the disembarking point for those who want to take the Mountain train that runs from Mettupalayam just 35 kms away from Coimbatore, regular bus services also available daily from Coimbatore to Ooty and other districts, towns and major cities.

Coimbatore lies at 11°1'6"N 76°58'21"E in south India at 427 metres above sea level on the banks of the Noyyal River, in northwestern Tamil Nadu.

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 Edayarpalayam Village, Kinathukadavu Taluk, Coimbatore 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 3.12.1 SHOWS THE SOCIO-ECONOMIC PROFILE OF THE STUDY AREA AS COMPARED TO DISTRICT, STATE AND NATIONAL LEVEL SOCIO-ECONOMIC PROFILE

Particular	India	Tamil Nadu	Coimbatore District	Study Area (10km Radius)
Area (in sq. km.)	3,287,263	130058	7649	320
Population Density/ sq. Km.	368	554	452	269
No. of Households	249454252	13357027	958035	24865
Population	1210569573	72147030	3458045	86236
Male	623121843	36137975	1729297	43379

Particular	India	Tamil Nadu	Coimbatore District	Study Area (10km Radius)
Female	587447730	36009055	1728748	42857
Scheduled Tribes	104281034	794697	28342	164
Scheduled Castes	201378086	14438445	535911	16977
Literacy Rate (%)	72.99	80	76	77
Sex Ratio (Females per 1000 Males)	943	996	1000	988

Source: Census of India, 2011

Table no 3.12.1 show demographic pattern of India, Tamil Nadu, Coimbatore District & Study area (10km Radius). In India had total area of 3.2 sqkm, State of Tamil Nadu area was 130058 sqkm, District of Coimbatore area was 642 sqkm and study area is about 320 sqkm. 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 452 sqkm and study area density is about 269 sqkm. As per Census 2011, about 5.96percent of population in the state lives in areas. Coimbatore had comparing state wise 4.79 percent of population lives in the district. In study area has 2.49 % around 10km radius. State, District and study area. In Tamil Nadu state SC categories people had about 19 %, district of Coimbatore about 15.49 % it has increasing to Study area about 19.68% increasing in the total population Similarly ST population is about 1.10%, 0.82% and 0.19% of the total population in the study area. State level Literacy rate is 80%, district level is 76% but study area has increased about 77%. There is literacy rate is study area Increase comparing district level decrease in the study area. Sex ratio female per thousand males about state level is 996, District level is 1000 and study area is 988.

The study area has population density 269 persons per sq.km of total population about 86236 as per census 2011. There were about 50.30 percent male and 49.70% female population. Study area has literate rate is about 71%. District had about 76% 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.

TABLE 3.13.1 TOTAL POPULATION OF STUDY AREA

Sl No.	Population in 2001	Population in 2011
1	74338	86236

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

TABLE 3.13.2 POPULATION PROJECTION OF STUDY AREA

S. No	Year	Projected Population (Approximately)
1.	2021	98134

2.	2031	110032
3.	2041	121930
4.	2051	133828

Source: Calculated by SPSS v29, 2022.

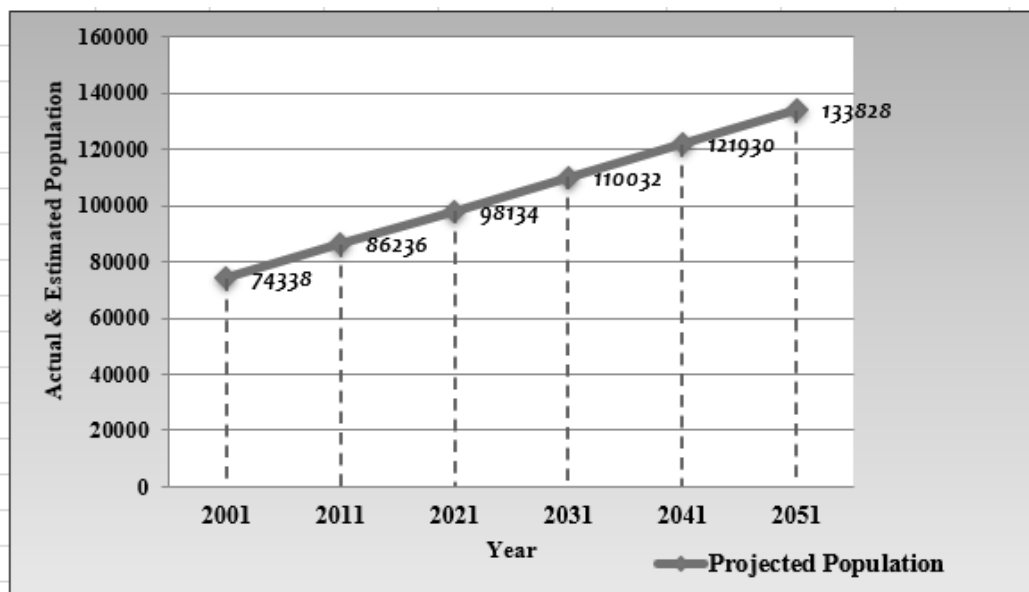


FIG 3.24 GRAPH SHOWING POPULATION PROJECTION

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 3.14.1 POPULATION GROWTH RATE IN STUDY AREA

Year	Actual Population	Growth Rate %
2001	74338	-

2011	86236	11.60
2021	98134	11.38
2031	110032	11.21
2041	121930	11.08
2051	133828	10.98

Source: Compiled by Author-2022

Above table no 3.14.1 is showing the growth rate of population since 2001, as per census in 2001 the population of study area was 74338 and 2011 it was 86236 if the population growth rate is 11.60%, it will approximately 98134 in year 2021 and 133828 in the year of 2051. It has approximately population growth rate decline will be 10.98%.

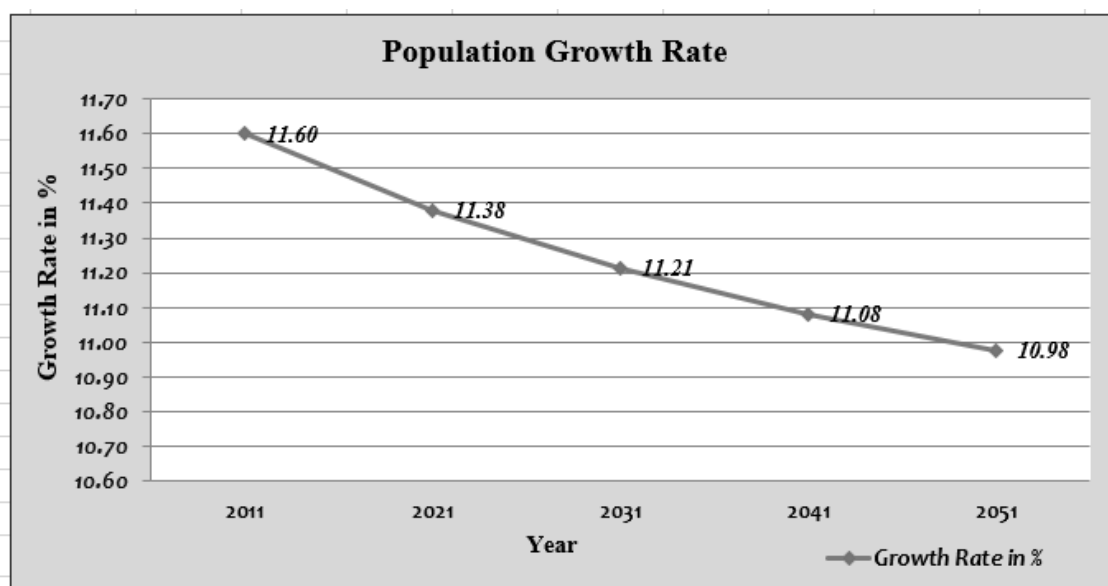


FIG.3.25 GRAPH SHOWING POPULATION GROWTH RATE

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 92015 (for 10 km radius buffer zone). Total no. of household is 24865, in study area zone. Sex ratio is 988 (females per 1000 males) observed in primary, secondary and tertiary zone respectively. Average household size is 3. Zone wise Demographic profile of study area is given in the table 3.15.1 below:

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

Table 3.15.1 ZONE WISE DEMOGRAPHIC PROFILE OF STUDY AREA

Zone	No. of Villages	Total Household	Total Population	Male Population	%	Female Population	%
Study Area (0-10 km)	17	24865	86236	43379	50.30	42857	49.70

Source: Census of India, 2011

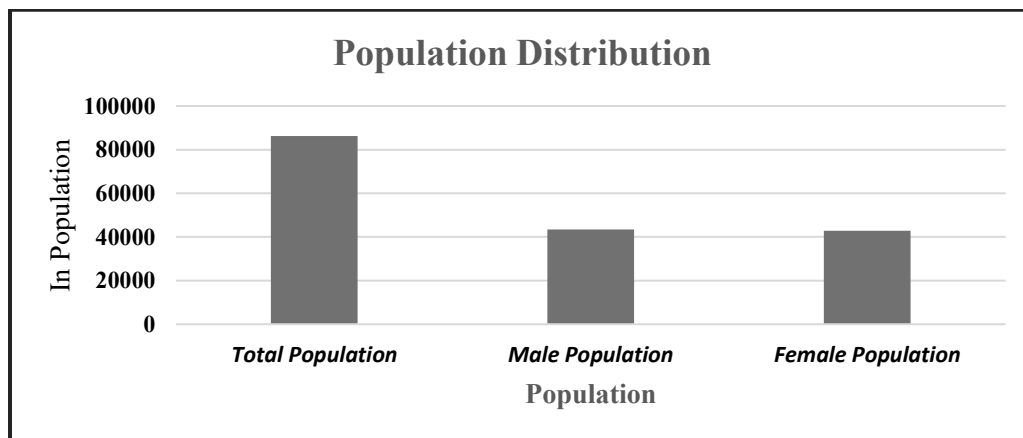


FIGURE 3.26 POPULATION OF STUDY AREA

Table 3.15.3 VILLAGE WISE DEMOGRAPHIC PROFILE OF THE STUDY AREA (CORE AND BUFFER ZONE)

Sno	Name	No.of Households	Total population	Total Male	Total Female	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	Marginal workers	Non workers
1	Appanaickenpatti	1121	3992	1998	1994	337	170	167	947	478	469	0	0	0	2665	1413	1252	2199	2006	193	1793
2	Kalangal	1639	5590	2853	2737	500	272	228	784	400	384	0	0	0	3889	2158	1731	3112	2784	328	2478
3	Peedampalli	1134	3896	1955	1941	339	185	154	683	356	327	24	13	11	2982	1601	1381	1869	1465	404	2027
4	Kallapalayam	860	3066	1581	1485	253	130	123	686	346	340	4	3	1	2350	1293	1057	1547	1522	25	1519
5	Pappampatti	1172	4143	2052	2091	415	196	219	961	455	506	0	0	0	2865	1524	1341	1977	1761	216	2166
6	Edayapalayam	667	2251	1130	1121	193	98	95	269	128	141	4	3	1	1659	930	729	1150	977	173	1101
7	Sellakkarichal	1863	6209	3109	3100	443	205	238	1610	804	806	0	0	0	4368	2447	1921	3200	2662	538	3009
8	Varapatti	2315	7644	3790	3854	613	313	300	2031	1019	1012	3	2	1	5161	2813	2348	4485	3837	648	3159
9	Bogampatti	686	2415	1254	1161	155	85	70	170	87	83	0	0	0	1515	905	610	1165	985	180	1250
10	Pachapalayam	842	2933	1488	1445	271	141	130	556	278	278	0	0	0	1754	1003	751	1627	1466	161	1306
11	Poorandampalayam	933	3135	1554	1581	221	120	101	850	420	430	0	0	0	2131	1165	966	1852	1831	21	1283
12	Kannampalayam (TP)	4577	15868	7937	7931	1553	816	737	2077	1036	1041	4	3	1	12578	6615	5963	6915	6539	376	8953
13	Chettipalayam (TP)	2841	10366	5268	5098	880	480	400	2920	1460	1460	0	0	0	7304	3991	3313	4450	4078	372	5916
14	Panappatti	763	2635	1383	1252	199	113	86	450	219	231	0	0	0	1740	1026	714	1579	1566	13	1056
15	Mettubavi	719	2485	1281	1204	173	93	80	301	153	148	8	3	5	1671	971	700	1372	1325	47	1113
16	Vadasithur	1532	5080	2483	2597	342	173	169	940	459	481	2	1	1	3452	1878	1574	2512	2419	93	2568
17	Servakaranpalayam	1201	4528	2263	2265	372	189	183	742	376	366	115	62	53	2945	1624	1321	2491	2445	46	2037
		24865	86236	43379	42857	7259	3779	3480	16977	8474	8503	164	90	74	61029	33357	27672	43502	39668	3834	42734

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 988 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 17 villages lying in study area (buffer zone).

TABLE 3.16.1 SEX RATIO OF THE STUDY AREA

Zone	Sex Ratio of Study area Female/ 1000 Male
Study area (0-10km)	988

Source: Census of India, 2011

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 73.42% as per census data 2011. The male literacy rate in the study area indicates 84.39% whereas the female literacy rate, which is an important indicator for social change, is observed to be 62.79% as per the census data 2011. This needs to focus on the region and enhance further development focusing on education. (Table no 3.17.1).

TABLE 3.17.1 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
Study Area (0-10km)	17	33357	84.23	27672	70.27	61029	77

Source: Census of India, 2011

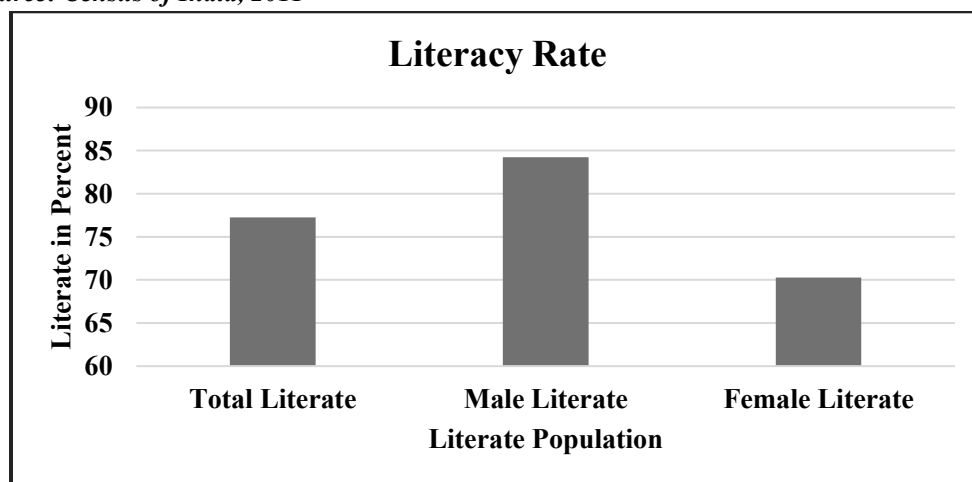


FIGURE 3.27 LITERACY RATE IN THE STUDY AREA

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 3 members, knowing the size of family also give fair understanding of relating how much resource consumption is being incurred, and annual income being generated and spent.

3.19 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 19.68% and Schedule Tribe population 0.19%, Other Population is 80% in total study area.

TABLE 3.19.1 VULNERABLE GROUPS OF THE STUDY AREA

Zone	No. of Villages	Vulnerable Groups					
		SC Population	%	ST Population	%	Other Population	%
Total area (10km)	17	16977	19.68	164	0.19	69095	80

Source: Census of India, 2011

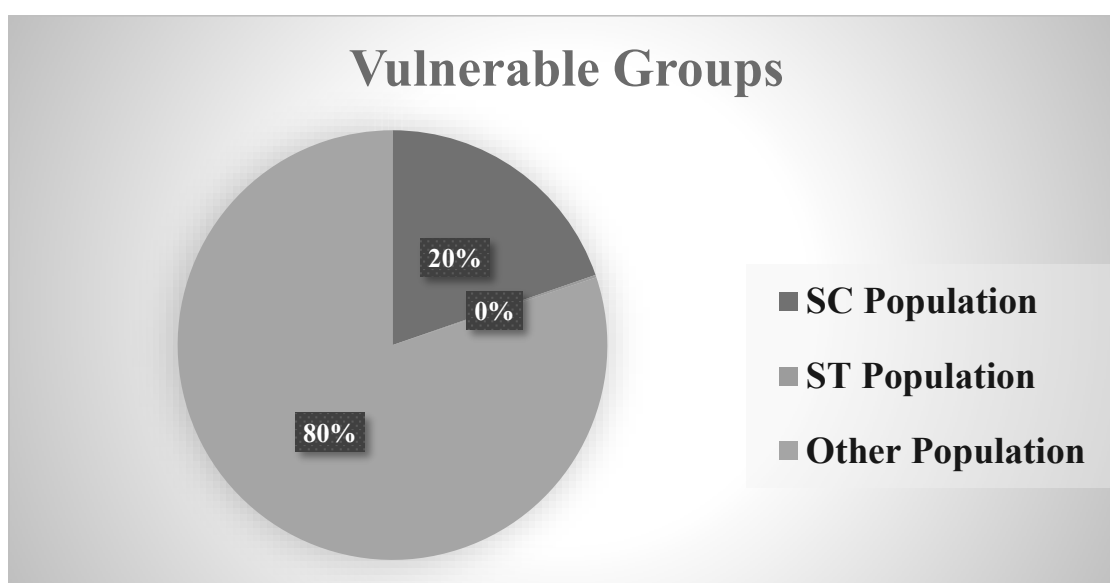


FIGURE 3.28 VULNERABLE GROUPS

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., main workers, marginal workers and non-workers. The workers include cultivators, agricultural laborers, those engaged in household industry and other services. The marginal workers are those workers engaged in some work for a period of less than 180 days during the reference year. The non-workers include those engaged in unpaid household duties, students, retired persons, dependents, beggars, vagrants etc. besides institutional inmates or all other non-workers who do not fall under the above categories.

TABLE 3.20.1 SHOWS THE WORK FORCE OF THE STUDY AREA

Zone	No. of Villages	Total Workers	%	Main Workers	%	Marginal Workers	%	Non-Workers	%
Study Area (10 Km)	17	43502	50.42	39668	46.0	3834	4.45	42734	49.55

Source: Census of India, 2011

The above table shows that out of the total working population, the percentage of main workers is 46 % while 4% are marginal workers. Number of working populations is 50% and non-working population is 50% 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 enroll and earn sustain livelihood.

As per the villages analysis most of them are non-working population. A major portion of working age people is not ideal worker because of limited sectors in which they are engaged with less training and not awareness of latest sectors in which maybe they can better other than traditional work.

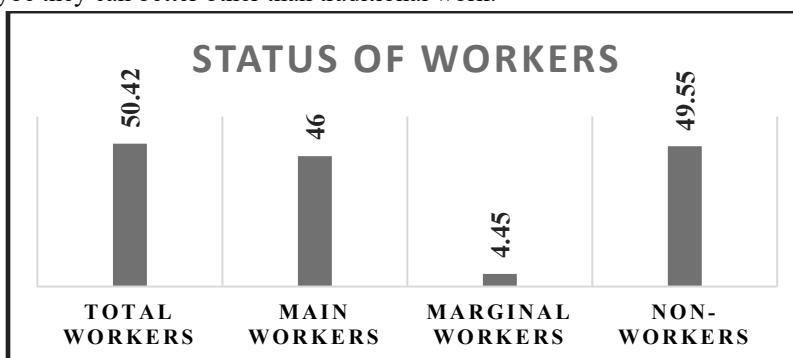


FIGURE 3.29 WORKING POPULATION IN THE STUDY AREA

3.21 Basic Amenities

A better network of physical infrastructure facilities (well-built roads, rail links, irrigation, power and telecommunication, information technology, market-network and social infrastructure support, viz. health and education, water and sanitation, veterinary services and co-operatives) is essential for the development of the rural economy. A review of infrastructure facilities available in the area has been done based on the information from baseline survey of the study area. In this review, the villages which fall within 10Km radius round the site has been considered. Infrastructure facilities available in the area have been described in the subsequent sections as below:

1. Educational Facilities

Education is considered to be one of the most dominant indicators towards the development of a region. According to baseline survey, education facilities are available in the villages within the study area. All the villages have schools only up to primary and middle level, higher level education facilities very less only one-degree college available in Suler Taluk. Improved educational facilities will be provided by CCIL, which will contribute Improvement in awareness level of the villagers.

2. Health Facilities

Medical facilities are available. There are majorly non-Government medical facilities/medicine shop available in the area. There is only one dispensary / health center available and no Primary Health Sub-Centers available in the study area. There is no such case of epidemic or some special diseases in the region. Normal cases of diseases i.e. Cough, cold, fever, headache etc. are reported in the region.

3. Other Infrastructure Facilities

Basic facilities are available in study area as educational facilities, health, transportation, electricity, drinking water, market, bank, post office, petrol pump; Aanganbadi Centers, Community Hall, Cooperative bank and Commercial Bank etc. are available.

➤ Transport Facilities

The study area is served by road transport. Most of the villages connected by bus/other transport services. The area has a moderate road network, which includes state highway, major District Roads and other roads within 10 km radius of the lease boundary. Major District Road is passing through the adjacent of Quarry area.

➤ **Electrification in the Area**

100% villages in the study area are electrified. Electricity is available for domestic, commercial, industrial agricultural and public lighting purposes.

➤ **Drinking Water Facility**

Village people are availing Drinking water facilities generally from Tap water, Pond, Well, Tube well, Hand Pump, River etc. In few villages like Edayarpalayam, Vernapuspuram, Bogampatti, Villages etc. there is problem of drinking water facility.

3.22 Interpretation

Based on the data, following inferences could be drawn:

- Total literacy rate in the study area is 77%.
- 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 0.19% and Scheduled Caste forms 20% of the total population of study area.
- The Other Population forms 80% 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

3.23 Recommendations and Suggestion

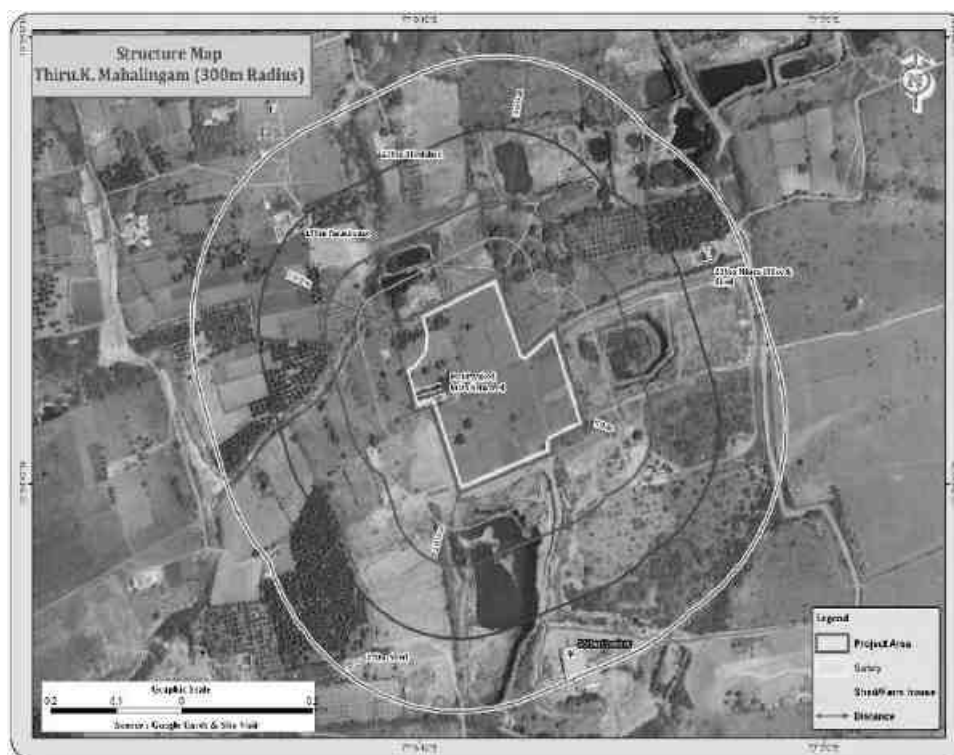
- ❖ Education Awareness program is being/will be conducted to make the population aware and better treatment for livelihood.
- ❖ Vocational training session is being/will be organized to provide self-employment to the women and unemployment youth.
- ❖ Healthcare Centre and Ambulance facility is being/will be provided to make the population get easy medical facilities.
- ❖ Natural Resource Management and Environmental Conservation.
- ❖ On the basis of qualification and skills local youths is being/will be employed. Long term and short-term employments are being/will be generated.
- ❖ Health care center and ambulance facility is being/will be provided to make the population get easy medical facilities.
- ❖ Basic amenities and facilities are being/will be made available to the people and there will be proper maintenance of the facilities already provided by the government in the study area through various CSR activities conducted by Tirupati Blue metals,

3.24 Conclusion

To evaluate the impacts of proposed rough stone and gravel quarry project on the surrounding area, it is vital to assess the baseline status of the environmental quality in the locality of the site. Socio-Economic Survey was also conducted during the study period which revealed 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 as **Thiru.S.Shanmugam Rough stone and Gravel Quarry**, will adopt adequate control measures to protect the surrounding environment and will contribute in development of the study areas.

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.

3.25 Structure Study



Structure Numbers	Distance & Direction from the project site	Structure Details and Usage Purpose	Type of Structures (Kutcha/ Brick/ Cement/ RCC/ Framed Structures)	No.of Occupants	Structure belongs to owner (Yes/No)	Remarks
1	Inside Lease Area on West side	Poultry Shed	Brick Structure	Nil	Yes	It will remove before lease execution
2	190m – North West	Farmhouse	Tiled & Brick Structure	Nil	8 Nos	Used to store agricultural goods and materials
3	230m – East	Mines office & Shed	RCC & Sheet Structure	2 Nos	No	Used to store mines documents & materials – No

						Stay
4	230m North –	Tiled Shed	Tiled & Brick Structure	Nil	No	Storage purpose – No Stay
5	260m South -	Crusher	Framed Structure	4 Nos	No	Manufacturing M & P Sand and Jelly

CHAPTER – 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 General

The environmental impact can be categorized as either primary or secondary, primary impacts which are attributed directly by the project; secondary impacts are those which are indirectly induced. The open cast mining operations involve development of benches, Approach Road, Haul Road, Excavation and handling of material. If adequate control measures are not taken to prevent/mitigate the adverse environmental impacts/lead to damage of the eco-system.

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 for sustainable resource extraction. Based on the baseline environmental status at the existing mine site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed. The various anticipated impacts will be on

- Land environment
- Water Environment
- Air Environment
- Noise Environment
- Socio economic environment
- Solid waste
- Soil environment

4.1 Land Environment

4.1.2 Anticipated Impact from Proposed Project

- Permanent or temporary change on land use and land cover.
- Change in Topography: Topography of the ML area will change at the end of the life of the mine.
- 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

4.1.2.1 Mitigation Measures for Proposed Projects

- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development of greenbelt etc.,
- Construction of garland drains all around the quarry pits and construction of check dam 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.,
- At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir
- In terms of aesthetics, natural vegetation surrounding the quarry will be retained (such as in a buffer area i.e., 7.5 m safety barrier and other safety provided) so as to help minimise dust emissions.
- Proper fencing will be carried out at 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

The top layer of the project site in the form of Gravel formation, the Gravel will be directly loaded into tippers for the filling and levelling of low-lying areas. There is no disposal of Gravel. The excavated rough stone will be directly loaded into dumpers to the needy customers.

There will be no disposal of waste water from the quarry operation, No discharge of toxic effluent from the proposed projects. The dust emission at working face and haul roads will be controlled by water sprinkling and plantation.

Erosion and Sedimentation (Removal of protective vegetation cover; Exposure of underlying soil horizons that may be less pervious, or more erodible than the surface layers; Reduced capacity of soils to absorb rainfall; Increased energy in storm-water runoff due to concentration and velocity; and Exposure of subsurface materials which are unsuitable for vegetation establishment).

4.1.5 Mitigation Measures for Proposed Project

- Run-off diversion – Garland drains will be constructed all around the project boundary to prevent surface flows from entering the quarry works areas. 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. 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 are no wastages anticipated in this rough stone and gravel quarrying operation. The entire quarried out materials will be utilized (100%).

The overburden in the form of gravel formation the gravel will be also sold to needy customers for the filling and levelling of low-lying areas.

4.2 Water Environment

4.2.1 Anticipated Impact on Surface and ground water

The impact due to quarrying on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. The quarrying activity will not intersect ground water table as the maximum depth of the quarry is 47m and water table is found at a depth of 62-67m BGL.

The quarrying operation will be carried out well above the water table. There is no intersection of surface water bodies (Streams, Canal, Odai etc.) in the project area. During rainy season rain water will be collected in the quarry pit and later used for greenbelt development and for the water sprinkling in the haul roads. There is no proposal for discharging of quarry pit water outside the project area.

TABLE 4.1: WATER REQUIREMENTS

Purpose	Quantity	Source
Dust Suppression	0.9 KLD	From Existing bore wells from nearby area
Green Belt development	1.0 KLD	From Existing bore wells from nearby area
Sanitation & Drinking purpose	0.8 KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.

Total	2.7 KLD

* Water for drinking purpose will be brought from approved water vendors

Source: Approved Mining Plan Pre-Feasibility Report

Total water requirement in the quarry is about 2.7 KLD, the water for dust suppression and greenbelt development will be sourced from the mine pit water collected during rainy seasons, the water for domestic purpose and drinking will be sourced from the approved water vendors.

4.2.2 Common Mitigation measures:

- Garland drain, settling tank will be constructed along the proposed mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting system.
- Providing benches with inner slopes and through a system of drains and channels, allowing rain water to descent into surrounding drains, so as to minimize the effects of erosion & water logging arising out of uncontrolled descent of water.
- Reuse the water collected during storm for dust suppression and greenbelt development within the mines
- Installing interceptor traps/oil separators to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will pass through interceptor traps/oil separators prior to its reuse;
- Using flocculating or coagulating agents to assist in the settling of suspended solids during monsoon seasons;
- 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.
- Regular monitoring (every 6 month once) and analysing the quality of water in open well, bore wells and surface water

4.3 Air Environment

The air borne particulate matter is the main air pollutant in this opencast mining. The mining operation will be carried out by jackhammer drilling (35mm dia) and Hydraulic Excavators will be utilized for excavation of Rough Stone waste.

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 Proposed Project

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.

The impact on Air Environment is due to the mining and allied activities during Land Development phase, Mining process and Transportation. The emissions of Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are marginal. Loading - unloading and transportation of Rough Stone, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities releasing Particulate Matter (PM₁₀) affecting Ambient Air of the area. Prediction of impacts on air environment has been carried out taking into consideration cumulative production three proposed quarries. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

4.3.1.2 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 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 4-2.

TABLE 4.2: ESTIMATED EMISSION RATE

EMISSION ESTIMATION FOR PROPOSED QUARRY				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.072658434	g/s
	Blasting	Point Source	0.000489829	g/s
	Mineral Loading	Point Source	0.040025112	g/s
	Haul Road	Line Source	0.002487678	g/s/m
	Overall Mine	Area Source	0.049595056	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000375585	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000015686	g/s

4.3.2 Frame work of Computation & Model details

The prediction included the impact of Excavation, Drilling, Blasting, loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

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

Air Pollution Dispersion Modelling

Baseline Air Quality –

Baseline air quality has been measured at 2 locations in the cluster and 6 locations within the buffer zone of the study area. The 24 - hourly average samples of particulate matters (PM_{10} and $PM_{2.5}$), SO_2 and NO_x were measured following the National Ambient Air Quality Standards (NAAQS), 2009. Monitoring data of 8 sampling stations are given below –

Meteorological Data –

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 and monitored continually for study period without break. The station was installed at a height of 4 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. A weather data was collected from IMD, Coimbatore agro for the month of Oct – Dec 2024 to correlate with site data and found not much of change in the parameters.

FIGURE 4.1: AERMOD TERRAIN MAP

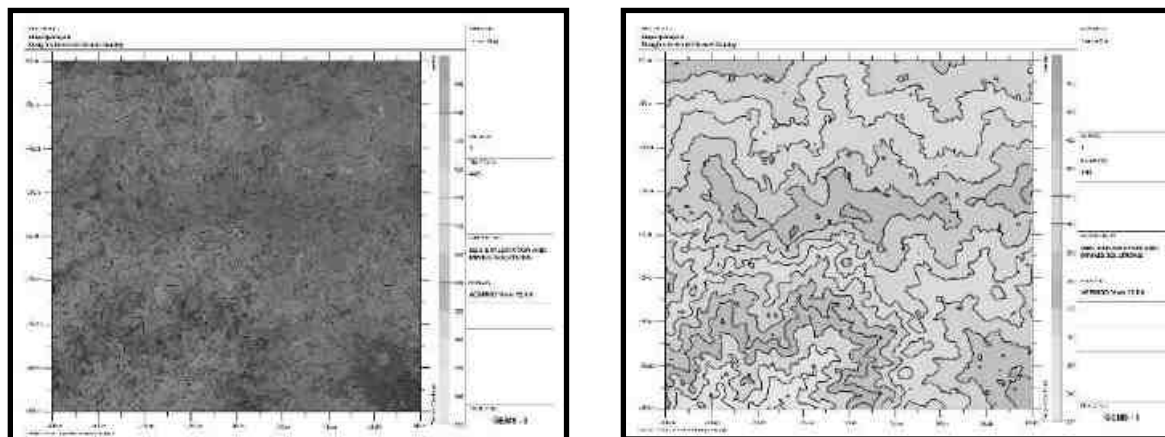


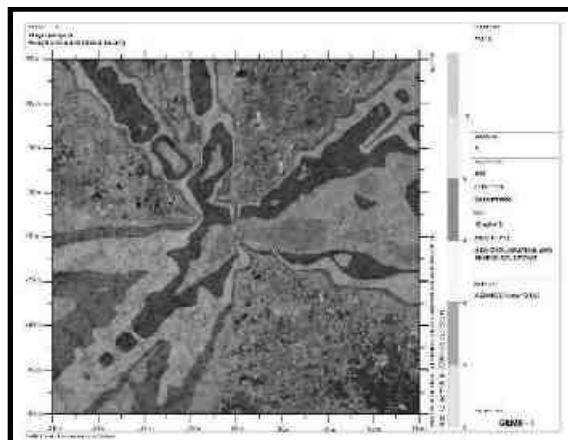
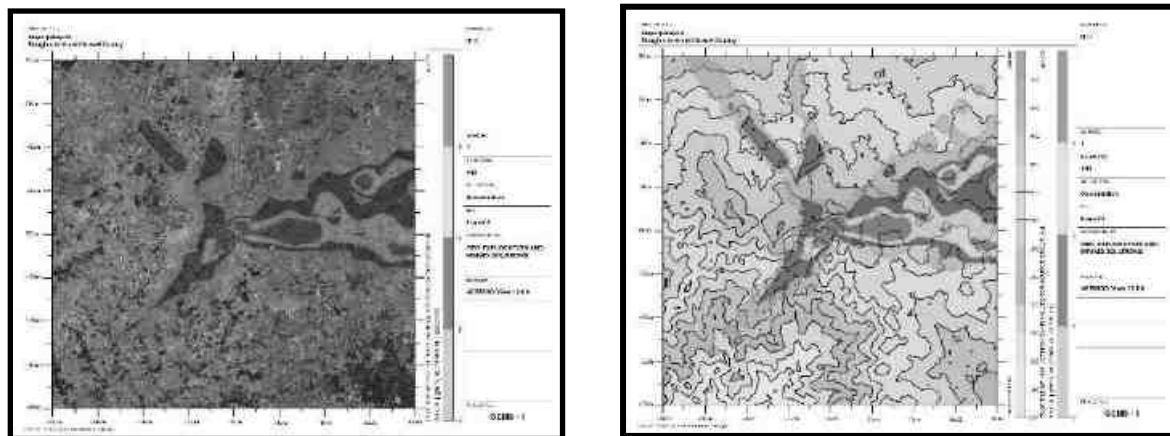
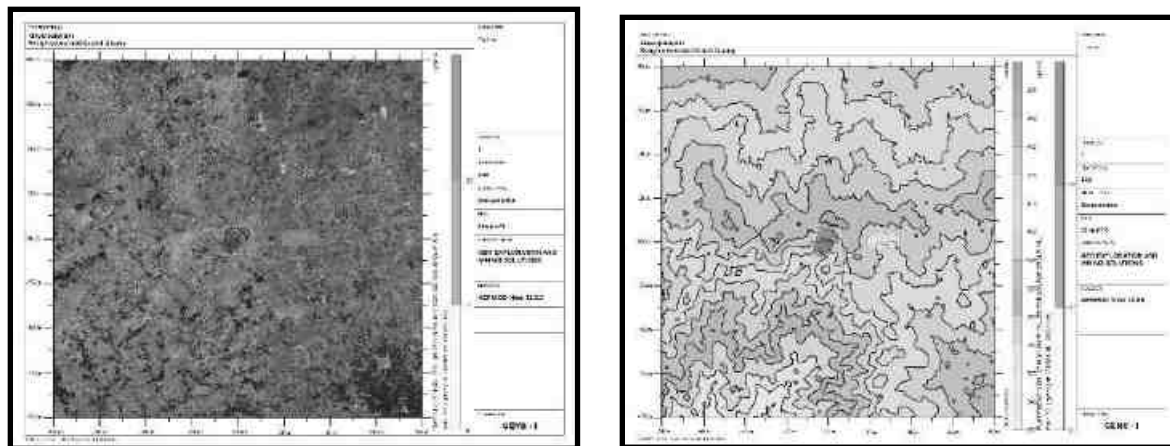
FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF NO_x**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 4.3: 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) (5+6)
AAQ1	10°54'52.83"N 77° 6'43.96"E	-43	-48	41.9	12.43	54.33
AAQ2	10°54'44.79"N 77° 6'52.63"E	199	-305	43.1	0	43.1
AAQ3	10°56'23.05"N 77° 8'23.14"E	2990	2735	44.7	11.59	56.29
AAQ4	10°54'17.60"N 77° 7'27.62"E	1709	-982	45.4	0	45.4
AAQ5	10°55'15.25"N 77° 9'15.62"E	4595	637	45.5	10.71	56.21
AAQ6	10°52'43.85"N 77° 6'1.60"E	-1342	-4040	45.2	5.00	50.2
AAQ7	10°55'39.11"N 77° 5'13.51"E	-2836	1373	45.0	0	45.0

TABLE 4.4: 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) (5+6)
AAQ1	10°54'52.83"N 77° 6'43.96"E	-43	-48	20.6	5.49	26.09
AAQ2	10°54'44.79"N 77° 6'52.63"E	199	-305	21.5	5.00	26.5
AAQ3	10°56'23.05"N 77° 8'23.14"E	2990	2735	23.6	4.84	28.44
AAQ4	10°54'17.60"N 77° 7'27.62"E	1709	-982	24.8	1.90	26.7
AAQ5	10°55'15.25"N 77° 9'15.62"E	4595	637	24.9	4.20	29.1
AAQ6	10°52'43.85"N 77° 6'1.60"E	-1342	-4040	24.4	2.50	26.9
AAQ7	10°55'39.11"N 77° 5'13.51"E	-2836	1373	24.0	0.21	24.21

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline So ₂ (µg/m ³)	Incremental value of So ₂ due to mining (µg/m ³)	Total So ₂ (µg/m ³) (5+6)
AAQ1	10°54'52.83"N 77° 6'43.96"E	-43	-48	4.6	1.39	5.99
AAQ2	10°54'44.79"N 77° 6'52.63"E	199	-305	4.4	0	4.4
AAQ3	10°56'23.05"N 77° 8'23.14"E	2990	2735	4.8	1.35	6.15
AAQ4	10°54'17.60"N 77° 7'27.62"E	1709	-982	5.0	0	5.0
AAQ5	10°55'15.25"N 77° 9'15.62"E	4595	637	4.9	1.30	6.2
AAQ6	10°52'43.85"N 77° 6'1.60"E	-1342	-4040	5.0	0.59	5.59
AAQ7	10°55'39.11"N 77° 5'13.51"E	-2836	1373	5.0	0	5.0

TABLE 4.6: INCREMENTAL & RESULTANT GLC OF NO_x

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline No _x (µg/m ³)	Incremental value of No _x due to mining (µg/m ³)	Total No _x (µg/m ³) (5+6)
AAQ1	10°54'52.83"N 77° 6'43.96"E	-43	-48	19.8	8.38	28.18
AAQ2	10°54'44.79"N 77° 6'52.63"E	199	-305	19.8	0	19.8
AAQ3	10°56'23.05"N 77° 8'23.14"E	2990	2735	20.2	4.92	25.12
AAQ4	10°54'17.60"N 77° 7'27.62"E	1709	-982	20.3	0	20.3
AAQ5	10°55'15.25"N 77° 9'15.62"E	4595	637	20.4	3.69	24.09
AAQ6	10°52'43.85"N 77° 6'1.60"E	-1342	-4040	20.1	0	20.1
AAQ7	10°55'39.11"N 77° 5'13.51"E	-2836	1373	20.5	0	20.5

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 for Proposed Project

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 –

- Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced 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 (Impact & Mitigation Measures)

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 in close proximity to the project area. Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities.

Predictions have been carried out to compute the noise level at various distances around the working pit due to these major noise-generating sources. Noise modelling has been carried out to assess the impact on surrounding ambient noise levels. Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves, which are propagated outwards from the source through the air at a speed of 1,100 ft/sec, with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of

the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A).

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

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

Where:

Lp_1 & Lp_2 are sound levels at points located at distances r_1 & r_2 from the source.

$Ae_{1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

$$Lp_{total} = 10 \log \{10^{(Lp_1/10)} + 10^{(Lp_2/10)} + 10^{(Lp_3/10)} + \dots\}$$

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 4.8: 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

*50 feet from source = 15.24 meters

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

The total noise to be produced by mining activity is calculated to be 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 4.9: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7
Maximum Monitored Value (Day) dB(A)	47.2	48.2	47.3	45.3	43.1	48.6	48.2
Incremental Value dB(A)	47.30	52.14	28.50	36.02	27.04	27.23	27.43
Total Predicted Noise level dB(A)	46.30	53.61	47.36	45.78	43.21	48.63	48.24
NAAQ Standards	Industrial		Day Time- 75 dB (A)		Night Time- 70 dB (A)		
	Residential		Day Time- 55 dB (A)		Night Time- 45 dB (A)		

4.4.2 Mitigation Measures for Proposed Project

The following noise mitigation measures are proposed for control of Noise.

- Time intervals for each quarries during blasting.
- Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
- Limiting time exposure of workers to excessive noise.
- Proper and regular maintenance of vehicles, machinery and other equipment's.
- The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipment's.
- Speed of trucks entering or leaving the quarry will be limited to moderate speed to prevent undue noise from empty vehicles...

- Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes (occasionally).
- Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment.
- Provision of Quiet areas, where employees can get relief from workplace noise.
- The development of green belts around the periphery of the quarry site to attenuate noise.
- 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 project area is located 1km Southeast in Karacheri village. The ground vibrations due to the blasting in proposed mine 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

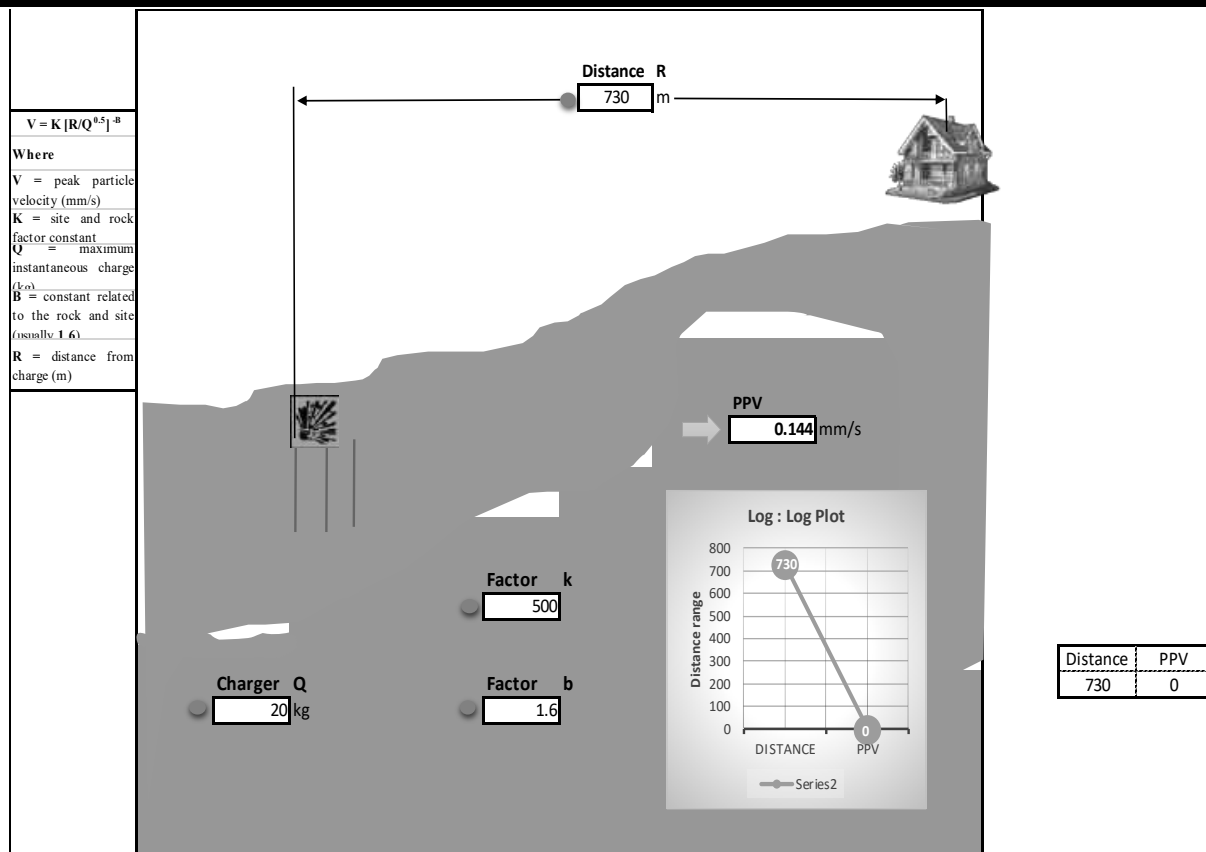
Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

TABLE 4.10: PREDICTED PPV VALUES DUE TO BLASTING

Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
20	730	0.144



From the above, the charge per blast of Maximum 20 Kg 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. It should be ensured that the explosives used for blasting at one blast should not exceed more than 2 Kg at any point of time. 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 for Proposed Project

- The blasting operations in the cluster quarries are carried out 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.
- Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire.

- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used.
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
- Appropriate blasting techniques shall be adopted such that the predicted peak particle velocity shall not exceed 8 Hz.
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

4.5 Ecology and Biodiversity

Mining activities generally result in deforestation, land degradation, and water, air, and noise pollution which directly or indirectly affect the faunal and floral status of the mine area. However, the occurrence and magnitude of these impacts are entirely dependent upon the project location, mode of operation, and technology involved. Existing roads will be used; new roads will not be constructed to reduce the impact on flora. Wildlife is not commonly found in the lease area and its immediate environments because of the lack of vegetal cover and surface water.

4.5.1. Anticipated Impact on Flora

- None of the plants will be cut during the operational phase of the mine.
- There shall be negligible air emissions or effluents from the project site. During the loading of the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.
- Most of the land in the buffer area is undulating terrain with croplands, grass patches, and small shrubs. Hence, there will be no effect on the flora of the region.

4.5.1.1. Mitigation Measures

The project site should have land to develop a greenbelt in and around the limits of the mine, along roads, and another vacant area. The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. Although the project will not lead to any tree cutting, it is proposed to improve the greenery of the locality through plantation services. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.

- Plants that grow fast will be preferred.
- Preference for high canopy covers plants with local varieties.
- Perennial and evergreen plants will be preferred.
- The development of the Green Belt is an important aspect for any plant because:
 - a. It improves the ambient air quality by controlling Suspended Particulate Matter (SPM) in the air.
 - b. It helps in noise abatement for the surrounding area.
 - c. It helps in the settlement of new birds and insects within itself.
 - d. It maintains the ecological balance.
 - e. It increases the aesthetic value of the site.

Table No 4.11 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
Species suitable for abatement of noise and dust pollution		
1	<i>Azadirachta indica</i>	Vembhu maram
2	<i>Ficus religiosa</i>	Arasan maram
3	<i>Ficus hispida</i>	Aththi maram
4	<i>Bombax ceiba</i>	Mul Elavu
5	<i>Syzygium cumini</i>	Naval maram
6	<i>Tamarindus indica</i>	Puliyamaram
7	<i>Mangifera indica</i>	Manga maram
8	<i>Harwickia binata</i>	Anjan maram

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

4.5.2. Anticipated Impact on Fauna

- No rare, endemic & endangered species are reported in the buffer zone. However, during the course of mining, the management will practice the scientific method of mining with a proper Environmental Management Plan including pollution control measures especially for air and noise, to avoid any adverse impact on the surrounding wildlife.
- Fencing around the mine lease area to restrict the entry of stray animals.
- Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

4.5.2.1. Mitigation Measures

- A suitable plan for the conservation of Schedule-I Species have been prepared and the necessary fund for implementation for the same will be made.
- All the preventive measures will be taken for the growth & development of fauna.
- Creating and developing awareness for nature and wildlife in the adjoining villages.
- The workers shall be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm.
- Topsoil has a large number of seeds of native plant species in the mining area.
- Checks and controls the movement of vehicles in and out of the mine.
- Undertaking mitigative measures for a conducive environment for the flora and fauna in consultation with Forest Department.
- A dust suppression system will be installed within the mine and periphery of the mine.

TABLE 4.12: GREENBELT DEVELOPMENT PLAN

No. of trees proposed to be planted	Area to be covered sq.m	Name of the species

2560	Near 7.5m safety distance, panchayat road and village road	Neem, Pungam, Vilvam, Panai, Ashokha etc.,

TABLE 4.13: BUDGET FOR GREEBELT DEVELOPMENT PLAN

ACTIVITY		YEAR										RATE	AMOUNT (INR)
		I	II	III	IV	V	VI	VII	VIII	IX	X		
Plantation under safety zone	Nos.	975	-	-	-	-						@100 Rs Per sapling	Rs. 1,95,000/-
	Cost	1,95,000	-	-	-	-							
Plantation in around approach road and nearby village roads	Nos	1585	-	-	-	-							Rs. 3,17,000/-
	Cost	3,17,000	-	-	-	-							
Wire Fencing (In Mtrs) 980 Mtrs		2,94,000	-	-	-	-						@300 Rs Per Meter	Rs. 2,94,000/-
Garland drain (In Mtrs) 930 Mtrs		2,79,000	-	-	-	-						@300 Rs Per Meter	Rs. 2,79,000/-
TOTAL													Rs.10,85,000/-

After complete extraction of mineral, the excavated pits will be allowed to collect rainwater and seepage water to serve as a reservoir to charge the nearby wells. Fish culture will also be attempted. A bund will be constructed around the pits. In order to minimize the impact of mining on the vegetation outside the mine lease area, it is recommended that adequate protection measures must be implemented. As mining involves movement of vehicles and increased anthropogenic activities, some of the areas can be fenced by involving local people and educating them about increased benefits of such activities.

4.5.3. Anticipated Impact on Fauna

- Since the terrestrial fauna in the study area are distributed away from the mine site, the impacts of project are likely to be much low on terrestrial fauna of the region. The proposed mining lease area is devoid of any significant vegetation, it is not suitable for permanent habitat for any specific wildlife.
- Habitat degradation and disturbance to faunal group due to ground vibration and increase in noise level will be minimize or resolved by modern technologies. So, from above facts it is revealed that there will be no impact on fauna. No threatened fauna species reported in the core and buffer study area.

4.5.3.1. Measures for protection and conservation of wildlife species

- Topsoil has a large number of seeds of native plant species in the mining area.
- Topsoil will be used for restoration and suitable surfaces for planted seedlings.
- Checks and controls the movement of vehicles in and out of the mine.
- Undertaking mitigative measures for a conducive environment to the flora and fauna in consultation with Forest Department.
- A dust suppression system will be installed within the mine and periphery of the mine.

- Plantation around the mine area will help in creating habitats for small faunal species and create a better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

4.5.3.2. Mitigation Measures

- All the preventive measures will be taken for growth & development of fauna.
- Creating and development awareness for nature and wildlife in the adjoin villages.
- The workers shall be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm.

4.5.4. Impact on Aquatic Biodiversity

Mining activities will not disturb the aquatic ecology as there is no effluent discharge proposed from the Rough stone and gravel quarry. There is no natural perennial surface water body within the mine lease area, like wetlands, rivers streams, Odai, Vaari, Canal, Channel, lakes, Pond, Tank, and farmer sites. There is no impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. There is no nearby any water bodies. Aquatic biodiversity is not observed in the study area.

4.5.5. Impact Assessment on Biological Environment

A detail of impact and assessments was mentioned in Table No 4.15.

TABLE 4.15: ECOLOGICAL IMPACT ASSESSMENTS

S.No	Attributes	Assessment
1	Impact of mining activity on agricultural land nearby the proposed project site.	Agricultural land is located away from the proposed project site. There are no impacts on the agricultural land & Horticulture. Kindly refer to the conclusion.
	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	There is no National Park/ Wildlife Sanctuary/ Reserve Forest/ Mangroves and Eco-Sensitive zone/ Critically polluted area/ HACA/CRZ located within 10 km radius of the area. Indira Gandhi (Anamalai) Wildlife Sanctuary–44.2km-S.
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.

4.6 *Socio Economic*

4.6.1 Anticipated Impact from Proposed Project

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

4.6.2 Mitigation Measures for Proposed Project

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

4.7 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 from any of the proposed quarries.

4.9 *Mine Closure*

Mine closure plan is the most important environmental requirement in mining projects. The mine closure plan should cover technical, environmental, social, legal and financial aspects dealing with progressive and post closure activities. The closure operation is a continuous series of activities starting from the decommissioning of the project. Therefore, progressive mine closure plan should be specifically dealt with in the mining plan and is to be reviewed along with mining plan. As progressive mine closure is a continuous series of activities, it is obvious that the proposals of scientific mining have included most of the activities to be included in the closure plan. While formulating the closure objectives for the site, it is important to consider the existing or the pre-mining land use of the site; and how the operation will affect this activity.

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

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

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

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

CHAPTER – 5: ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 Introduction:

Consideration of alternatives to a project proposal is a requirement of EIA process. This quarry is site specific. The site has been selected based on geological investigation and exploration and from the Existing quarry pits around the project site. Drilling, Blasting, Excavation, Loading & Transportation will be carried out in this quarrying operation.

- This area denotes the indicative of flow pattern of the rock mass in N30°E to S30°W with dipping SE60°.
- Transportation facility for materials & manpower.
- Overall impact on environment and mitigation feasibility.
- Socio – economic background.

Enough infrastructure exists and lesser resources are required to be deployed. Since, any major construction for infrastructure is not required and hence does not affect the environment considerably.

5.1 Factors Behind the Selection of Project Site

Rough Stone and Gravel Quarry Project at Edayarpalayam Village are a site specific. The proposed mining lease area has 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 area.
- 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 – III, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history.

5.2 Analysis of Alternative Site

The mineral deposits are site specific in nature; hence, question of seeking alternate site does not arise for this project.

5.3 Factors Behind Selection of Proposed Technology

Mechanized open cast mining operation with drilling and blasting method will be used to extract Rough Stone and Gravel in the area. The quarry areas fall in the clusters has following advantages –

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working out deposit is preferred over underground method.
- The material will be loaded after sprinkling with water 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 this project. This technology is having least gestation period, economically viable, safest and less labour intensive. The method has inbuilt flexibility for increasing or decreasing the production as per market condition.

CHAPTER – 6: ENVIRONMENTAL MONITORING PROGRAMME

6.0 General

Environmental Monitoring will be taken up for various environmental components as per conditions stipulated in Environmental Clearance Letter issued by MoEF & Consent to Operate issued by the State Pollution Control Board. Monitoring reports will be submitted to regulator as per statutory requirements. The entire monitoring work will be carried out by MoEF & CC / NABL recognized laboratories.

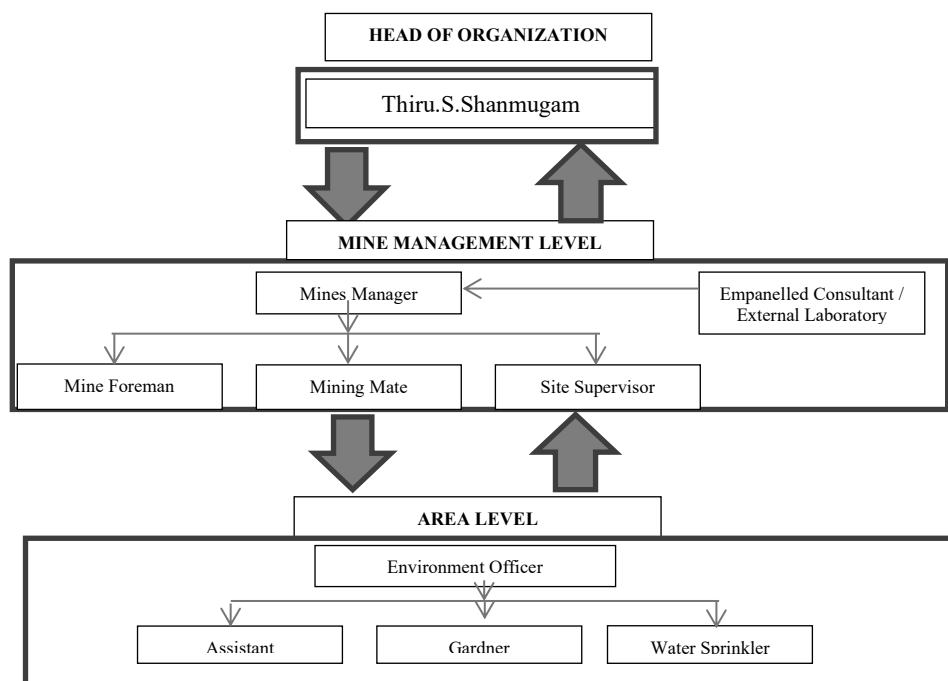
The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness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

6.1 Methodology of Monitoring Mechanism

Implementation of EMP and periodic monitoring will be carried out by the proponents and respective quarry owners in the cluster quarries. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to proposed project; Mine Management Level environmental protection measures like dust suppression, treatment and recycling of waste water, control of noise due to blasting and Ground vibration, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of other hand, implementation of area level protection measures like plantation and green Environmental Management Plan and environmental clearance conditions will be monitored by the proponent. On the belt development, environmental quality monitoring etc.,

An environment monitoring cell (EMC) will be constituted at the quarry consisting of following members to monitor the implementation of EMP and other environmental protection measures.

FIGURE 6.1 ENVIRONMENTAL MONITORING CELL



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. 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 monthly, half-yearly and yearly. The half-yearly reports will be 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).

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

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

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	

1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, PM _{2.5} , PM ₁₀ , SO ₂ and NO _x .
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

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

6.4 Environmental Policy of the Proponents

The project proponents in the proposed quarries are committed to ensure that:

- Protect the environment by control and prevention of pollution and promote green environment.
- To operate the quarry with an objective of no injuries and accidents at the work place and provide a safe work place for our employees, contractors and others who perform their duties.
- Adequate health care will be taken to all the employees and create process to reduce the adverse effect of the operations on Health of the employees.
- Provide safety appliance and continuous training in safety to employees to ensure safe production and achieve the target of zero accidents.
- Develop safe working methods and practices, remove unsafe work conditions and consider all the aspects at the early stages of process development to provide safe working atmosphere.
- Communicate Safety, Health and Environmental Policy to all employees for better understanding and practice.

6.5 Budgetary Provision for Environmental Monitoring Programme

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 total cost for Environmental Monitoring Programme for the proposed project is Rs 3,80,000/-

TABLE 6.3 ENVIRONMENT MONITORING BUDGET

Parameter	Capital Cost	Recurring Cost
Air Quality, Meteorology, Water Quality, Hydrology, Soil Quality Noise Quality, Vibration Study Greenbelt	Rs.76,000/-	Rs.76,000/-
Total	Rs. 76,000/-	Rs. 76,000/-

Source: Approved Mining Plan

6.6 *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 proponent with Environmental Monitoring cell and necessary corrective measures will be carried out. 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
- SEIAA, Chennai, Tamil Nadu

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

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

CHAPTER – 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. 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 cluster 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. 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 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; ▪ Entry of unauthorized persons will be prohibited; ▪ Fire fighting and first-aid provisions in the mine office complex and mining area; ▪ Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use. ▪ Working of quarry, as per approved plans and regularly updating the mine plans; ▪ Cleaning of mine faces shall be daily done in order to avoid any overhang or undercut; ▪ Handling of explosives, charging and

			firing shall be carried out by competent persons only under the supervision of a Mine Manager; ▪ Maintenance and testing of all mining equipment as per manufacturer 's guidelines.
2	Drilling& Blasting	Due to improper and unsafe practices Due to high pressure of compressed air, hoses may burst Drill Rod may break	▪ Safe operating procedure established for drilling (SOP) will be strictly followed. ▪ Only trained operators will be deployed. ▪ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places. ▪ Drilling shall not be carried on simultaneously on the benches at places directly one above the other. ▪ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. ▪ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. ▪ Operator shall regularly use all the personal protective equipment.
3	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/fining of blast holes Vibration due to movement of vehicles	▪ The maximum charge per delay and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blast can be conducted safely. ▪ SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation ▪ Shots are fired during daytime only. ▪ All holes charged on any one day shall be fired on the same day. ▪ The danger zone is and will be distinctly demarcated (by means of red flags)
4	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle Operator of truck leaving his cabin when it is loaded.	▪ Before commencing work, drivers personally check the 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. ▪ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ▪ Concave mirrors should be kept at all corners ▪ All vehicles should be fitted with reverse horn with one spotter at every tipping

			point ▪ Loading according to the vehicle capacity ▪ Periodical maintenance of vehicles as per operator manual
5	Natural calamities	Unexpected happenings	▪ Escape Routes will be provided to prevent inundation of storm water ▪ Fire Extinguishers & Sand Buckets
6	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	▪ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

7.3 Disaster Management Plan

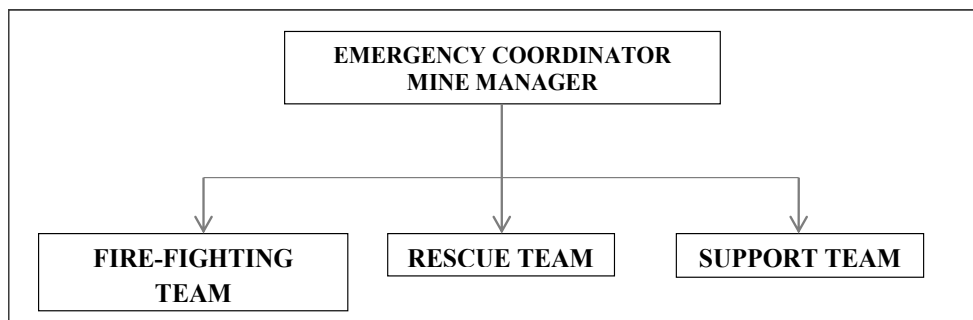
Natural disasters like Earthquake, Landslides has not been recorded in the past history as the terrain is categorized under seismic zone III. The area is far away from the sea hence the disaster due to heavy floods and tsunamis are not anticipated. The Disaster Management Plan is aimed to ensure safety 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. 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

(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 is proposed at strategic locations within the quarry.

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.

The features of alarm system will be explained to one and all to avoid panic or misunderstanding during disaster.

In order to prevent or take care of hazard / disasters if any the following control measures have been adopted.

- All safety precautions and provisions of Metalliferous Mines Regulations (MMR), 1961 is strictly followed during all mining operations
- Fire fighting and first-aid provisions in the mines office complex and mining area will be provided.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees and the use of same is strictly adhered to through regular monitoring
- Training and refresher courses for all the employees working in the quarry in phase manner
- Cleaning of mine faces will be carried out regularly
- Provision of high-capacity standby pumps with generator sets with enough quantity of diesel for emergency pumping especially during monsoon.
- A blasting SIREN will be used at the time of blasting for audio signal.
- Checking of blasting area for any un-blasted hole or material.
- Warning notice boards indicating the time of blasting and NOT TO TRESPASS will be displayed at prominent places

7.4 CUMULATIVE IMPACT STUDY

There are 4 proposed and 1 existing quarry, 2 abandoned quarry and 1 Expired quarry falls in the cluster. The list of quarries is as below –

TABLE 7.3: LIST OF QUARRIES WITHIN 500 METER RADIUS FROM THIS PROPOSAL

PROPOSED QUARRIES				
CODE	Name of the Proponent and Address	S.F. Nos	Extent in Ha	Status
P1	Thiru.S.Shanmugam	168/1A,169/1B, 178/1(P), 178/2(P), 179/1A,179/1B	5.11.5	ToR obtained vide File No. 12987 TOR Identification No. TO25B0108TN5201182N Dated:19.12.2025
P2	Thiru.N. Kathires	172/1B, 172/2 & 173/2A2	1.42.82	Public hearing conducted on 22.08.2024
P3	Thiru.N.Vivek Prithiviraj	180/3(P)	1.62.0	EC Under Process
P4	M/s.Ultra Ready Mix Concrete Pvt Ltd	168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P)	2.94.01	EC obtained
P5	Thiru.K. Ranganathan	174/4 & 176/1 of	2.28.0	EC Under Process
P6	Thiru. S. Nandhagopal	180/1 & 181/3	2.15.83	Public hearing conducted on 03.12.2025
P7	Thiru. V.Saravanan	171/2(P) & 176/2(P)	1.84.0	Public hearing conducted on 17.06.2025
Total			17.38.16	
EXISTING QUARRIES				
CODE	Name of the Proponent and Address	S.F.Nos , Village & Taluk	Extent in Ha	Lease Period
E1	Tmt. N. Chitradevi	179/2(P), Edayarpalayam Village, Sular Taluk	3.64.5	14.07.2021 to 13.07.2026
Total			3.64.5	
ABANDONED QURRIES				
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	Lease Period
A-1	Government Quarry	164/1	3.13.5	-
A-2	Jayakumar	260	-	-
A-3	R.Ayik Goundar	164/8	0.60.0	22.01.1999 – 28.01.2004
A-4	R.Rangasamy	171/1	0.20.5	28.10.2002 – 27.10.2007
A-5	A.Arumuga Gounder	178/1(P)	0.39.5	23.09.2003 – 22.09.2008
A-6	Tmt. Ponnammal	178/2, Edayarpalayam Village, Sular Taluk	0.33.0	22.10.2004 – 21.10.2009
Total			4.66.5	
EXPIRED QURRIES				
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	Lease Period
Ex-1	B.Sakthivel	164/6A, 164/7 Edayarpalayam Village, Sular Taluk	1.19.5	07.10.2017 to 06.10.2022
Total			1.19.5	
TOTAL CLUSTER EXTENT			21.02.66	

Note:-

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

As per above notification S.O.2269(E) dated : 01.07.2016 in para (b) in Appendix XI, - (ii)(5): The lease not operative for three years or more and leases which have got environmental clearance as on 15th January, 2016 shall not be counted for calculating the area of cluster, but shall be included in the Environment Management Plan and the Regional Environmental Management Plan”

TABLE 7.4: SALIENT FEATURES OF THE PROPOSED PROJECTS IN CLUSTER

SALIENT FEATURES OF PROPOSAL “P1”					
Name of the Mine	Thiru. S.Shanmugam Rough Stone and Gravel Quarry				
Land Type	Patta Land				
S.F. No.	169/1A,169/1B, 178/1 (Part), 178/2 (Part), 179/1A and 179/1B				
Extent	5.11.5 Ha				
Previous quarry operation details	S.No	Name of the Lessee	Extent Ha	S.F.No.	Lease Period
	1	Tmt.R.Ponnamal	0.33.0	178/2(P)	22.10.2004 – 21.10.2009
	2	Tmt.R.Ponnamal	0.39.5	178/1(P)	23.09.2003 – 22.09.2008
Present quarry pit dimension	Depth - 7m Bgl				
Proposed Depth	77m bgl (2m Gravel + 75m Roughstone)				
Geological Resources	Rough Stone		Gravel		
	38,25,625 m³		98,050 m³		
Mineable Reserves	Rough Stone		Gravel		
	12,58,005 m³		79,980 m³		
Proposed production for first five years	6,30,780 m³		47,312 m³		
Proposed production for Second five years	6,27,225 m³		32,668 m³		
Mining Plan Period / Lease Period	10Years				
Ultimate Pit Dimension	Section	Length (m)	Width (m)	Depth (m)	
	XY-AB	53	123	52	
	XY-CD	58	165	62	
	XY-EF	128	153	77	
	X1Y1-EF	113	43	42	
Toposheet No	58 - F/01				
Latitude	10°54'39.5259"N to 10°54'49.3401"N				
Longitude	77°06'38.4897"E to 77°06'48.1409"E				
Highest Elevation	433m AMSL				
Machinery	Wagon Drill Machine		2		
	Jack Hammer		4		
	Compressor		1		
	Excavator with Bucket and Rock Breaker		3		
	Tippers		6		
	Water Sprinkling Tanker		1		
Blasting	Usage of Slurry Explosive with MSD detonators				
Manpower Deployment	42 Nos				
Water Bodies	Odai		50m Safety Northwest		
	Niyaviyal Odai		60m N		
Total Cost	Project Cost		Rs. 3,50,60,000/-		
	EMP Cost		Rs. 3,80,000/-		
	Total		Rs. 3,54,40,000/-		
CER cost	Rs.5,00,000/-				
Water Requirements	2.7 KLD				
Nearest Habitation	730m-NE				

SALIENT FEATURES OF PROPOSAL “P2”			
Name of the Mine	Thiru.N. Kathiresh Rough Stone and Gravel Quarry		
Land Type	Patta Land (Patta No.978,501&1051)		
S.F. No.	172/1B, 172/2 & 173/2A2		
Extent	1.42.82 Ha		
Previous quarry operation details	Operated by The quarry lease was first granted in favour of Thiru. K.Manthirachalam, R.C.No. 1151/2002/MM2, dated: 16.12.2002 for the period of five years from 24.12.2002 to 23.12.2007 the quarry lease was granted in Favour of Thiru. M.Arumugam, R.C.No. 1746/2007/X1, dated: 18.02.2008 for the period of five years from 18.05.2008 to 17.05.2013 Now the same applicant has again applied the Rough stone and Gravel quarry lease on 07.10.2021.		
Present quarry pit dimension	78m (L) x 49m (W) x 17m(D)		
Depth restricted as per ToR	27m bgl (2m Gravel + 25m Roughstone)		
Geological Resources	Rough Stone	Gravel	
	2,86,860m³	11,230 m³	
Mineable Reserves	Rough Stone	Gravel	
	65,140 m³	5,712	
Proposed production for five years	65,140 m³	5,712	
Mining Plan Period / Lease Period	5 Years		
Ultimate Pit Dimension	146m(L)	49m (W)	27m bgl (D)
Toposheet No	58 - F/01		
Latitude	10°54'56.31"N to 10°55'02.21"N		
Longitude	77°06'49.03"E to 77°06'53.12"E		
Highest Elevation	425m AMSL		
Machinery	Jack Hammer	2	
	Compressor	1	
	Excavator with Bucket and Rock Breaker	1	
	Tippers	1	
Blasting	Usage of Slurry Explosive with MSD detonators		
Manpower Deployment	15Nos		
Total Cost	Project Cost	Rs. 62,32,000/-	
	EMP Cost	Rs. 3,80,000/-	
	Total	Rs. 66,12,000/-	
CER cost	Rs.5,00,000/-		
Water Requirements	2.0 KLD		
Nearest Habitation	950m Nw		

SALIENT FEATURES OF PROPOSAL “P4”			
Name of the Mine	M/s.Ultra ReadyMix Concrete Pvt Ltd Rough Stone & Gravel Quarry		
Land Type	Private company, it is a Patta lands. Registered in the name of the applicant (Thiru.K.R.Ananth Kumar, Authorized Chief Executive Officer for Tvl. Ultra Readymix Concrete Private Limited), vide Patta Nos. 1030, 1028, 1027 & 1029. Refer Annexure No. IV.		
S.F. Nos	168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P)		
Extent	2.94.01 Ha		
Existing pit dimensions (Max)	98m (L) x 70m (W) x 18m Bgl (D)		
Geological Reserves	Rough Stone	Weathered Rock	Gravel
	10,07,006 m ³	24,300	48,600 m ³
Mineable Reserves	Rough Stone	Weathered Rock	Gravel
	3,18,706 m ³	13,884 m ³	32,304 m ³
Proposed Quantity of Reserves/Production for mining Period	3,18,706 m ³	13,884 m ³	32,304 m ³

Mining Plan Period / Lease Period	5 Years	
Depth of mining	38m (2m Gravel +1m Weathered Rock +35m Rough Stone)	
Ultimate Pit Dimension	247m (L) x 113m (W) x 38m Bgl (D)	
Depth restricted as per ToR	The ultimate depth of mining is about 38m (2m Gravel +1m Weathered Rock + 35m Rough stone)	
Toposheet No	58 F/01	
Latitude	10°54'43.0036"N to 10°54'49.7345"N	
Longitude	77°06'46.9047"E to 77°06'56.1903"E	
Machinery proposed	Jack Hammer	8
	Compressor	2
	Excavator with Bucket and Rock Breaker	2
	Tippers	4
Blasting	Usage of Slurry Explosive with MSD detonators	
Manpower Deployment	40Nos	
Total Project Cost	Operational Cost	Rs. 85,44,000/-
	EMP Cost	Rs. 3,80,000/-
	Total	Rs. 48,55,000/-
CER cost	Rs.5,00,000/-	
Water Requirements	3.0 KLD	
Nearest Habitation	540m-NW	

SALIENT FEATURES OF PROPOSAL "P6"

Name of the Project	Thiru. S. Nandhagopal Rough Stone & Gravel Quarry	
S.F. No.	180/1 and 181/3	
Extent	2.15.83 Ha	
Village, Taluk and District	Idayarpalayam Village, Suler Taluk & Coimbatore District	
Land type	It is a Patta land (Barren land) which is not fit for vegetation/ Cultivation	
Land owner details	It is a Patta land, Registered in the name of the applicant Thiru. S. Nandhagopal vide Patta no.963. The S.F.No.181/3 is jointly registered in the name of the applicant and other 6 members vide patta no.958. The Applicant has purchased the S.F.No.181/3 and the same has been registered vide sale deed document no.7791/2020 dated:27.08.2020 in the suler sub-registor office. But the name transfer in patta is pending till now.	
Toposheet No	58 - F/01	
Latitude between	10°54'35.95.20"N to 10°54'43.4523"N	
Longitude between	77°06'35.9065"E to 77°06'41.7207"E	
Highest Elevation	432m AMSL	
Mining Plan period	10 years	
Proposed Depth of Mining	42m below ground level.	
Geological Resources	Rough Stone in m ³	Gravel in m ³
	8,90,600	44,530
Mineable Reserves	Rough Stone in m ³	Gravel in m ³
	2,31,510	30,964
Yearwise Production	Rough Stone in m ³	Gravel in m ³

	2,31,510			30,964	
Ultimate Pit Dimension	S.No	Length(m) (Max)	Width(m) (Max)	Depth(m) (Max)	
	Pit- I	122	53	22m	
	Pit – II	98	92	42m	
Water Level in the surrounding areas	63 - 68m 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 Southwestern side. The altitude of the area is 432m (Max) above Mean sea level. The area is covered by the Gravel 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	4 Nos			
	Compressor	1 Nos			
	Excavator with Bucket and Rock Breaker	1 No			
	Tippers	2 Nos			
	Water Sprinkling Tanker	1 No			
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.				
Proposed Manpower Deployment	23 Nos				
Project Cost	Rs. 1,42,24,000/-				
EMP Cost	Rs. 3,80,000/-				
Total Project cost	Rs. 1,60,59,000/-				
CER Cost	Rs. 3,00,000,-/-				
Nearby Water Bodies	Odai	100m NW			
	Odai	1km SE			
	Canal	9km SE			
	Pallapalayam Lake	9.3km NW			
Greenbelt Development Plan	As per Mining plan it is Proposed to plant 1080 trees in the 7.5 m Safety Zone, approach road and panchayat roads.				
Proposed Water Requirement	2.0 KLD				
Nearest Habitation	930m – NE				
Nearest Reserve Forest	Boluvampatti I R.F. – 17.5 km –West				
Nearest Wild Life Sanctuary	Indira Gandhi (Anamalai) Wildlife Sanctuary- 44.0km - South				

SALIENT FEATURES OF PROPOSAL “P7”			
Name of the Mine	Thiru.V. Saravanan Rough Stone and Gravel Quarry		
Land Type	Patta Land		
S.F. No.	171/2(P) & 176/2		
Extent	1.84.0 Ha		
Previous quarry operation details	☞ The quarry lease was first granted in favour of Tmt.Sujatha Murugesan, R.C.No. 25095/1997/X1, dated:17.04.1997 for the period of five years from 17.04.1997 to 16.04.2002 ☞ Again the quarry lease was granted in Favour of Thiru. M.Velusamy, R.C.No. 977/2002/MM2, dated: 20.09.2002 for the period of five years from 20.09.2002 to 19.09.2007 ☞ Subsequently a quarry lease was again granted in Favour of Thiru. M.Velusamy, R.C.No. 1206/2007/X1, dated: 19.07.2008 for the period of five years from 19.07.2008 to 18.07.2013 ☞ A Quarry lease was again granted in Favour of Thiru.V.Saravanan, R.C.No. 472/Mines/2016, dated: 15.09.2017 for the period of five years from 15.09.2017 to 14.09.2022 ☞ Now the same applicant has again applied the Rough stone and Gravel quarry lease on 23.01.2023		
Present quarry pit dimension	128m (L) x 80m (W) x 22m(D)		
Proposed Depth	47m bgl (2m Gravel + 45m Roughstone)		
Existing Depth	22m bgl		
Geological Resources	Rough Stone	Gravel	
	552448m ³	7788 m ³	
Mineable Reserves	Rough Stone	Gravel	
	127607 m ³	4640 m ³	
Proposed production for five years	127607 m ³	4640 m ³	
		6048 m ³ -(Existing Dump)	
Mining Plan Period / Lease Period	5 Years		
Ultimate Pit Dimension	179m(L)	82m (W)	47m bgl (D)
Toposheet No	58 - F/01		
Latitude	10°54'52.4089"N to 10°54'56.6423"N		
Longitude	77°06'42.1340"E to 77°06'48.7539"E		
Highest Elevation	436m AMSL		
Machinery	Jack Hammer	3	
	Compressor	1	
	Excavator with Bucket and Rock Breaker	1	
	Tippers	2	
Blasting	Usage of Slurry Explosive with MSD detonators		
Manpower Deployment	18Nos		
Water Bodies	Niyaviyal Odai	50m Safety South	
	Odai	140m NW	
	Odai	1.1Km SE	
	Pallapalayam Lake	9Km NW	
	Kannampalayam Lake	9.5Km NW	
	P.A.P Canal	9.3Km SE	
Total Cost	Project Cost	Rs. 65,47,000/-	
	EMP Cost	Rs. 3,80,000/-	
	Total	Rs. 69,27,000/-	
CER cost	Rs.5,00,000/-		
Water Requirements	1.5 KLD		
Nearest Habitation	510m-NE		

SALIENT FEATURES OF “E1”	
Name of the Mine	Tmt.N.Chitradevi for Rough Stone and Gravel Quarry
Land Type	It is a Patta land. Patta no 787

S.F. No.	179/2(P), Edayarpalayam Village, Suler Taluk		
Extent	3.64.5 ha		
Previous quarry details	The applied survey no already quarried in two times in the granted name Tvl. ROBO SILICAON Private Limited (Letter no 1893/2008/XI dt 03.03.2009 for 5 years Now Tmt.Chitradevi vide letter no 156/2014/MM2 date 15.12.2015 and lease period 15.12.2014-14.12.2020 (Five years)		
Existing Depth	34m		
Proposed depth	47m (2m Gravel + 45m Rough Stone) below ground level.		
Geological Reserves & Mineable Reserves	<i>Description</i>	<i>Rough stone in m³</i>	<i>Gravel in m³</i>
	Geological Resources	16,40,250	72,900
	Available Mineable reserves	2,63,226	27,000
	five years plan period as in the approved mining plan	2,63,226	27,000
Mining Plan Period / Lease Period	Five years		
Ultimate Pit Dimension (Max)	200m (L) * 179m (W) * 47m BGL (D)		
Toposheet No	58 – F/01		
Latitude	10°54'33.16"N to 10°54'41.78"N		
Longitude	77°06'40.42"E to 77°06'47.14"E		
Elevation	418m Amsl.		
Water Level	60m in summer and at 55m in rainy seasons below general ground profile.		
	Type		Nos
Machinery	Jack Hammer		8
	Compressor		2
	Hydraulic Excavato Excavator with Bucket and Rock Breaker		2
	Tippers		4
Blasting	Jack hammer drilling and slurry blasting		
Manpower Deployment	31		
Total Project Cost	Project Cost	Rs. 1,42,60,700/-	
	EMP Cost	Rs. 3,80,000/-	
	Total	Rs. 1,46,40,700/-	
Habitation	850m- NE		

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.

Impact on Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.5 & 7.6

TABLE 7.5 CUMULATIVE PRODUCTION LOAD OF ROUGH STONE IN CLUSTER

Quarry	Production for five/ten years plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 12m ³ per load
P1 (Ten Years)	12,58,005	125801	419	35
P2	65,140	13028	43	4
P3	-	-	-	-
P4	3,18,706	63741	212	18
P5	-	-	-	-
P6	2,31,510	46302	154	13
P7	1,27,607	25521	85	7

Total	20,00,968	274393	913	77
E1	2,63,226	52,645	175	15
Total	2,63,226	52,645	175	15
Gran Total	22,64,194	3,27,038	1,088	92

TABLE 7.6: CUMULATIVE PRODUCTION OF GRAVEL IN CLUSTER

Quarry	Mineable Reserves in m ³	Per Year Production in m ³	Per Day in m ³	Number of Lorry Load @ 12m ³ per load
P1(Ten Years)	79,980	7998	27	2
P2	5,712	1904	6	1
P3	-	-	-	-
P4	32,304	10768	36	3
P5	-	-	-	-
P6	30,964	10,321	34	3
P7	4640	1547	5	1
TOTAL	1,53,600	32,538	108	10
E1	27,000	9,000	30	3
Total	27,000	9,000	30	3
Grand total	1,80,600	41,538	138	13

Source: Approved Mining plans of the respective projects

On a cumulative basis considering all the 8 quarries it can be seen that the overall production of Rough Stone is 1088 m³ per day, overall production of Gravel is 138 m³ per day with a capacity of 92 trips of Rough Stone per day, 13 Trips per day of Gravel from the cluster.

Note: Per day production of Rough Stone is calculated for 5/10 Years Lease Period and for Gravel & Topsoil production with 1, 2 or 3 or 10 years of production period. And the load of existing quarries is covered under existing environment of the cluster.

Based on the above production quantities the emissions due to various activities in all the 7 proposal quarry and 1 existing quarry includes various activities like ground preparation, excavation, handling and transport of mineral. 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 7.7.

TABLE 7.7: EMISSION ESTIMATION FROM CLUSTER

EMISSION ESTIMATION FOR QUARRY “P1”- Thiru.S.Shanmugam				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.072658434	g/s
	Blasting	Point Source	0.000489829	g/s
	Mineral Loading	Point Source	0.040025112	g/s
	Haul Road	Line Source	0.002487678	g/s/m
	Overall Mine	Area Source	0.049595056	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000375585	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000015686	g/s
EMISSION ESTIMATION FOR QUARRY “P2”- Thiru.N.Kathires				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.058624578	g/s
	Blasting	Point Source	0.000167499	g/s
	Mineral Loading	Point Source	0.037207229	g/s
	Haul Road	Line Source	0.002484819	g/s/m
	Overall Mine	Area Source	0.044324630	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000178199	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000005883	g/s
EMISSION ESTIMATION FOR QUARRY “P4”- M/s.Ultra Ready mix Concrete Pvt Ltd				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.072658434	g/s
	Blasting	Point Source	0.000489829	g/s

	Mineral Loading	Point Source	0.040025112	g/s
	Haul Road	Line Source	0.002487678	g/s/m
	Overall Mine	Area Source	0.049595056	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000375585	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000015686	g/s
EMISSION ESTIMATION FOR QUARRY “P6”- Thiru.S.Nandhagopal				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.058624578	g/s
	Blasting	Point Source	0.000167499	g/s
	Mineral Loading	Point Source	0.037207229	g/s
	Haul Road	Line Source	0.002484819	g/s/m
	Overall Mine	Area Source	0.044324630	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000178199	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000005883	g/s
EMISSION ESTIMATION FOR QUARRY “P7”-Thiru.V. Saravanan				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.092726254	g/s
	Blasting	Point Source	0.001658166	g/s
	Mineral Loading	Point Source	0.043745863	g/s
	Haul Road	Line Source	0.002495583	g/s/m
	Overall Mine	Area Source	0.061596558	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000927007	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000060171	g/s
EMISSION ESTIMATION FOR QUARRY “E1”- Tmt.N.Chitradevi				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.044624578	g/s
	Blasting	Point Source	0.002167499	g/s
	Mineral Loading	Point Source	0.023207229	g/s
	Haul Road	Line Source	0.008484819	g/s/m
	Overall Mine	Area Source	0.037324630	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.011178199	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000325883	g/s

Source: Emission Formula

TABLE 7.8: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM ₁₀ in µg/m ³	
Location	AAQ1 – CORE
Background (average)	45.0
Highest Incremental	11.67
Resultant	56.7
NAAQ Norms	100 µg/m ³
PM _{2.5} in µg/m ³	
Background (average)	23.4
Highest Incremental	5.49
Resultant	28.9
NAAQ Norms	80 µg/m ³
SO ₂ in µg/m ³	
Location	AAQ1 – CORE
Background (average)	7.3
Highest Incremental	1.59
Resultant	8.9
NAAQ Norms	80 µg/m ³
NO _x in µg/m ³	
Location	AAQ1 – CORE
Background (average)	22.1
Incremental	8.46

Resultant	30.6
NAAQ Norms	80 $\mu\text{g}/\text{m}^3$

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.

$$L_{p2} = L_{p1} - 20 \log (r_2/r_1) - A_{e1,2}$$

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 7.9: PREDICTED NOISE INCREMENTAL VALUES FROM CLUSTER

Location ID	N1	N2	N3	N4	N5	N6	N7
Maximum Monitored Value (Day) dB(A)	47.2	48.2	47.3	45.3	43.1	48.6	48.2
Incremental Value dB(A)	47.30	52.14	28.50	36.02	27.04	27.23	27.43
Total Predicted Noise level dB(A)	46.30	53.61	47.36	45.78	43.21	48.63	48.24
NAAQ Standards	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A) Residential Day Time- 55 dB (A) Night Time- 45 dB (A)						

Source: Lab Monitoring Data

The incremental noise level is found within the range of 27.04 – 36.02 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 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 4proposal quarry and 3 existing quarries 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 7-proposal quarry and 1 existing quarries 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 areas and may cause injury to persons or damage to the structures. Nearest Habitations from 8mines respectively are as in below Table 7.9

TABLE 7.10: NEAREST HABITATION FROM EACH MINE

Location ID	Distance in Meters

Habitation Near P1	730m- NE
Habitation Near P2	370m- East
Habitation Near P3	1km- NE
Habitation Near P4	470-NE
Habitation Near P5	500m- NE
Habitation Near P6	910m -NE
Habitation Near P7	500m-NE
Habitation Near E1	840m-NE

Source: Satellite Imagery and Field Data

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 7.11: GROUND VIBRATIONS AT 8 MINES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	20	730m- NE	0.144
P2	20	370m- East	0.427
P3	20	1km- NE	0.087
P4	20	470-NE	0.291
P5	20	500m- NE	0.264
P6	20	910m -NE	0.101
P7	20	500m-NE	0.264
E1	76	840m-NE	0.189

Source: PPV Calculation

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 7 mines shall provide employment and revenue will be created to government

TABLE 7.12: SOCIO ECONOMIC BENEFITS FROM 8 MINES

Location Code	Employment	Project Cost	CER
P1	42	Rs. 3,50,60,000/-	Rs.5,00,000/-
P2	15	Rs. 62,32,000/-	Rs.5,00,000/-
P3	-	-	-
P4	40	Rs. 85,44,000/-	Rs.5,00,000/-
P5	-	-	-
P6	23	Rs. 1,60,59,000/-	Rs.3,00,000/-
P7	18	Rs. 69,27,000/-	Rs.5,00,000/-
Total	138	Rs. 7,28,22,000/-	Rs. 23,00,000/-
E1	31	Rs. 1,46,40,700/-	Rs. 5,00,000/-
Total	31	Rs. 1,46,40,700/-	Rs. 5,00,000/-
Grand Total	169	Rs. 8,74,62,700/-	Rs.28,00,000/-

A total of 138 people will get employment due to 7 mines in cluster and already employed at existing mines are 31 Nos. 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 by all the mines.

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.

- 7 Proposed projects shall fund towards CER – **Rs 23,00,000/-**
- Existing project shall fund towards CER – **Rs 5,00,000/-**
- Projects in Cluster shall fund towards CER – **Rs.28,00,000/-**

TABLE 7.13: GREENBELT DEVELOPMENT BENEFITS FROM 5 MINES

CODE	No of Trees proposed to be planted	Area Covered Sq.m	Name of the Species
P1	2560	Near 7.5m safety distance, panchayat road and village road	Neem, Pungam, Vilvam, Panai, Ashokha etc..
P2	715		
P3	810		
P4	1470		
P5	1440		
P6	1080		
P7	920		
E1	1830		
Total	10825		

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Pungam, etc in the Cluster at a rate of 10,825 Trees Planted over a period of 5 Years

7.5 PLASTIC WASTE MANAGEMENT PLAN

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

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 7.14: 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

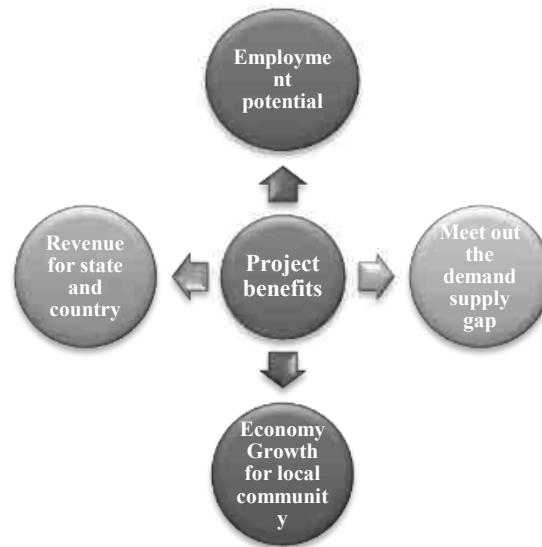
Source: Proposed by FAE's and EC

CHAPTER – 8: PROJECT BENEFITS

8.0 General

The Proposed Project for Quarrying Rough Stone and Gravel at Edayarpalayam Village aims to produce cumulatively 12,58,005m³ Rough Stone over a period of 10 Years & 79,980m³ of Gravel over a period of 10 Years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

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



8.1 Employment Potential

It is proposed to provide employment to about 42 persons for carrying out mining operations and give preference to the local people in providing employment. 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 than negative 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 project site is located in Edayarpalayam Village, Sulur Taluk, Coimbatore District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to the cluster quarry projects.

- 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

The quarry projects in the region will have positive impact on the social economic condition of the area by way of providing employment to the local peoples; thereby increasing the per capita income, housing, education, medical and transportation facilities, economic status, health and agriculture.

- Social welfare program like medical camps, educational facilities to the poverty level students, providing water supply from the quarries during drought seasons will be taken from the project proponent's
- Supplementing Govt. efforts in health monitoring camps, social welfare and various Awareness programs among the rural population.

8.5 Other Tangible Benefits

The proposed quarry project 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 quarry site 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

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

Under this programme, the project proponents will take-up following programmes for social and economic development of villages within 10 km of the project site. For this purpose, separate budget will be provided every year. For finalization of these schemes, proponent will interact with LSG. The schemes will be selected from the following broad areas –

- Health Services
- Social Development
- Infrastructure Development
- Education & Sports
- Self-Employment

CSR Cost Estimation

- CSR activities will be taken up in the Edayarpalayam 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–

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

As per para 6 (II) of the office memorandum, 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 and the total CER amount from the 2proposed mines is Rs. 10,00,000/-.

TABLE 8.1 CER – ACTION PLAN

CER
Rs 5,00,000/-

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

CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

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

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN

10.1 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.

10.2 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.Shanmugam** will –

- Allocate necessary resources to ensure the implementation of the environmental policy
- 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
- 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.

10.3 Land Environment Management –

Land degradation is one of the major adverse impacts of opencast mining in the form of excavated voids and contamination of soil affects the viability of the soil resource.

Soil contamination then has a number of flow-on effects like, Inhibition of plant growth, and death of existing plants in contaminated areas and contamination of soil also has potential to impact on a surface water quality and groundwater resources.

TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Re fueling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
Greenbelt development and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
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
Thick plantation using native flora species will be carried out on the top benches.	Mines Manager
There will be formation of a small surface water body in the mined-out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.4 Soil Management

Top Soil Management –

- There is no topsoil for this project site.

Overburden / Waste and Side Burden Management –

- The overburden in the form of Gravel formation, the Gravel will be directly loaded into tippers for the filling and levelling of low-lying areas, this will be done only after obtaining permission and paying necessary seigniorage fees to the Government.

TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Garland drains are to be paved around the quarry pit area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface water 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	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Environment Officer
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.5 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 mine office.

The quarrying operation is restricted upto a depth of 77 BGL as per the ToR, the water table in the area is 150 m 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

10.6 Air Quality Management

The existing and proposed mining activities would result in the increase of particulate matter concentrations due to fugitive dust. Water sprinkling twice per day 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

10.7 Noise Management

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and other allied 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 shall be 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

10.8 Ground Vibration and Fly Rock Control

TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK

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 2560 nos. 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 FOR 5 YEAR PLAN PERIOD

No. of trees proposed to be planted	Area to be covered sq.m	Name of the species
2560	Near 7.5m safety distance, panchayat road and village road	Neem, Vilvam, Ashokha, Pungam, Panai etc.,

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 TO PLANT IN THE GREENBELT

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 –

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline measures for determining changes in health.
- Evaluating the effect of noise on workers
- Enabling corrective actions to be taken when necessary
- Providing health education

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail 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 – P2

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)					
Medical Follow ups:- Work force will be divided into three targeted groups age wise as follows:-						
Age Group		PME as per Mines Rules 1955		Special Examination		
Less than 25 years		Once in a Three Years		In case of emergencies		
Between 25 to 40 Years		Once in a Three Years		In case of emergencies		
Above 40 Years		Once in a Three Years		In case of emergencies		
Medical help on top priority immediately after diagnosis/ accident is the essence of preventive aspects.						

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.
- Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment.
- 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.
- Strict observance of the provisions of DGMS Acts, Rules and Regulations in respect of safety both by management and the workers.
- The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- 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 Proponents 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.

TABLE 10.10: LIST OF PERIODICAL TRAININGS PROPOSED FOR EMPLOYEES

Course	Personnel	Frequency	Duration	Instruction
New-Employee Training	All new employees exposed to mine hazards	Once	One week	Employee rights Supervisor responsibilities Self-rescue Respiratory devices Transportation controls

				Communication systems Escape and emergency evacuation Ground control hazards Occupational health hazards Electrical hazards First aid Explosives
Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul Road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health & safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new-hire training	Yearly	One week	Required health and safety standards Transportation controls Communication systems Escape ways, emergency evacuations Fire warning Ground control hazards First aid Electrical hazards Accident prevention Explosives Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance Emergency evacuation procedures Health standards Safety rules Respiratory devices

Source: Proposed by FAE's & EIA Coordinator as per DGMS Norms

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

TABLE 10.11: EMP BUDGET FOR PROPOSED PROJECT

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring per annum
Air Environment	Haul road maintenance & Water sprinkling	Lump sum fund allocation for daily maintenance of haul roads and thrice a day water sprinkling by fixed sprinklers or water tankers	0	50000
	Muffle blasting – To control fly rocks during blasting	Lump sum fund allocation Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure	Lump sum fund allocation for ensuring wet drilling by covering drill holes with wet gunny bags and spraying water while drilling	0	10000
	No overloading of trucks/tippers/tractors	Lump sum fund allocation Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Lump sum fund allocation Manual Monitoring through Security guard	0	5000
	Enforcing speed limits of 20 km/hr within ML area	Lump sum fund allocation Manual Monitoring through Security	0	5000

		guard		
	Regular monitoring of exhaust fumes as per RTO norms	Lump sum fund allocation Manual Monitoring through Security guard	0	5000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	5000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0

	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Compentent Person	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	0
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 made in Operating Cost	0	0
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Provision made in Operating Cost	0	0
	3. Greenbelt development under safety zone during the Scheme period (150 Saplings)	Provision made in Operating Cost	0	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure 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	100000
	Workers will be provided with Personal Protective Equipment's	Lumpsum fund allocation	50000	15000
	Health check up for workers will be provisioned	IME & PME Health check up for all the employees will be covered batch wise.	0	50000
	First aid facility will be provided	Lumpsum fund allocation	0	5000
	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 will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Lumpsum fund allocation	50000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Appointment of Competent person for ensuring the safety operation	Provision made in operational cost	0	0
	Control Dust and Fly rocks to the nearby structures	Erection of GI Sheet fencing on the North, North West & North East side of the project site	150000	10000
	Slope stability action plan	Slope stability action plan in the end of fourth year plan period	200000	0
CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Lumpsum fund allocation	500000	0

TOTAL	7,60,000	3,02,000

In order to implement the environmental protection measures, an amount of Rs.7.60 lakhs as capital cost and recurring cost as Rs. 3.02 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

Year Wise Break Up	
I Year	₹ 10,62,000
II Year	₹ 3,17,100
III Year	₹ 3,32,955
IV Year	₹ 3,49,603
V Year	₹ 3,67,083
VI Year	₹ 3,85,437
VII Year	₹ 4,04,709
VIII Year	₹ 4,24,944
IX Year	₹ 4,46,192
X Year	₹ 4,68,501
Total	₹ 46 lakhs

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.

CHAPTER – 11: SUMMARY AND CONCLUSIONS

Thiru.S.Shanmugam Rough Stone and Gravel Quarry (Extent: 5.11.5 ha) 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.

A detailed Draft EIA/ EMP Report is prepared for public and other stakeholders' suggestions and a Final EIA/ EMP Report will be prepared based on the outcome of Public Consultation.

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 October 2024 to December 2024 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

The project proponent ensures to obtain necessary clearances and quarrying will be carried out as per rules and regulations. The Mining Activity will be carried out in a phased manner as per the approved mining plan after obtaining EC, CTO from TNPCB, execution of lease deed and obtaining DGMS Permission and working will be carried out under the supervision of Competent Persons employed.

Overall, the EIA report has predicted that the project will comply with all environment standards and legislation after commencement of the project and operational stage mitigation measures are implemented.

Mining operations has positive impact on environment and socio economy such as landscape improvement, water as by-product, economy development and better public services, providing and supply of Rough Stone & Gravel as per market demand.

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 42 people directly in the cluster 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.Shanmugam Rough Stone & Gravel Quarry (Extent: 5.11.5 ha)

CHAPTER 12.0: DISCLOSURE OF CONSULTANTS

The Project Proponent–**Thiru.S.Shanmugam** have engaged 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.

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

ANNEXURE

THIRU. S. SHANMUGAM ROUGH STONE AND GRAVEL QUARRY

IDAYARPALAYAM VILLAGE, SULUR TALUK,
COIMBATORE DISTRICT

CLUSTER EXTENT = 21.02.66 ha

Project Proponent

Proponent Name	Extent (Ha)	ToR
Thiru.S.Shanmugam S/o Subramani No.3/251, Karanampettai, Kodangipalayam, Tiruppur District, Tamil Nadu – 641 662	5.11.5 ha	File No. 12987 TOR Identification No. TO25B0108TN5201182N Dated:19.12.2025

LIST OF ANNEXURES

CODE	DESCRIPTION	PAGE NO.
P1	COPY OF TERMS OF REFERENCE	1A-21A
	COPY OF 300M RADIUS LETTER	22A
	COPY OF 500m RADIUS LETTER	23A-24A
	COPY OF MINING PLAN APPROVAL LETTER	25A-27A
	COPY OF APPROVED MINING PLAN AND PLATES	28A-116A
E1	COPY OF EC	117A – 133A
	COPY OF BASE LINE MONITORING DATA	134A-228A
	COPY OF NABET CERTIFICATE	229A



File No: 12987
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA),
TAMIL NADU)



Dated: 19/12/2025



To,

Thiru. SHANMUGAM SUBRAMANIAM
No. 3/521, Karanampettai, Kodangipalayam, Tiruppur District, Tamil Nadu State - 641 662.
rajagp7674@gmail.com

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

Sir/Madam,

Sub: SEIAA, Tamil Nadu – Proposed Rough Stone & Gravel Quarry over an extent of 5.11.5Ha in S.F.Nos. 169/1A, 169/1B, 178/1 (Part), 178/2 (Part), 179/1A and 179/1B, Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu by S. Shanmugam- under project category – “B1” and Schedule S.No. 1(a) – “Mining of Minerals”– **ToR issued along with Public Hearing-** preparation of EIA report – Regarding.

Ref: 1. Online proposal No. SIA/TN/MIN/557640/2025, Dated 11/11/2025.
2. Minutes of the 648th Meeting of SEAC-II held on 05.12.2025.
3. Minutes of the 931st meeting of SEIAA held on 15.12.2025.

2. The particulars of the proposal are as below:

(i) TOR Identification No.	TO25B0108TN5201182N
(ii) File No.	12987
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	Rough Stone and Gravel Quarry Project Belongs to Thiru. S. Shanmugam
(viii) Name of Company/Organization	SHANMUGAM SUBRAMANIAM
(ix) Location of Project (District, State)	COIMBATORE, TAMIL NADU
(x) Issuing Authority	SEIAA
(xi) Applicability of General Conditions	no
(xii) Applicability of Specific Conditions	no

1.In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were

submitted to the SEIAA for an appraisal by the SEAC under the provision of EIA notification 2006 and its subsequent amendments.

2.The above-mentioned proposal has been considered by SEIAA in the meeting held on 15.12.2025. The minutes of the meeting and all the Application and documents submitted [viz. Form-1 Part A, Part B] are available on PARIVESH portal which can be accessed by scanning the QR Code above.

3.The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations on all technical aspects recommended the proposal for grant of Terms of Reference with public hearing under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).

4.The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the SEAC hereby decided to issue the following Terms of Reference with public hearing for instant proposal of **Thiru. S. Shanmugam** under the provisions of EIA Notification, 2006 and as amended thereof.

5.The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.

6.The Terms of Reference with public hearing to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.

7.This issues with the approval of the Competent Authority.

8.The TORs with public hearing prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

Copy To

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Natural Resources Department, Tamil Nadu.
4. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
5. The Chairperson, TNPC Board,76, Mount Salai, Guindy, Chennai-32
6. The District Collector, Coimbatore District
7. The Commissioner of Geology and Mines, Guindy, Chennai-32
8. The Assistant Director, Department of Geology & Mining, Coimbatore District
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Integrated Regional office of MoEF&CC, Sasthri Bhawan, Nungambakkam, Chennai
11. File Copy

Annexure 1

Specific Terms of Reference s for (Mining Of Minerals)

1. Seiaa Specific Conditions :

S. No	Terms of Reference
1.1	After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing for the quantity of 12,58,005 m³ of Rough Stone & 79,980 m³ of Gravel and annual peak production shall not exceed 1,44,210 m³ of Rough Stone & 16,244 m³ of Gravel, for a depth of mining 77m BGL as per the approved mining plan, under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as

S. No	Terms of Reference
	recommended by SEAC & normal conditions & the SEIAA Standard conditions. 1. The PP shall furnish land consent for the S.F.No.169/1A, 169/1B, 179/1A & 179/1B from patta land owner of the proposed site, before EIA appraisal. 2. The land consent document furnished for S.F.No.178/1(P) & 178/2(P) is incomplete. Hence, the PP shall furnish land consent for the S.F.No. 178/1(P) & 178/2(P) in full shape from patta land owner of the proposed site, before EIA appraisal.

2. Seiaa Standard Conditions:

S. No	Terms of Reference
2.1	<u>Cluster Management Committee</u> 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 & emergency management plan, fire safety & evacuation plan and sustainable development goals pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan. 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 in the 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. 8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity. <u>Agriculture & Agro-Biodiversity</u> 9. Impact on surrounding agricultural fields around the proposed mining Area. 10. Impact on soil flora & vegetation around the project site. 11. Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP. 12. The Environmental Impact Assessment should study the agro-biodiversity, agro- forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. 13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. 14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. <u>Forests</u> 15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife. 16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic,

S. No	Terms of Reference
	vulnerable and endangered indigenous flora and fauna. 17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. 18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site. <u>Water Environment</u> 19. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period. 20. Erosion Control measures. 21. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural Environment, by the activities. 24. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts. 25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: - Hydrothermal/Geothermal effect due to destruction in the Environment. - Bio-geochemical processes and its foot prints including Environmental stress. - Sediment geochemistry in the surface streams. <u>Energy</u> 28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished. <u>Climate Change</u> 29. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities. 30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features. 31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood. <u>Mine Closure Plan</u> 32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued. <u>EMP</u> 33. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs. 34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan. <u>Risk Assessment</u>

S. No	Terms of Reference
	35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining. <u>Disaster Management Plan</u> 36. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/unfavorable accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued. <u>Others</u> 37. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc. 38. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan. 39. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the Environment. The ecological risks and impacts of plastic & microplastics on aquatic Environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.



SEAC conditions - Site specific

1. **A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal:**
 - a. **Copy of the agreement forming CMC.**
 - b. **The Organisation chart of the Committee with defining the role of the members**
 - c. **The ‘Standard Operating Procedures’ (SoP) executing the planned activities.**
2. The Geo referenced Boundary pillars to be erected on the field as per the mine rules and the evidence should be submitted along with the EIA report.
3. The details of enumeration of structures including schools, colleges, primary health centres should be submitted along with the EIA report.
4. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300m & upto 1km 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. and spell out the mitigation measures to be proposed for the protection of the above structures, if any during the quarrying operations.
5. The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
6. The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report.
7. 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.
8. The PP shall carry out the comprehensive studies on the cumulative environmental impacts of the existing & proposed quarries which included drilling & blasting, loading & hauling on the surrounding village and structures.

9. The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall.
10. The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/videographic evidence along with the EIA report.

SEAC Standard conditions

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
 - (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.

6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 14. Quantity of minerals mined out.
 - Highest production achieved in any one year

- Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.

21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
28. Impact on local transport infrastructure due to the Project should be indicated.
29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.

31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43. Concealing any factual information or submission of false/fabricated data and failure to 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.

STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information

as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.

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

Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

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

CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

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

water for the Project should be provided.

- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as

per Indian Road Congress Guidelines.

- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page

numbering.

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

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent

and solid and hazardous wastes.

3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population

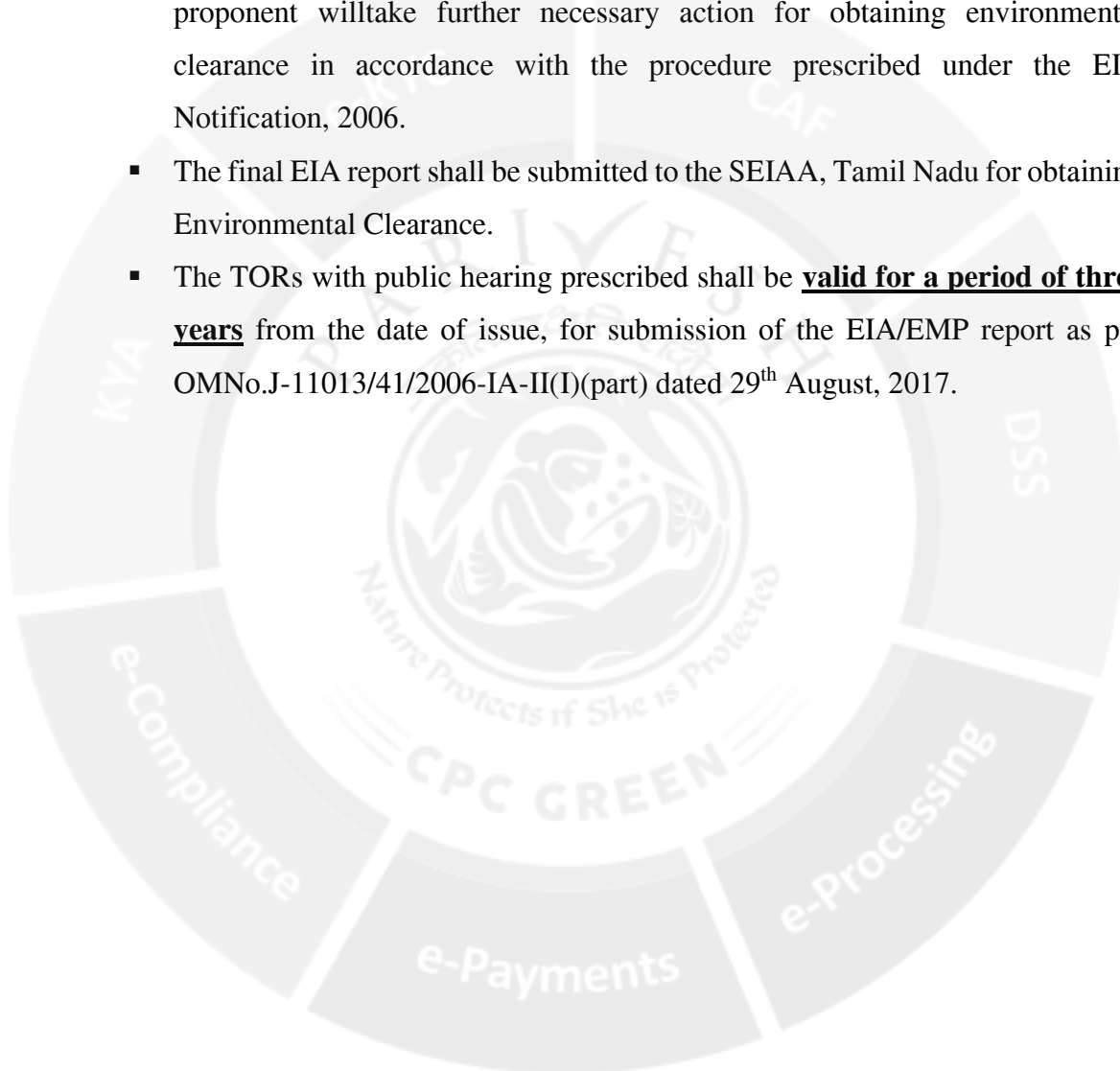
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP

reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.

- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
- The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.



From
Thiru.L.Suresh, M.Sc.,
Joint Director(Addl.Charge),
Geology and Mining,
Coimbatore

To
Thiru.S.Shanmugam,
S/o.Subramani,
3/521, Karanampettai,
Kodangipalayam,
Tiruppur District.

Re.No.339/Mines/2025 Dated: 31.10.2025.

Sir,

Sub: Mines and Quarries - Minor Minerals - Coimbatore District - Sulur Taluk - Edayarpalayam Village - Survey Nos.169/1A (0.40.5 hec), 169/1B(0.35.5 hec), 178/1(Part) (1.06.0 hec), 178/2(Part) (1.09.0 hec), 179/1A(1.44.0 hec), 179/1B(0.76.5 hec) - over an extent of 5.11.5 hectares of patta land - Rough stone & Gravel quarry lease -Precise area communicated to Thiru.S.Shanmugam-500mts Radius letter requested- regarding

Ref: 1. Application of Thiru.S.Shanmugam dated: 19.02.2025 and 27.09.2025.
2. Precise area communication in Re.No.81/Mines/2025 dated: 30.09.2025.
3. Thiru.S.Shanmugam letter dated.07.10.2025

With reference to your letter in the reference 3rd cited, the details of existing and lease expired quarries located within 500mts radius from the proposed Rough stone & gravel quarry over an extent of 5.11.5 hectares of patta land in Survey Nos.169/1A (0.40.5 hec), 169/1B(0.35.5 hec), 178/1(Part) (1.06.0 hec), 178/2(Part) (1.09.0 hec), 179/1A(1.44.0 hec), 179/1B(0.76.5 hec) of Edayarpalayam Village, Sulur Taluk, Coimbatore District are as follows:

Sl. No	Name of the quarry Owner	Name of the Village & Survey Number	Extent (in Hects)	Remarks
a. Existing Quarries				
1	N.Chitradevi	Edayarpalayam 179/2(P)	3.64.5	14.07.2021 to 13.07.2026
b. Expired Quarries				
1.	B.Sakthivel	Edayarpalayam 164/6A & 164/7	1.19.5	07.10.2017 to 06.10.2022

c. Abandoned Quarries

1.	Government	Edayarpalayam 164/1	3.13.5	Records related to the quarry is not found. However, the quarry was not in operation for the past three years
2.	Jayakumar	Bogampatty 260	-	
3.	R.Ayik Goundar	Edayarpalayam 164/8	0.60.0	22.01.1999 to 28.01.2004
4.	R.Rangasamy	Edayarpalayam 171/1	0.20.5	28.10.2002 to 27.10.2007
5.	A.Arumuga Gounder	Edayarpalayam 178/1 (Part)	0.39.5	23.09.2003 to 22.09.2008
6.	Tmt.Ponnammal	Edayarpalayam 178/2 (part)	0.33.0	22.10.2004 to 21.10.2009

d. Present proposed Quarries

1.	S.Shanmugam	Edayarpalayam 169/1A, 169/1B, 178/1(Part), 178/2(Part), 179/1A, 179/1B	5.11.5	Applied area (Rough Stone and gravel)
2.	N.Kathiresi	Edayarpalayam 172/1B, 172/2, 173/2A2	1.42.82	Pending with SEIAA
3.	N.Vivek Prithviraj	Edayarpalayam 180/3 (Part)	1.62.0	Pending with SEIAA
3.	M/s.UltraReady mix Concrete pvt ltd	Edayarpalayam 168/2A, 168/2B(P), 169/1C(P), 169/2A(P)	2.94.01	EC obtained
4.	K.Ranganathan	Edayarpalayam 174/4, 176/1	2.28.0	Precise area communicated
5.	S.Nandhagopal	Edayarpalayam 180/1, 181/3	2.15.83	Precise area communicated
6.	V.Saravanan	Edayarpalayam 171/2(P), 176/2(P)	1.84.0	TOR obtained. EC pending.


Joint Director,
Geology and Mining,
Coimbatore

19/03/10/10

From

Thiru.L.Suresh, M.Sc.,
Joint Director(Addl.Charge),
Geology and Mining,
Coimbatore

To

Thiru.S.Shanmugam,
S/o.Subramani,
3/521, Karanampettai,
Kodangipalayam,
Tiruppur District.

Rc.No.339/Mines/2025 Dated: 27.10.2025.

Sir,

Sub: Mines and Quarries – Minor Minerals – Coimbatore District - Sulur Taluk – Idayarpalayam Village - Survey Nos.169/1A (0.40.5 hec), 169/1B(0.35.5 hec), 178/1(Part) (1.06.0 hec), 178/2(Part) (1.09.0 hec), 179/1A(1.44.0 hec), 179/1B(0.76.5 hec) - over an extent of 5.11.5 hectares of patta land - Rough stone & Gravel quarry lease – Precise area communicated – Draft mining plan submitted by Thiru.S.Shanmugam- Approval of mining plan - Regarding.

Ref: 1. Application of Thiru.S.Shanmugam dated: 19.02.2025 and 27.09.2025.
2. Precise area communication in Rc.No.339/Mines/2025 dated: 30.09.2025.
3. Thiru.S.Shanmugam letter dated.07.10.2025.

In the reference 1st cited, Thiru.S.Shanmugam has applied for the grant of rough stone & Gravel quarry lease over an extent of 5.11.5 hectares of patta land in Survey Nos.169/1A (0.40.5 hec), 169/1B(0.35.5 hec), 178/1(Part) (1.06.0 hec), 178/2(Part) (1.09.0 hec), 179/1A(1.44.0 hec), 179/1B(0.76.5 hec) of Idayarpalayam Village, Sulur Taluk, Coimbatore District under Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

2) Based on the recommendations of the Tahsildar, Sulur, Revenue Divisional Officer, Coimbatore South and the Assistant Director of Geology and Mining, Coimbatore, precise area was communicated to the applicant vide reference 2nd cited.

3) In exercise of powers delegated under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959, I hereby approve the mining plan

submitted by Thiru.S.Shanmugam for grant of rough stone & gravel quarry lease over an extent of 5.11.5 hectares of patta land in Survey Nos. 169/1A (0.40.5 hec), 169/1B (0.35.5 hec), 178/1(Part) (1.06.0 hec), 178/2(Part) (1.09.0 hec), 179/1A (1.44.0 hec), 179/1B (0.76.5 hec) of Idayarpalayam Village, Suler Taluk, Coimbatore District for a period of ten years and the proposed mineable reserves after leaving safety distance for ten years is arrived as **12,58,005m³@ 34,59,514 MT of rough stone and 79,980m³@ 1,59,960 MT of gravel** upto a depth of 77m. This approval is 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). No hindrance should be caused to the Public and nearby patta lands.
- (v). A safety distance of 7.5 meters should be provided for adjacent patta land from the lease applied area.
- (vi). A safety distance of 50 meters should be provided to the Odaisituated in S.F.no. 186/1 on the Western side of the applied area S.F.no. 178/1.
- (vii). A low-tension power line is passing West to East from S.F.no. 178/1 to S.F.No. 178/2 at distance of 120 meters and another low-tension power line is passing from S.F.No. 178/2 to the poultry farm situated in S.F.No. 178/1. Hence, a safety distance of 50 meters should be provided to the low-tension power lines or the above lines should be shifted 50 meters

away from the lease applied area before execution of the quarrying lease deed.

- (viii). A poultry farm situated in S.F.No.178/1 should be removed before execution of the quarrying lease deed.
- (ix). DGPS (Differential Global Positioning System) survey shall be made in the applied area by the Government approved agency and boundary pillars shall be erected.
- (x). No Child labour shall be engaged in quarrying activity.


Joint Director (Addl. Charge),
Geology and Mining,
Coimbatore

Encl: 2 copies of Approved Mining Plan.

cr. f. g.
27.10.12

Copy submitted to :

1. The Chairman, State Level Environment Impact Assessment Authority,
Chennai
2. The Director of Geology and Mining,
Industrial Estate, Guindy,
Chennai- 32.

**MINING PLAN ALONG WITH
PROGRESSIVE QUARRY CLOSURE PLAN FOR
IDAYARPALAYAM ROUGH STONE AND
GRAVEL QUARRY**



(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL
CONCESSION RULES, 1959)

Patta Land / Lease Period = Ten Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 5.11.5 Ha ✓
S.F.Nos. : 169/1A, 169/1B, 178/1 (Part), 178/2 (Part),
179/1A and 179/1B
VILLAGE : IDAYARPALAYAM ✓
TALUK : SULUR ✓
DISTRICT : COIMBATORE ✓
STATE : TAMIL NADU ✓

FOR

APPLICANT

Thiru. S. Shanmugam, ✓

S/o. Subramani, ✓

No. 3/521, Karanampettai, ✓
Kodangipalayam, Tiruppur District,
Tamil Nadu State - 641 662.

PREPARED BY

B. Vengadagiri, M.Sc.,

Qualified Person

(As per Rule 15(I)(a) and (b) of MCR, 2016)

No.105, 5th Cross, Alagapuram,
Salem District, Tamil Nadu - 636 010.

Mobile No.: +91 86953 32233,

E-mail ID: vengatb6@gmail.com.

ABBREVIATIONS



- EIA - Environment Impact Assessment.
- EMP - Environment Management Plan.
- SEIAA - State Level Environment Impact Assessment Authority.
- SEAC - State Expert Appraisal Committee
- MoEF&CC - Ministry of Environment, Forest and Climate changes.
- CPCB - Central Pollution control board.
- TNPCB - Tamil Nadu Pollution control board.
- DMS - Director of Mines Safety.
- DGMS - Director of General Mines Safety.
- CRZ - Coastal Regulatory Zone.
- HACA - Hill Area Conservation Authority.
- S.F.No. - Survey Field Number.
- MMR - Metalliferous Mines Regulations.
- MCR - Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules.
- TNMMCR - Tamil Nadu Minor Mineral Concession Rules.
- PPV - Peak Particle Velocity.
- QP - Qualified Person.
- MSL - Mean Sea Level
- BGL - Below Ground Level
- MT / TS - Metric Tonnes / Tonnes

S. Shanmugam,

S/o. Subramani,

No. 3/521, Karanampettai,

Kodangipalayam, Tiruppur District,

Tamil Nadu State – 641 662.



CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Idayarpalayam Rough Stone and Gravel Quarry over an extent 5.11.5 Hectares of Patta lands in S.F.Nos. 169/1A, 169/1B, 178/1 (Part), 178/2 (Part), 179/1A and 179/1B of Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared by

B. Vengadagiri, M.Sc.,

Qualified Person

I have entrusted the works to prepare the Mining plan based upon the production requirements to me as per the Mines Acts, Rules, Regulations and Amendments as on date. I request to the Assistant Director, Department of Geology and Mining, Coimbatore District, Tamil Nadu State to make further correspondence regarding the modification of the Mining plan with the said Qualified Person at his following address.

B. Vengadagiri, M.Sc.,

No.105, 5th Cross, Alagapuram,

Salem District,

Tamil Nadu – 636 010.

Mobile No. : +91 86953 32233.

I hereby undertake that all the responsibilities of contents in the Mining plan and if any corrections made in the Mining plan by the Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects. If there is any substantial change during operation. I will carried out a Modified Mining plan and seek its approval from concerned Authorities.

Signature of the Applicant

S. Shanmugam

Place: Tiruppur

Date: 03.10.2025

S. Shanmugam,

S/o. Subramani,

No. 3/521, Karanampettai,

Kodangipalayam, Tiruppur District,

Tamil Nadu State – 641 662.



DECLARATION OF THE APPLICANT

The Mining plan and Progressive Quarry Closure Plan in Respect of Idayarpalayam Rough Stone and Gravel Quarry over an extent 5.11.5 Hectares of patta lands in S.F.Nos. 169/1A, 169/1B, 178/1 (Part), 178/2 (Part), 179/1A and 179/1B of Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared in full consultation with me by.

B. Vengadagiri, M.Sc.,

Qualified Person

I have understood its contents and agree to implement the same in accordance with Laws applicable to Mines and We will take all the responsibility for working the quarry in a manure under Rule 23 of Tamil Nadu Minor Mineral Concession Rules, 1959.

Signature of the Applicant

A handwritten signature in black ink, appearing to read "S. Shanmugam".

S. Shanmugam

Place: Tiruppur

Date: 06.10.2025

CERTIFICATE



Certified that I am, **B. Vengadagiri, M.Sc.**, residing at No. No.105, 5th Cross, Alagapuram, Salem District, Tamil Nadu – 636 010, holding a Post Graduate Degree in Geology (M.Sc., Applied Geology) from Annamalai University, Chidambaram and I worked in the field of Mining 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 prepared this Mining plan and Progressive Quarry Closure Plan in Respect of Idayarpalayam Rough Stone and Gravel Quarry over an extent 5.11.5 Hectares of Patta lands in S.F.Nos. 169/1A, 169/1B, 178/1 (Part), 178/2 (Part), 179/1A and 179/1B of Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State for **Thiru. S. Shannugam**, S/o. Subramani, residing at No. 3/521, Karanampettai, Kodangipalayam, Tiruppur District, Tamil Nadu State – 641 662. 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

B. Vengadagiri, M.Sc.,

Place: Salem

Date: 06.10.2025

B. Vengadagiri, M.Sc.,

No.105, 5th Cross, Alagapuram,

Salem District,

Tamil Nadu – 636 010.

Mobile No. : +91 86953 32233.



CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Prepared under Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959. The preparation of Mining plan and Progressive Quarry Closure Plan for Idayarpalayam Rough Stone and Gravel Quarry over an extent 5.11.5 Hectares of patta lands in S.F.Nos. 169/1A, 169/1B, 178/1 (Part), 178/2 (Part), 179/1A and 179/1B of Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Thiru. S. Shanmugam,

S/o. Subramani,

No. 3/521, Karanampettai,

Kodangipalayam, Tiruppur District,

Tamil Nadu State – 641 662.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the Joint Director, Department of Geology and Mining, Coimbatore District, Tamil Nadu for such permissions/ exemptions/ relaxations and approvals.

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

Signature of the Qualified Person

B. Vengadagiri, M.Sc.,

Place: Salem

Date: 06.10.2025

B. Vengadagiri, M.Sc.,
No.105, 5th Cross, Alagapuram,
Salem District,
Tamil Nadu – 636 010.
Mobile No. : +91 86953 32233.



CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations or Orders made there under have been observed in the preparation of Mining plan and Progressive Quarry Closure Plan for Idayarpalayam Rough Stone and Gravel Quarry over an extent 5.11.5 Hectares of patta lands in S.F.Nos. 169/1A, 169/1B, 178/1 (Part), 178/2 (Part), 179/1A and 179/1B of Idayarpalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Thiru. S. Shanmugam,
S/o. Subramani,
No. 3/521, Karanampettai,
Kodangipalayam, Tiruppur District,
Tamil Nadu State – 641 662.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of Director of Mines Safety (DMS), No.5, II Street, Block-AA, Anna Nagar, Chennai-40, Tamil Nadu 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


B. Vengadagiri, M.Sc.,

Place: Salem
Date: 06.10.2025

LIST OF CONTENTS



S. No.	Description	Page No.
	Introduction and Executive Summary	1
1.0	General Information	5
2.0	Location and Accessibility	6
3.0	<u>PART-A</u> Geology and Exploration	7
4.0	Mining	13
5.0	Blasting	23
6.0	Mine Drainage	25
7.0	Stacking of Mineral waste and Disposal of waste	26
8.0	Use of the Mineral	26
9.0	Others	26
10.0	Mineral Processing	29
11.0	<u>PART-B</u> Environment Management Plan	30
12.0	Progressive Quarry Closure Plan	38
13.0	Statutory Compliance to be followed during the course & closure of quarry lease	42
	Site Photographs	

LIST OF ANNEXURES

S. No.	Description	Annexure
1.	Copy of Precise Area Communication Letter	I
2.	Copy of FMB	II
3.	Copy of Part of Village Map	III
4.	Copy of Patta	IV
5.	Copy of Adangal	V
6.	Copy of A-Register	VI
7.	Copy of Consent Document	VII
8.	Copy of ID Proof of Applicant	VIII
9.	Copy of Educational Certificate of Qualified Person	IX
10.	Copy of Experience Certificate of Qualified Person	X



LIST OF PLATES

S. No.	Description	Plate No.
1.	Location Plan	I
2.	Toposketch of Quarry Lease Applied Area for 10km Radius	IA
3.	Environmental and Land Use Plan	IB
4.	Route Map	IC
5.	Quarry Lease & Surface Plan	II
6.	Topography, Geological Plan & Sections.	III
7.	Yearwise Development & Production Plan & Sections for 1 st Five years.	IV
8.	Yearwise Development & Production Plan & Sections for 2 nd Five years.	IV-A
9.	Progressive Quarry Closure Plan & Sections	V
10.	Conceptual Plan & Sections	VI

**MINING PLAN ALONG WITH
PROGRESSIVE QUARRY CLOSURE PLAN FOR
IDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRY**

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED TAMIL NADU MINOR MINERAL
CONCESSION RULES, 1959)



INTRODUCTION AND EXECUTIVE SUMMARY:

The applicant **Thiru. S. Shanmugam**, S/o. Subramani, residing at No. 3/521, Karanampettai, Kodangipalayam, Tiruppur District, Tamil Nadu State – 641 662 has entrust and given consent to preparation of Mining plan and Progressive Mine Closure Plan as per the provisions of Mines Act, Rules, Regulations and as amended till date.

The applicant has applied for quarrying Rough stone and Gravel over an extent 5.11.5 Hectares of Patta lands in S.F.Nos. 169/1A, 169/1B, 178/1 (Part), 178/2 (Part), 179/1A and 179/1B of Idayarpalayam Village, Sulur Taluk, Coimbatore District for the period of Ten years under rule 19 (1) and 22 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was examined, Scrutinized, Inspected and processed by the Joint Director, Department of Geology and Mining, Coimbatore District and passed a precise area communication letter vide **Rc.No.339/Mines/2025, Dated: 30.09.2025** under rule 19 (1) and 22 of Tamil Nadu Minor Mineral Concession Rules, 1959 for submission of Draft Mining plan and obtain approval within 90 days under Rules 41 and 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 the applicant should obtain Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu to quarrying Rough stone and Gravel for the period of **Ten years** (Refer Annexure No. I):

This Mining Plan along with Progressive quarry closure Plan is prepared in full consent with **Thiru. S. Shanmugam**, S/o. Subramani, residing at No. 3/521, Karanampettai, Kodangipalayam, Tiruppur District, Tamil Nadu State – 641 662 in respect of Idayarpalayam Rough stone and Gravel quarry over an extent 5.11.5 Hectares of Patta lands in S.F.Nos. 169/1A, 169/1B, 178/1 (Part), 178/2 (Part), 179/1A and 179/1B of Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State under amended Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 with obtained full consent as per the application and Production schedule in preparation of Mining plan as per the provisions of Mines Act, Rules, Regulations as on date.

The Mining plan has been prepared after carrying the field investigation, geological survey, collection of Primary & secondary data, geological attributes, environmental setting and estimated the Resources & Reserves, depth of mining as identified in the field with best our knowledge and experience without any geological exploration. This present mining plan is prepared by considering the Rule 41 & 42 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent amendments.

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12-13 of 2011 in Special Leave Petition SLP (C) No 19628-19629/2009, it has been now decided that all mining projects of minor minerals including their renewal is require prior environmental clearance. As per amendment in EIA Notification 2006 vide S.O. 1886(E), Dated:20.04.2022 "All mining lease area in respect of minor mineral mining leases and ≤ 250 ha mining lease area in respect of major mineral mining lease other than coal" would be treated as category B and will be considered by the state notified by Ministry of Environment, Forest and Climate Change as prescribed procedure under EIA notification 2006.

The field investigation was carried out by the Qualified Person and his Team as on 04.10.2025.

Short Notes of Mining plan:

- Village Panchayat - Idayarpalayam ✓
- Panchayat Union - Chettipalayam
- Total extent of the lease applied area is 5.11.5 Ha. ✓
- Topography of the area - Plain Topography.
- The Estimated Reserves and Resources are given table below:

Table – 1

Description		Rough stone	Gravel
Estimated Geological Resources	Volume (m ³)	38,25,625	98,050
	Quantity (Ts)	1,05,20,469	1,96,100
Tentative Mineable Reserves	Volume (m ³)	12,58,005	79,980 ✓
	Quantity (Ts)	34,59,514	1,59,960 ✓
Proposed production for 1 st Five Years	Volume (m ³)	6,30,780	47,312
	Quantity (Ts)	17,34,645	94,624
Proposed production for 2 nd Five Years	Volume (m ³)	6,27,225	32,668
	Quantity (Ts)	17,24,869	65,336
Annual Peak Production	Volume (m ³)	1,44,210	16,244
	Quantity (Ts)	3,96,577	32,488

- f. Proposed Depth of mining = 77m (2m Gravel + 75m Rough Stone) below ground level.
- g. Lease Period = Ten Years
- h. Mining Plan period = Ten Years
- i. It is a fresh lease application but, the applied area has been consideration under quarrying operation earlier. The quarry lease was previously granted for quarrying Rough stone and Gravel. The lease details are given table below.

Table – 2

S. No	Name of the Lessee	Extent (Ha.)	S.F.No.	Lease Period
1.	Tmt. R. Ponnammal, W/o. Ramasamy Gounder	0.33.0	178/2 (P)	22.10.2004 to 21.10.2009
2.	Tmt. R. Ponnammal, W/o. Ramasamy Gounder	0.39.5	178/1 (P)	23.09.2003 to 22.09.2008

At present there is an existing pit situated within the lease applied area. The maximum dimension of **Existing quarry pit** is given table below (Refer Plate No. II).

Table – 3

Existing pit dimension	
Area in m ²	Depth in m
2,125	7

- j. Method of mining / level of mechanization.
- Opencast mechanized method, the quarry operation involves Wagon Drill machine and Hand Jack hammer is proposed to drilling and slurry blasting with NONEL initiation.
- k. Type of machineries proposed in the quarrying operation is given below.
- Excavators attached with 0.90m³ Bucket and rock breaker.
- Wagon Drill machine - 110mm diameter drill,
- Jack hammer, Compressor (Diesel drive) (4 Jack hammer capacity)
- Truck.
- l. No trees will be uprooted due to this quarry operation.

- m. The approach road from the main road to quarry will be constructed and the same will be maintain in good condition for the haulage of quarry materials and machineries.
- n. There is No Export of this Rough stone and Gravel.
- o. Topo sketch covering 10km and 1km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archaeological importance and places of worships is marked and enclosed as Plate Nos. IA & IB.
- p. The lease applied area is bounded by eleven corners; the corners are designated as 1 – 11 clock-wise from the Southwestern corner and Co-ordinates for all the corners are clearly marked in the Quarry Lease Plan and Surface Plan enclosed as Plate No. II.
- q. 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 III-A.
- r. General conditions will not applicable for the proposed area. The area applied for lease is 10Km away from the,
- i) Interstate Boundary,
 - ii) Protected area under wild life protection ACT 1972,
 - iii) Critically polluted areas as identified by CPCB,
 - iv) Notified Eco sensitive areas.
- s. There is no waste anticipated during entire quarry operation. Hence, waste dump is not proposed in the lease applied area.
- t. Around 42 employees are proposed to deploying the quarrying operation.
- u. Total Cost of the project is about **Rs. 3,74,13,000/-**.



1.0 GENERAL INFORMATION**1.1 Name of the Applicant with Address:**

Name : **Thiru. S. Shanmugam,**
S/o. Subramani,
Address : No. 3/521, Karanampettai,
Kodangipalayam, Tiruppur District,
State with PIN Code : Tamil Nadu State – 641 662.
Mobile No. : +91 98422 67515.
Aadhaar No. : 6192 0754 2911.
E-mail ID : rajagp7674@gmail.com.

**1.2 Status of the Applicant (Individual / Company / Firm):**

The applicant is Individual.

1.3 Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough stone and Gravel.

1.4 Period of permission / lease to be granted:

Ten Years as mentioned in Precise Area Communication letter.

1.5 Name and address of the Qualified Person who preparing the Mining Plan:

Name : **B. Vengadagiri, M.Sc.,**
Qualified Person (Under Rule 15(I)(a) and (I)(b) of MCR, 2016)
Address : No.105, 5th Cross, Alagapuram,
Salem District,
State with PIN Code : Tamil Nadu – 636 010.
Mobile : +91 86953 32233
Email : vengatb6@gmail.com

1.6 Name and Address of the Prospecting Agency:

State Geology and Mining Department, Government 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 regional exploration studies and geological mapping in Tamil Nadu. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area and the Rough stone is clearly inferred from the outcrop. No detailed Exploration has carried out.

1.7 Reference no. Date of grant / Precise Area Communication received form the State Government:

The precise area communication letter was received from the Joint Director, Department of Geology and Mining, Coimbatore District vide **Rc.No.339/Mines/2025, Dated: 30.09.2025** (Refer Annexure No. I) and was given to us for the preparation of mining plan to meet out the applicant's production schedule.

2.0 LOCATION AND ACCESSIBILITY:**2.1. Details of the area with location map:**

The lease applied area is located at 19.5km Southeastern side of Coimbatore town and at 2.5km Southwestern side of Sullur town and 1.0km Southern side of Idayarpalayam town.

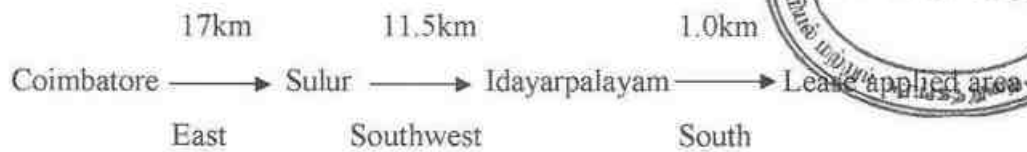
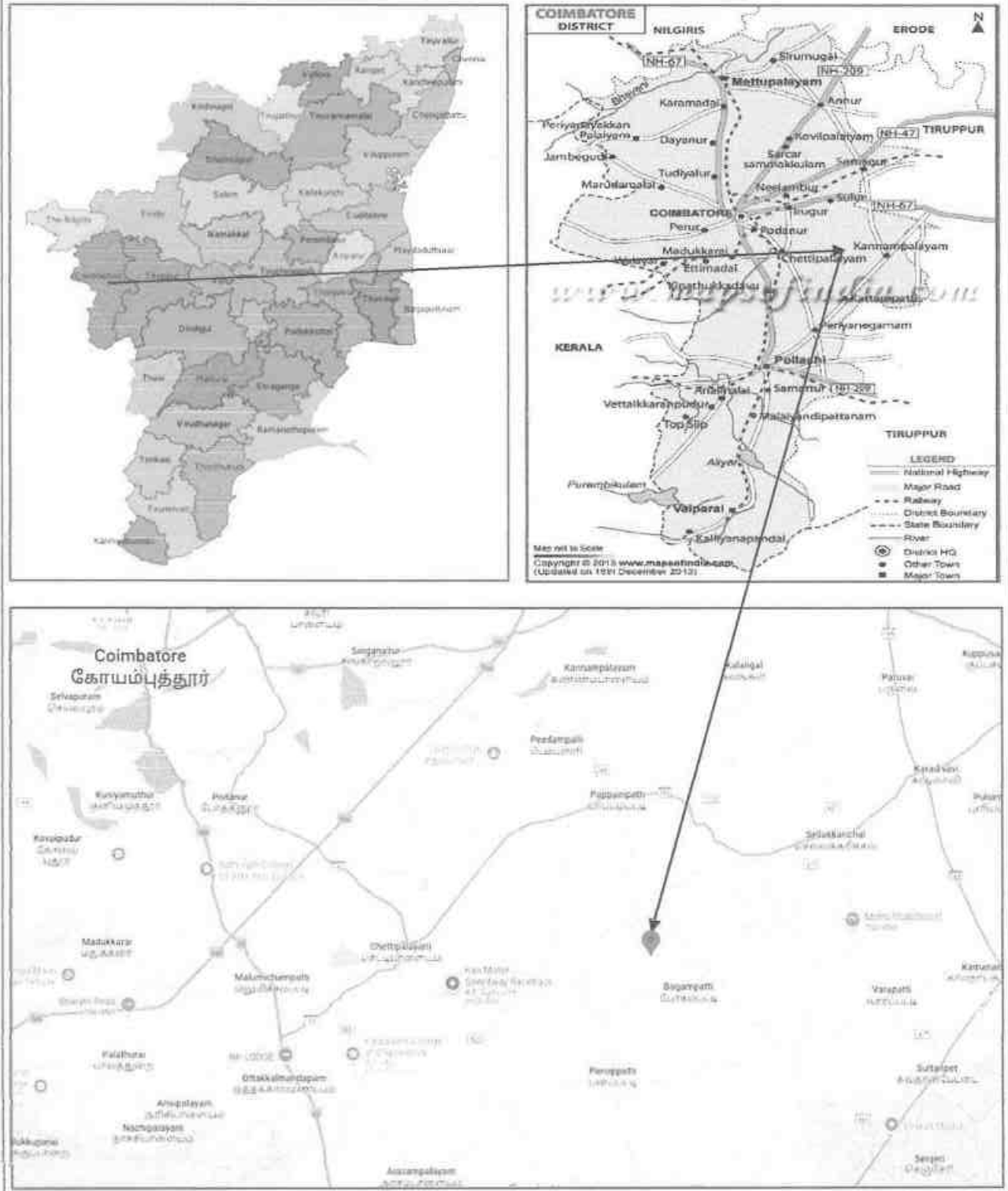
**Location Map of the Lease Applied Area**

Table – 4

District	Taluk	Village	S.F. No.	Area (Ha)	Patta No.
Coimbatore	Sulur	Idayarpalayam	169/1A	0.40.5	805
			169/1B	0.35.5	805
			178/1 (P)	1.06.0	805
			178/2 (P)	1.09.0	803
			179/1A	1.44.0	805
			179/1B	0.76.5	803
			Total	5.11.5	

Source: As per the FMB and 'A' register record furnished by the Applicant.

2.2. Classification of the area (Ryotwari/ Poramboke / others):

The applied area is a patta land, classified as punsei (Refer Annexure No. IV to VI).

2.3. Ownership / Occupancy of the applied area (surface right):

It is Patta lands, registered in the name of Thiru. S. Rajendran vide Patta No. 805 and 803 (Refer Annexure No. IV to VI). The Applicant has obtained consent from the Pattadhar for the period of 10 years. (Refer Annexure No. VII).

2.4. Existence of public road / Railway line, if any nearby and approximate distance:

The approach road (Cart Track) will be construct on the eastern side, which is connects to the Village Road located at 310m on the Eastern side of the lease applied area.

Road access is available from the quarry to National Highway, no towns are enrooted hence the traffic density is not much more due to the transportation of Rough stone and Gravel.

The approach road from the quarry will be constructed and the same has been utilized for haulage and maintained during the entire lease period.

The Nearest Railway line is Coimbatore – Pollachi which is located at 8.4km on the Western side of the area as per the GSI Toposheet and Google Map.

2.5. Toposheet No. with latitude and longitude:

The lease applied area falls in the Toposheet No: 58F/01 Latitude between: 10°54'39.5259"N to 10°54'49.3401"N and Longitude between: 77°06'38.4897"E to 77°06'48.1409"E on WGS datum-1984 as per the GSI Toposheet (Refer Plate Nos. I to II).

PART – A

3.0 GEOLOGY AND EXPLORATION:

3.1 Brief description of the Topography and general Geology of the area (with plans):

The lease applied area is situated in a plain topography. The gradient of the area is gentle towards Southwestern side and altitude of the area is 433m above from MSL. The area is covered by quaternary formation of Gravel having an average thickness of 2m and followed by Massive Charnockite which is clearly inferred from the nearby quarry pits.

The Water table in the area is 150m below from general ground profile. The Normal annual rainfall is about 1205.8mm.

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with accumulation of recent quaternary formation. On regional scale of the Charnockite body is N30°E – S30°W with dipping towards SE60°. The general geological sequences of the rocks in this area are given below:



AGE	FORMATION
Recent	- Quaternary formation (Gravel)
-----Unconformity-----	
Archaean	- Charnockite
	Peninsular Gneissic complex

3.2 Details of exploration already carried out if any:

State Geology and Mining Department, Govt. of Tamil Nadu, has carried out the regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping in Coimbatore District. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area. The Rough stone is clearly inferred from the nearby quarry pits.

3.3 Estimation of Reserves:

a) Geological Resources with geological sections on a scale of 1:1000 / 1:2000

As far as Rough stone (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough stone within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,

Totally five sections have been drawn, two sections are drawn along the length wise as (X-Y & X1-Y2) and another three cross sections are drawn width wise as (A-B, C-D and E-F) to cover the maximum area considered for lease upto a depth of 77m.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone and Gravel deposit has been prepared in the scale of 1:1000 (please refer the Geological plan and sections Plate No. III). As the sale of Rough stone and Gravel are in terms of Metric Tonnes and the estimated bulk density of Rough stone is 2.75 and Gravel is 2. No Exploration has been carried out.

Estimation of Geological Resources (Plate No. III):

The Geological Resources of Rough stone and Gravel are estimated upto a depth of 77m (2m Gravel + 75m Rough stone) below from the ground level. The total Geological resources are estimated after accounting for the depletion due to excavation during the previous lease period.

The Geological resources are estimated by area method and the total estimated available geological resources are given in the table below:

TABLE – 5

GEOLOGICAL RESOURCES							
Description	Area m ²	Depth (m)	Geological Resources of Rough stone in (m ³) 100%	Gravel (m ³)	Bulk Density	Geological Resources of Rough stone in (MT) 100%	Gravel (MT)
Geological Resources - As a Fresh area (A)	51150	2	-	102300	2	-	204600
		75	3836250	-	2.75	10549688	-
	Total		3836250	102300	-	10549688	204600
Depletion - Excavation from the Previous lease period (B)	2125	2	-	4250	2	-	8500
		5	10625	-	2.75	29219	-
	Total		10625	4250	-	29219	8500
Available Resources (A-B)			3825625	98050		10520469	196100

Estimated Geological Resources of Rough Stone : 38,25,625m³ @ 1,05,20,469 MT

Estimated Gravel : 98,050m³ @ 1,96,100 MT

Geological Resources has been estimated based on the physical observation and filed investigation data.



Tentative Mineable Reserves:

The tentative mineable reserves are estimated after accounting for leaving safety distance, Bench loss and depletion due to excavation during the previous lease period (Refer Plate No. III). The estimated reserves are given in the table below:

TABLE - 6

MINEABLE RESERVES									
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Mineable Reserves of Rough stone in (m³) 100%	Gravel (m³)	Bulk Density	Rough stone @ 100% recovery (MT)	Gravel (MT)
XY-AB	I	53	123	2	-	13038	2	-	26076.0
	II	50	116	5	29000	-	2.75	79750	-
	III	45	105	5	23625	-	2.75	64969	-
	IV	40	95	5	19000	-	2.75	52250	-
	V	35	84	5	14700	-	2.75	40425	-
	VI	30	74	5	11100	-	2.75	30525	-
	VII	25	63	5	7875	-	2.75	21656	-
	VIII	20	53	5	5300	-	2.75	14575	-
	IX	15	45	5	3375	-	2.75	9281	-
	X	10	36	5	1800	-	2.75	4950	-
	XI	5	28	5	700	-	2.75	1925	-
Total					116475	13038		32030	26076
XY-CD	I	58	165	2	-	19140	2	-	38280
	II	58	159	5	46110	-	2.75	126803	-
	III	58	149	5	43210	-	2.75	118827	-
	IV	58	139	5	40310	-	2.75	110853	-
	V	58	129	5	37410	-	2.75	102877	-

Idayarpalayam Rough Stone and Gravel Quarry

Mining Plan and PQCP

Idayarpalayam Rough Stone and Gravel Quarry

	XVI	16	26	5	2080	-	2.75	5720	-
	Total				736350	39168		2024962	78336
XIY1-EF	I	113	43	2	-	9718	2	-	19436
	II	107	40	5	21400	-	2.75	58850	-
	III	96	35	5	16800	-	2.75	46200	-
	IV	86	30	5	12900	-	2.75	35475	-
	V	76	25	5	9500	-	2.75	26125	-
	VI	66	20	5	6600	-	2.75	18150	-
	VII	56	15	5	4200	-	2.75	11550	-
	VIII	46	10	5	2300	-	2.75	6325	-
	IX	36	5	5	900	-	2.75	2475	-
	Total				74600	9718		205150	19436
Grand Total (A)				1260715	81064		3466966	162128	
Depletion									
Excavation from the Previous lease period (B)	542m ²		2			1084	2	-	2168
			5		2710		2.75	7452	
		Total			2710	1084		7452	2168
Available Movable Reserves (A-B)					1258005	79980		3459514	159960

Tentative Mineable Reserves of Rough Stone : 12,58,005m³ @ 34,59,514 MTEstimated Gravel : 79,980m³ @ 1,59,960 MTThe Tentative mineable reserves have been estimated as 12,58,005m³ @ 34,59,514 MT of Rough stone and 79,980m³ @ 1,59,960 MT of Gravel

at the rate of 100% recovery upto a depth of 77m below from the ground level for entire life of quarry.

4.0 MINING:**4.1 Method of mining (opencast / underground):**

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

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

4.2 Mode of working (mechanized/ manual):

The Rough Stone is proposed to quarry at 5m bench height & width with conventional Opencast Mechanized Method.

The quarry operation involves Drilling, Blasting, Rock breaking, 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 by considerable volume from the parent rock mass by drilling with Wagon drill machine, Hand Jack Hammer drilling and blasting, the liberated Rough stone will be loaded into the Trucks by hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

Hydraulic excavators are attached with rock breakers for fragmentation of large boulders to avoid secondary blasting and easy handling of material. 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.

4.3 Proposed Bench Height and Width:

The bench height is proposed 5.0 meter vertical bench the width of the bench is not less than the Height. After obtaining relaxation as per 106 2(b) of Metalliferous Mines Regulations, 1961 from the DMS, the realignment of benches will be carried out.

4.4 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 Composite year wise Development and production plan and sections indicating the Pit lay out, Greenbelt development are shown in Plate No. III and III-A.



Year wise Development and Production

TABLE - 7

YEAR WISE DEVELOPMENT AND PRODUCTION											
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserve of Rough stone in (m³) 100%	Gravel (m³)	Bulk Density	Recoverable Reserve of Rough stone in (MT) 100%	Gravel (MT)	
I	XY-AB	i	53	123	2	-	13038.00	2	-	26076	
		ii	50	116	5	29000.00	-	2.75	79750	-	
		iii	45	105	5	23625.00	-	2.75	64969	-	
		iv	40	95	5	19000.00	-	2.75	52250	-	
		v	30	84	5	12600.00	-	2.75	34650	-	
		vi	20	74	5	7400.00	-	2.75	20350	-	
		vii	10	63	5	3150.00	-	2.75	8662	-	
	XY-CD	i	13	165	2	-	4290.00	2	-	8580	
		ii	10	159	5	7950.00	-	2.75	21862	-	
		iii	5	149	5	3725.00	-	2.75	10244	-	
	Total (A)						17328.00		292737	34656	
	Depletion										
		Excavation from Previous lease period (B)		542		2			1084	2	-
						5		2710		2.75	7457
Total						2710	1084		7457	2168	
Available Total (A-B)					103740	16244		285285	32488		
XY-AB		v	5	84	5	2100	-	2.75	57150	-	
	vi	10	74	5	3700	-	2.75	10175	-		
	vii	15	63	5	4725	-	2.75	12994	-		
	viii	20	53	5	5300	-	2.75	14575	-		
	ix	15	45	5	3375	-	2.75	9281	-		
XY-CD	i	30	165	2	-	9900	2	-	19800		

		ii	30	159	5	23850	-	2.75	65588	-
		iii	30	149	5	22350	-	2.75	61462	-
		iv	30	139	5	20850	-	2.75	57338	-
		v	25	129	5	16125	-	2.75	44343	-
		vi	20	112	5	11200	-	2.75	30800	-
		vii	15	100	5	7500	-	2.75	20625	-
		viii	10	87	5	4350	-	2.75	11963	-
		Total				125425	9900		344919	19800
III	XY-AB	x	10	36	5	1800	-	2.75	4950	-
		xi	5	28	5	700	-	2.75	1925	-
	XY-CD	i	15	165	2	-	4950	2	-	9900
		ii	18	159	5	14310	-	2.75	39353	-
		iii	23	149	5	17135	-	2.75	47121	-
		iv	23	139	5	15985	-	2.75	43959	-
		v	23	129	5	14835	-	2.75	40796	-
		vi	23	112	5	12880	-	2.75	35420	-
		vii	23	100	5	11500	-	2.75	31625	-
		viii	23	87	5	10005	-	2.75	27514	-
		ix	28	75	5	10500	-	2.75	28875	-
		x	23	63	5	7245	-	2.75	19924	-
		xi	18	52	5	4680	-	2.75	12870	-
IV	XY-EF	xii	13	42	5	2730	-	2.75	7507	-
		i	8	153	2	-	2448	2	-	-
	XY-CD	ii	5	150	5	3750	-	2.75	10312	-
		Total				128055	7398		352151	
		iv	5	139	5	3475	-	2.75	9556	-
		v	10	129	5	6450	-	2.75	17738	-
		vi	15	112	5	8400	-	2.75	23100	-
		vii	20	100	5	10000	-	2.75	27500	-



	ix	15	115	5	8625	-	2.75	23719	-
	x	10	110	5	5500	-	2.75	15125	-
	xi	5	100	5	2500	-	2.75	6875	-
	Total				129350	6120		355713	12240
	Grand Total				630780	47312		1734645	94624

The Recoverable reserves have been estimated as **6,30,780m³ @ 17,34,645 MT** of Rough stone at 100% recovery, **47,312m³ @ 94,624MT** of Gravel for first five years upto a depth of 67m below from the ground level. (Refer Plate No. III).

TABLE - 7A

YEAR WISE DEVELOPMENT AND PRODUCTION

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserve of Rough stone in (m ³) 100%	Gravel (m ³)	Bulk Density	Recoverable Reserve of Rough stone in (MT) 100%	Gravel (MT)
VI	X1Y1-EF	i	113	43	2	-	9718	2	-	19436
		ii	107	40	5	21400	-	2.75	58850	-
		iii	96	35	5	16800	-	2.75	46200	-
		iv	86	30	5	12900	-	2.75	35475	-
		v	76	25	5	9500	-	2.75	26125	-
		vi	66	20	5	6600	-	2.75	18150	-
		vii	56	15	5	4200	-	2.75	11550	-
		viii	46	10	5	2300	-	2.75	6325	-
		ix	36	5	5	900	-	2.75	2475	-
	XY-CD	xiii	5	31	5	775	-	2.75	213	-
		xiv	7	20	5	700	-	2.75	1925	-
	XY-EF	i	7	153	2	-	2142	2	-	4284
		ii	7	150	5	5250	-	2.75	144375	-
		iii	7	145	5	5075	-	2.75	13956	-
		iv	7	140	5	4900	-	2.75	13475	-

		v	7	135	5	4725	-	2.75	12994	-
		vi	7	130	5	4550	-	2.75	12513	-
		vii	7	125	5	4375	-	2.75	12031	-
		viii	7	120	5	4200	-	2.75	11550	-
		ix	7	115	5	4025	-	2.75	11069	-
		x	7	110	5	3850	-	2.75	10588	-
		xi	7	100	5	3500	-	2.75	9625	-
		xii	7	75	5	2625	-	2.75	7218	-
		xiii	2	65	5	650	-	2.75	1788	-
		Total				123800	11860		340451	23720
	XY-CD	xiv	3	20	5	300	-	2.75	825	-
		i	18	153	2	-	5508	2	-	11016
		ii	18	150	5	13500	-	2.75	37125	-
		iii	18	145	5	13050	-	2.75	35888	-
		iv	18	140	5	12600	-	2.75	34650	-
		v	18	135	5	12150	-	2.75	33412	-
		vi	18	130	5	11700	-	2.75	32175	-
		vii	18	125	5	11250	-	2.75	30938	-
		viii	18	120	5	10800	-	2.75	29700	-
		ix	18	115	5	10350	-	2.75	28462	-
		x	18	110	5	9900	-	2.75	27225	-
		xi	18	100	5	9000	-	2.75	24750	-
		xii	18	75	5	6750	-	2.75	18563	-
		xiii	18	65	5	5850	-	2.75	16088	-
		xiv	15	51	5	3825	-	2.75	10518	-
		Total				131025	5508		360318	11016
		i	18	153	2	-	5508	2	-	11016
		ii	18	150	5	13500	-	2.75	37125	-
		iii	18	145	5	13050	-	2.75	35888	-
VII	XY-EF									
VIII	XY-EF									



		iv	18	140	5	12600	-	2.75	34650	-
		v	18	135	5	12150	-	2.75	33412	-
		vi	18	130	5	11700	-	2.75	32175	-
		vii	18	125	5	11250	-	2.75	30938	-
		viii	18	120	5	10800	-	2.75	29700	-
		ix	18	115	5	10350	-	2.75	28462	-
		x	18	110	5	9900	-	2.75	27225	-
		xi	18	100	5	9000	-	2.75	24750	-
		xii	18	75	5	6750	-	2.75	18563	-
		xiii	18	65	5	5850	-	2.75	16087	-
		xiv	18	51	5	4590	-	2.75	12622	-
		Total					5508		361597	11016
		i	16	153	2	-	4896	2	-	9792
		ii	16	150	5	12000	-	2.75	33000	-
		iii	16	145	5	11600	-	2.75	31900	-
		iv	16	140	5	11200	-	2.75	30800	-
		v	16	135	5	10800	-	2.75	29700	-
		vi	16	130	5	10400	-	2.75	28600	-
		vii	16	125	5	10000	-	2.75	27500	-
		viii	16	120	5	9600	-	2.75	26400	-
		ix	16	115	5	9200	-	2.75	25300	-
		x	16	110	5	8800	-	2.75	24200	-
		xi	16	100	5	8000	-	2.75	22000	-
		xii	16	75	5	6000	-	2.75	16500	-
		xiii	16	65	5	5200	-	2.75	14300	-
		xiv	16	51	5	4080	-	2.75	11220	-
		xv	10	39	5	1950	-	2.75	5362	-
		Total					4896		326782	
X	XY-EF	i	16	153	2	-	4896	2	-	



ii	16	150	5	12000	-	2.75	33000	-
iii	16	145	5	11600	-	2.75	31900	-
iv	16	140	5	11200	-	2.75	30800	-
v	16	135	5	10800	-	2.75	29700	-
vi	16	130	5	10400	-	2.75	28600	-
vii	16	125	5	10000	-	2.75	27500	-
viii	16	120	5	9600	-	2.75	26400	-
ix	16	115	5	9200	-	2.75	25300	-
x	16	110	5	8800	-	2.75	24200	-
xi	16	100	5	8000	-	2.75	22000	-
xii	16	75	5	6000	-	2.75	16500	-
xiii	16	65	5	5200	-	2.75	14300	-
xiv	16	51	5	4080	-	2.75	11220	-
xv	16	39	5	3120	-	2.75	8580	-
xvi	16	26	5	2080	-	2.75	5720	-
Total				122080	4896		335720	9792
Grand Total				627225	32668		1724869	65336

The Recoverable reserves have been estimated as **6,27,225m³ @ 17,24,869MT** of Rough stone at 100% recovery, **32,668m³ @ 65,336MT** of Gravel upto a depth of 77m below from the ground level for remaining five years of the lease period (Refer Plate No. III-A).

The Recoverable reserves have been estimated as **12,58,005m³ @ 34,59,514MT** of Rough stone at the rate of 100% recovery and **79,980m³ @ 1,59,960MT** of Gravel for a period of Ten years upto a depth of 77m below from the ground level.

The Annual peak production capacity in the quarry is **1,44,210m³ @ 3,96,577MT** of Rough stone and **16,244m³ @ 32,488MT** of Gravel and the proposed production schedule is arrived as per applicant's requirement and the EIA & EMP will be prepared an annual peak production



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

One lorry load = 30 Tonns (approximate)

Total Number of Working days = 300 days per year

Annual Peak production capacity = 3,96,577 MT

Hence Total lorry loads per day = 3,96,577 / 30 MT

= 13,219 lorry loads

= 13,219 / 300 Days

Rough Stone (Maximum) = 44 lorry loads per day.

Gravel Peak production = 32,488 MT

Hence total Lorry loads per day = 32,488 / 30 MT

= 1,083 Lorry loads

= 1,083 / 300 days

Gravel (Maximum) = 3 – 4 Lorry loads per day.

Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 P.M. lunch break).

4.5 Machineries to be used:

For Mining:

The following machineries are utilized for the development and production work at this quarry.

TABLE – 8

I. DRILLING MACHINE:

S. No.	Type	Nos.	Dia Hole mm	Size Capacity	Motive power
1	Wagon Drill machine	2	110	upto 9m	Diesel Drive
2	Hand Jackhammer	4	32	1.2m to 2.0m	Air Compression
3	Compressor	1	-	400 psi	Diesel Drive

II. EXCAVATION & LOADING EQUIPMENT:

S. No.	Type	Nos.	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	3	300	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S. No.	Type	Nos.	Capacity	Motive Power
1	Truck	6	30 tonnes	Diesel Drive
2	Water Sprinkling Tanker	1	10,000 litres	Diesel Drive

4.6 Brief note on conceptual mining plan for the entire lease period base on the geological, mining and environmental considerations:

Conceptual mining plan is prepared with an object of long-term systematic development of benches, layouts, selection of permanent structures, depth of quarrying and ultimate pit dimensions, selection of sites for construction of infrastructure, etc.,

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

As the applicant has applied quarry lease for Ten years, the ultimate pit limit (dimension) at the end of this lease period is given below:

TABLE – 9

Section	Length (m)	Width (m)	Depth (m) (Max.)
XY-AB	53	123	52
XY-CD	58	165	62
XY-EF	128	153	77
XIYI-EF	113	43	42

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. As per the NGT orders the applicant is directed to plant 500 tree saplings per hectares along the quarry site either at the regular or the phased manner by planting native species.

There is no waste anticipated during the entire life of quarry. Hence, there is no proposal for backfilling. After completion of quarry operations, the quarry pit will be allowed to collect the seepage and rain water, the water storage will be kept as temporary reservoir to charging the nearby wells and utilized for greenbelt development. When the quarry reaches its ultimate pit limit or at the end of life of quarry, greenbelt development will be carried out over the quarried out top bench. The Conceptual Mining is based upon the entire ROM proposed for the life of the Mine.

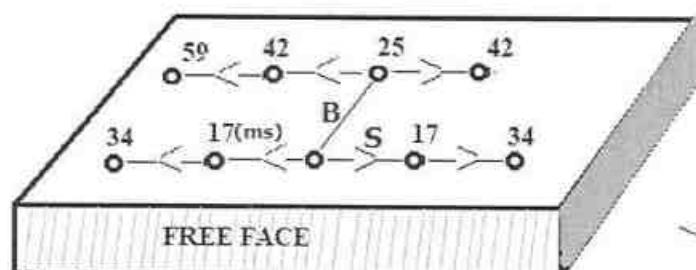
The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle (Refer Plate No. IV and V).

5.0 BLASTING:**5.1 Blasting pattern:**

Selection of drilling pattern for blasting varies with the type and size of the drills used, depth of hole, kind of rock, quantity, rapidity of the explosives and amount of stemming. The quarrying operation is proposed to be carried out by Wagon drill machine and Jack hammer drilling and blasting of shattering effect for loosening the Rough Stone with NONEL initiation. Wagon machine drilling will be proposed for primary Drilling and blasting for splitting the boulders from parent rock mass followed by excavator attached with rock breaker for secondary fragmentation of large size boulders to avoid secondary blasting. NONEL initiation provides a reasonably good solution to fly rock problem. The main objectives of NONEL Blasting are to reduce the ground vibration, noise, fly rocks generated due to blasting operations. The overall cost of blasting in NONEL is very less compared to electrical blasting hence it optimizes the cost of blasting.

Drilling and blasting parameters are as follows:

Depth of Each hole	:	5m
Spacing between holes	:	3.5m
Burden for hole	:	2.75m
Diameter of hole	:	100 - 110mm
Pattern of hole	:	Staggered pattern
Inclination of holes	:	80° from horizontal
Use of delay detonators	:	NONEL
Hole to Hole	:	17 milli second delay (ms)
Row to Row	:	25 milli second delay (ms)

Staggered Pattern of Blasting Design**NONEL DELAY PATTERN**

Spacing (S)	=	3.5m
Burden (B)	=	2.75m
Depth of the hole	=	5m
No. of holes proposed per day (Peak Production)	=	9 Holes

5.2 Type of explosives to be used:

85mm Slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. No secondary blasting is proposed. NONEL blasting and muffle blasting may be adopted after permission from DGMS.

5.3 Measures proposed to minimize ground vibration due to blasting:

The quarry is situated more than 300m away from the nearby villages, Controlled Blasting measures by NONEL initiation is being adopt for minimizing ground vibration and fly rock.

Wagon drill machine and jackhammer drilling with blasting is proposed to be carried out with minimum use of explosive mainly to give heaving effect in Rough Stone for easy excavation and to control fly rock.

NONEL Delay detonators:

NONEL blasting permits for bottom initiation and lesser charge per delay.

The major advantages of NONEL 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 (As per Peak production capacity):

The Hydraulic excavators are attached with rock breakers for breaking the rock mass to reduce the blasting and explosive usage also to avoid secondary blasting. Some area in Tamil Nadu state consists very hard and compact rock formation. The requirement of explosive may vary for exploitation of this type of hard rock formation with blasting which is depend upon the site conditions. Since, the daily requirement of explosives for blasting will be estimated as approximate only. Anyhow, as per day's production schedule the approximately blasting program proposed as given below.

Annual Peak production	= 3,96,577 Tons
No of Holes	= 9 Holes
Yield	= 1320 Tons
approximately Powder factor	= 6 Tons/ Kg of explosives
Approximately explosive required	= 220 Kg-Slurry explosives
Charge/ hole	= 25 Kg
Blasting at day time only	= 12.00 – 12.30 P.M. (whenever required).

After issuing the necessary warnings to 300 metre radius, the blasting operation shall be carried out.

Anticipated theoretical calculation of PPV

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

PREDICTED PPV VALUES DUE TO BLASTING

Table – 10

Approximate Charge per day (kg)	Number of Round Blast per day	Approximate Charge per Round (kg)	Number of holes blasted per round	Number of holes blasted per day	Maximum Charge blast at a time by NONEL (kg)	Nearby Infrastructure (m).	PPV (mm/s)
220	1	110	5	9	50 (2 Holes)	200	4.471

From the above table, the charge per blast of 220kg 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. Anyhow, the applicant ensures that carry out the blasting twice a day based on the site condition under the supervision of competent qualified statutory personnel employed. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

5.4 Storage and safety measures to be taken while blasting:

The applicant will engage authorized explosive agency as approved by Petroleum and Explosives Safety Organization (PESO) to carry out the blasting and it will be supervised by competent and statutory foreman/Permit Mines Manager. The agency will identify the appropriate type of explosive in which the quantity and quality will be decided based on the daily requirement. The explosives agencies should be having the valid Blaster certificate. He will blast holes in the quarry site. After completion of Blasting the explosive Agency will take it out back the remaining quantity of Explosives. The blasting and quarrying operation is advised to handle by competent qualified statutory personnel of the applicant approved by the DGMS and competent authorities and he will maintain the records of Explosives as per the Indian Explosives Act, Mines Act and Environment Protection Act. The primary blasting will be carried out after obtained necessary permission from DGMS after of the quarry lease.

6.0 MINE DRAINAGE:**6.1 Depth of water table (based on nearby wells and water bodies):**

The lease area exhibits a dendritic drainage pattern, which is characteristic of homogeneous and impermeable rock formations. Based on borewell observation, the water table is situated approximately 150meters below ground level. The entire area is underlain by Massive Charnockite, a hard and compact rock formation. Quarrying activities are proposed to be carried out well above the groundwater table, ensuring no adverse impacts on groundwater resources. As part of the environmental management plan, a garland drain will be constructed along the periphery of the lease area. This precautionary measure will effectively prevent surface runoff from entering the quarry pit, thereby minimizing erosion and controlling siltation within the project area.

TABLE – 11

Type	Distance & Direction	Location
Bore Well	150m Western side	10°54'42.89"N 77°06'34.53"E

6.2 Arrangements and places where the mine water is finally proposed to be discharged:

The quarry operations are confined to well above the water table during the entire lease period. If water is encountered at quarry due to rain water and seepage, the same will be pumped out by 5HP water pump and discharge to the Greenbelt development areas. Besides, the water will also be used for dust suppression on haul roads during Haulage of machineries.

7.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE:

There is no waste anticipated during entire life of the quarry hence, disposal of waste does not arise.

8.0 USE OF THE MINERAL:

The excavated rough stone (100%) will be directly loaded into Tippers as raw form to the needy nearby crushing unit to making Road metals and construction materials. The quarried out gravel will be directly loaded into Tippers for filling and levelling of low-lying areas, this will be done only after obtaining permission and paying necessary seigniorage fee to the Government.

9.0 OTHERS:**9.1 Other Permanent Structure (also shown in the map)****TABLE – 12**

S.No.	Description - Nearest	Particulars	Aerial Distance & Direction
1	National Highway	(NH-544) Salem – Kochi	10.3km – NW
2	State Highways	(SH-163) Palladam – Malumichampatti	4.2 km – NE
3	Railway station	Chettipalayam	8.4 km – NW
4	Airport	Coimbatore	15 km – NW
5	Town	Sulur	12.4 km – NE
6	Government School	Edayarpalayam - Government Higher Secondary School	1.0Km – NW
7	Government Hospital	Chettipalayam (PHC)	7.8km – West
8	Habitation	Poultry farm situated on western side of the lease area, this farm is demolished before the grant of lease. 320m – NW	
9	Reserved Forest	There is no Reserve Forest within 50m radius.	
10	Water Bodies	The Odai passing on the Northwestern side of the lease applied area, hence 50m safety distance has been provided.	
11	Defence Installation/ Historical Monuments/ Archaeological	Nil within 500m radius.	
12	Interstate Boundary	Around 25.8km – SW (Kerala State border)	
13	Critically Polluted areas identified by the CPCB	Around 15 km – NW (Kurichi SIDCO, Coimbatore)	
14	Protected areas Notified under wildlife (Protection) Act, 1972.	Nil within 500m radius.	
15	Applicability of CRZ, Notification 2011 as amended.	Not Applicable	

16	Applicability of Hill Area Conservation Authority (HACA) Clearance.	Not Applicable																	
17	Housing area, EB line (HT & LT Line)	The low-tension power line passing on the lease applied area. This line is shifted before grant of lease. There is other no other EB-LT/HT line in housing area located within 50m radius from the lease applied area.																	
18	Boundaries of the permitted area.	The boundaries of the permitted areas are as follows (Refer Plate No. II): North - S.F.Nos. 178/1 (P) and 178/2 (P) East - S.F.Nos. 170, 169/1D and 169/1C South - S.F.No. 179/2 and Village No.44. Bogampatti West - S.F.Nos. 180, 181/3, 182/2G, 182/2D, 182/2C & 186/1																	
19	Adjacent Patta lands / Govt. Land	<table border="1"> <thead> <tr> <th>Direction</th><th>Classification</th><th>Safety Distance</th></tr> </thead> <tbody> <tr> <td>North</td><td>Patta land</td><td>7.5m</td></tr> <tr> <td>East</td><td>Patta land</td><td>7.5m</td></tr> <tr> <td>South</td><td>Patta land</td><td>7.5m</td></tr> <tr> <td rowspan="2">West</td><td>Patta land</td><td>7.5m</td></tr> <tr> <td>Odai</td><td>50m</td></tr> </tbody> </table> (Refer Plate No. II):	Direction	Classification	Safety Distance	North	Patta land	7.5m	East	Patta land	7.5m	South	Patta land	7.5m	West	Patta land	7.5m	Odai	50m
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South	Patta land	7.5m																	
West	Patta land	7.5m																	
	Odai	50m																	

TABLE - 13

STRUCTURE WITHIN 100m					
Number of Structures - Nil.					
Number of Structure	Type of Structure	Usage Purpose	Commercial / industry/ residential/ farm house/ Govt. building	Occupants of Building/ Structure	Remarks
---Nil---					
STRUCTURE WITHIN 100 - 200m					
Number of Structures - Nil.					
---Nil---					
STRUCTURE WITHIN 200 - 300m					
Number of Structures - 6 Nos.					
1	Crusher Plan	Stone crusher	Industry	No resident	Nil
5	Shed	Storage for Agriculture goods	Farm House	No resident	Nil

9.2 Employment potential (skilled, semi-skilled, un skilled):**TABLE – 14**

Designation	Present Employment position	Employees Requirement	Total
a) Supervisory category			
Mine Manager	-		
Geologist	-	1	1
b) Skilled labour			
Mine Foreman	-	1	1
Blaster/Mate	-	1	1
Excavator – Operator	-	3	3
Wagon Drill machine operator	-	2	2
Truck Driver	-	6	6
Water sprinkler Driver	-	1	1
Jack-Hammer Drillers	-	8	8
c) Unskilled			
Security	-	2	2
Labour & Helper	-	6	6
Co-operator and Cleaner	-	10	10
Total	-	42	42

The proposed output per man shift:

TABLE – 15

Annual Peak Production of Rough Stone	3,96,577 MT
No. of days likely to be worked	300 days
Average production per day	1,322 MT
O/S = Average Production per day / Average employment per day	1,322 / 42 = 31.47 MT

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.

9.3 Welfare Measures:**a) Drinking Water:**

Packaged drinking water is available from the nearby water vendors in Idayarpalayam which is located about 1.0km on the Northern side of the lease applied area.

b) Sanitary Facilities:

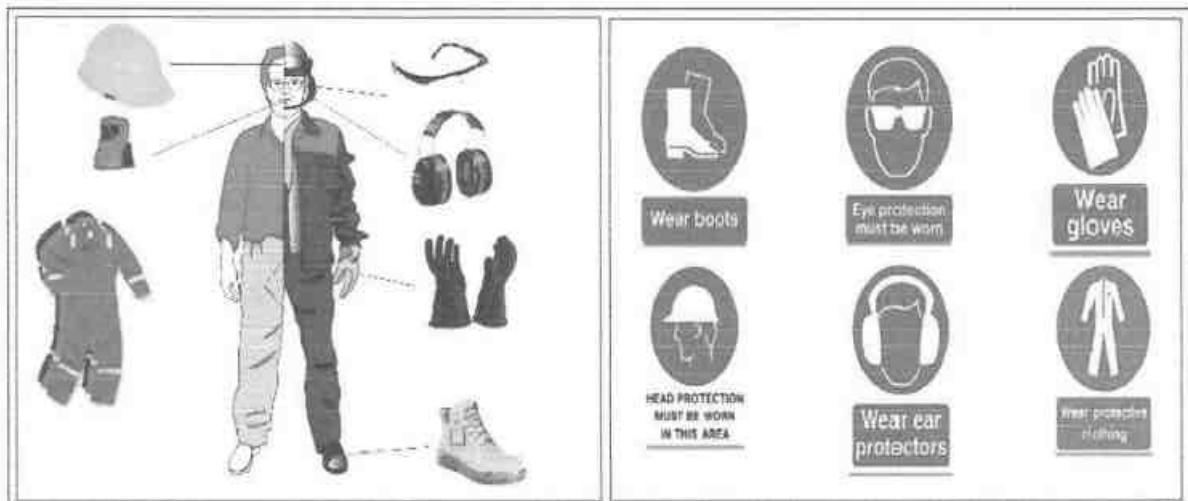
Hygienic modern Sanitary Facilities will be constructed as semi-permanent structure within the applied area and it will be maintained periodically.

c) First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality is the victim, will be given first aid immediately at the site by the competent and statutory foreman/permit manager/manager will be in charge of first aid and injured person will be taken to the hospital by the applicant's vehicle. Hospital is available in Chettipalayam (PHC) located at 7.8km on the North western side of the area.

d) Labour Health:

Periodically medical check-up related to occupational health safety will be conducted to all the workers in applicant's own cost.

e) Precautionary safety measures to the labourers:

- Helmets,
- Reflector Jackets
- Dust mask
- Mine Goggles,
- Ear plugs,
- Ear muffs
- Safety Shoes

All personnel protective equipment as per the DGMS standard will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men and machinery and to create awareness about conventional opencast quarrying operations.

10.0 MINERAL PROCESSING:

No mineral processing / beneficiation involved.

PART - B**11.0 ENVIRONMENT MANAGEMENT PLAN:**

The EMP is prepared based on the Mines act, Rules & amendment from by state & central government. If the SEIAA/SEAC instructed the modification and alter the EMP the outcome of their recon would be final and the applicant is instructed to follow the EIA / EMP for its compliance as per the CPCB / TNPCB Norms.

Environment	Anticipated impact	Mitigation measure
Land Environment	i. Topography of the area will change due to mining activity. ii. Soil quality on surrounding land environment will impact due to; a) Dust propagation during quarry operation like drilling, blasting, loading, unloading and movement of men, Vehicle and machineries. b) Vehicular and machineries emissions and spillage of oil and grease. c) Propagation of foreign material like polythene bag or undecomposed waste materials dumping.	i. Backfilling is the only source of mitigation measure for topographical changes, but no waste will be anticipated during entire life of this Rough stone and Gravel quarry. Hence, backfilling is not proposed. ii. The Mining benches will not exceed beyond the approved height and width. iii. At the end of life of mine, the pit will be allowed to collect the seepage and rain water and the water storage will be kept as temporary reservoir for charging the nearby wells also the water utilized for greenbelt development purpose. i. Regular water sprinkling on dust prone area like haul road and other active area to arrest the dust generation. ii. Wet drilling with dust extractor unit by proper drilling pattern and controlled blasting with NONEL initiation will be carried out to minimize the dust generation. iii. Greenbelt will be developed in the safety barrier with thick long (leave plants to arrest the fugitive dust and vehicular emissions propagation on surrounding land environment. iv. PUC (Pollution under control) certified vehicles will be used for transportation and all vehicles and their exhausts would be well maintaining and regularly tested for pollutant concentrations.



		v. Oiling and greasing will be managed in respective places at vehicle maintenance shed and oil tray will be use to collect the spillage during maintenance and the same will be disposed in manner. vi. Non-degradable foreign material like polythene bag, Plastic water containers, cool drink containers and ill managed dumping will not be allowed within quarry premises.
Water Environment	Surface Mining can have direct impact on physico-chemical characteristics of the local drainage and groundwater resources. The detrimental effects, if any, to water resources resulting from surface mining are caused by following: i. Flow direction of Surface run off water will interrupting during rainy season due to modification of topography. ii. Surface water bodies will be contaminated due to dust propagation, machinery and vehicular emissions.	i. Garland drain with check dam will be constructed all along the boundary barrier to prevent surface run off rain water entering into the pit. ii. Green belt will be developed in the safety barrier with thick long leave plants to prevent dust and vehicular emissions propagation during transportation. iii. Further mining will be completely stopped during the monsoon for free flow of surface run off and allowing natural recharge of groundwater. iv. No wastewater will be generated from the quarry activity. Proper drainage will be Maintained to eliminate inundation of working pit during rain from run-off water. v. The pit water due to rain and seepage will be utilized for water sprinkling on haul Roads and plantations. vi. Septic tanks and soak pits will be provided for the disposal of domestic washroom effluents, the same will be disposed in manner.
Air Environment	In surface mining operations, the source of air pollution may cause deterioration of air quality due to; a) The fugitive dust emissions from drilling/blasting, scooping, loading-unloading operation of extracted mineral and its transportation. Drilling/blasting	i. Regular water sprinkling on haul road and dust prone area to arrest the dust generation. ii. Greenbelt will be developed in the safety barrier with thick long leave plants to arrest the fugitive dust and vehicular emissions. iii. Wet drilling with dust extractor unit by proper drilling pattern and controlled blasting with NONEL initiation will be carried out to minimize the dust generation.

	and loading of quarry material would be associated with the fugitive dust emission in the active area whereas fugitive emission during transportation would affect the areas/villages situated adjacent to the road side. Another source of air pollution would be emission from the drilling machinery and excavators/Tippers vehicles to be used for loading.	iv. Quarry material will be handled under wet condition during scooping, loading and unloading to minimize the dust propagation, besides loaded materials are covered by Tarpaulin until it reaches its destination. v. Provision of dust filters/ Nose mask to workers working at dust prone areas. vi. Vehicular emission as a result of combustion of diesel generates particulate matter (PM₁₀ & PM_{2.5}), Nitrogen oxides and Sulphur dioxide (NO₂ & SO₂). High quality diesel will be used in the motor vehicles to control these pollutants. vii. PUC (Pollution under control) certified vehicles will be used for transportation and all vehicles and their exhausts would be well maintained and regularly tested the pollutant concentrations. viii. CPCB Prescribed emission standards for the vehicles would be followed.
Noise Environment	In the present mining activity for building material, noise will be generated from drilling machinery, blasting and vehicular movement. Noise level in the working environment is compared with the standards prescribed by Central Pollution Control Board as adopted and enforced by the Govt. of India through Noise Pollution (Regulation and Control) Rules, 2000.	i. Selection of innovative low – noise equipments for the quarry operation. ii. The noise levels shall be maintained within the permissible levels by involving all the noise regulating measures in vehicles and drilling/blasting operations. iii. To ensure minimum vibrations and noise due to blasting, NONEL in continuous sequence is proposed. iv. Personnel Protective Equipment (PPE) like earmuffs and earplugs shall be provided to the employees whose in critical operation like drilling, blasting and excavation as occupational safety measures. v. Proper maintenance done with regular interval by the Oiling and greasing for the machineries and vehicles to control the Source of noise during operation and transportation. vi. Regular and proper maintenance of machinery and transportation vehicles shall be ensured.



		vii. Transporting vehicles are enforcing the speed limits of 25km/hour within quarry area and not exceed 40km per hour from quarry to destination to reduce Noise and vibration.
Biological Environment	The area having main floras are Neem, Prosopis juliflora, Cocos nucifera, Albizia amara, Pongamia pinnata, Calotropis, Bushes, and shrubs. No plants of botanical interest or animals of zoological interest recorded within 500m radius. The anticipated impacts on biological environment as follows: - Public and cattle may cause serious injury by inadvertent entry to the pit. - Natural habitats of the existing faunas will change due to the noise and vibration during blasting and quarry operation. - Diversity of living insects and faunas due to vibration. - The mining activities can also disrupt the existing ecological due to noise by drilling, blasting and operation. - Deposition of dust on the plant and crop leaves is affecting the photosynthesis, Pollination, growth ratio and agriculture productivity.	- 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 natural habitats of the existing flora and fauna will not be disturbed. - Fruit bearing trees will be planted to survive the existing birds and faunas. - No clearance of vegetation will be done during the entire mining operations. - Green belt development as acoustic barrier, Low noise equipment and machineries for drilling and operation and Controlled blasting by NONEL is reduce the noise within permissible limit to sustain the existing ecology. - Regular Water sprinkling on haul roads would be reduces the dust propagation, thus avoiding damage to the crops and plants.



Socio Economic Environment	Any activity during mining will have adverse impact on Environment, careful mitigation measures are proposed to balance the impact on the existing environment and the applicant is always instruct to carry out safe, sustainable, eco-friendly mining operations at all times. The following positive impact on the society due to this mining activity. i. It is proposed to provide employment to about 42 persons for carrying out mining operations and give preference to the local people in providing employment in this 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. ii. 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. iii. Improvement of Physical structure like 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. iv. The continuation of opportunity for the employments, the nearby villages, living peoples and their life style would be improved. v. The applicant is advised to invest the CER cost (@ 2% from the total Project Cost) to develop the local Panchayat.	i. Preference employment will be given to the local community. This quarrying activity will also indirectly provide employment to the local community by the way of petty shops, hotels, etc. ii. The CER activity proposed by the applicant will enhance the requirement of the local community. iii. The improvement of physical structure like medical and social benefits of local community will get enhanced. iv. There will be a positive enhancement of lifestyle of the nearby village.



11.1 Environmental impact assessment statement describing impact of mining on the next Ten years:

In the mining plan proposed for a small production of Rough stone and gravel. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the environmental impact studies will be conducted as per EIA notification issued by MoEF & CC. It is B Category mine. The compliance monitoring will be carried out for every six months as prescribed by the MOEF & CC and with state concerned authorities.

11.2 Proposal for waste management:

There is no waste anticipated in this Rough stone and Gravel quarrying operation. The entire quarried out materials will be utilized (100%). The maintenance of machineries & fuelling will be carried out as per the TNPCB Norms and the waste will be disposed in the Norms.

11.3 Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing etc.):

In the mining plan only to a maximum depth of 77m of the area has been envisaged as workable depth for safe & economic quarrying operation during entire life of quarry. There is no waste anticipated during entire life of the quarry hence, backfilling is not proposed. After completion of quarry operations, the quarry pit will be allowed to collect the seepage and rain water, the water storage will be kept as temporary reservoir to charging the nearby wells and will be utilized for greenbelt development. When the quarry reaches its ultimate pit limit or at the end of life of quarry, greenbelt development will be carried out over the quarried out top bench. The quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle (Refer Plate No. IV and V).

11.4 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):

The safety distance along the boundary barrier to be proposed for greenbelt development by planting 1500 tree saplings (Area 7,508m²) also the applicant proposed to plant 500 tree saplings in the quarried out top benches and 500 saplings on haul road and maintain at least 2,000 plants at the end of the lease period at a survival rate of 80%. Manuring and tree guards will be provided by the applicant to safeguard and maintain the plants. The plantation will be carried out based on the output Environmental Clearance and the recommended species will be planted in a phased manner as described below (Refer Plate No. III to V).

Table – 16

Year	No. of trees proposed to be planted	Area to be covered (m ²).	Survival (%)	Name of the species	No. of trees expected to be grown
I	140	716.8	80%	Neem, Pongamia Pinnata, Cordia dichotoma, Mantharai, etc.,	112
II	140	716.8	80%		112
III	140	716.8	80%		112
IV	140	716.8	80%		112
V	140	716.8	80%		112
VI	160	784.8	80%		128
VII	160	784.8	80%		128
VIII	160	784.8	80%		128
IX	160	784.8	80%		128
X	160	784.8	80%		128

11.5 Proposed financial estimate / budget for the project:

Budget Provision for the Mining Plan period:

TABLE – 17

A. Project Cost / Investment:		Cost (Rs.)																																
i) Land cost	The Land value as per the Government Guidelines and the cost is calculated as follows,	93,80,000																																
	<table><tr><th>S.F.Nos.</th><th>Area (Ha)</th><th>Cost / Ha.</th><th>Cost of the area (Rs.)</th></tr><tr><td>169/1A</td><td>0.40.5</td><td>1730000</td><td>7,00,650</td></tr><tr><td>169/1B</td><td>0.35.5</td><td>1730000</td><td>6,14,150</td></tr><tr><td>178/1 (P)</td><td>1.06.0</td><td>1977000</td><td>20,95,620</td></tr><tr><td>178/2 (P)</td><td>1.09.0</td><td>1977000</td><td>21,54,930</td></tr><tr><td>179/1A</td><td>1.44.0</td><td>1730000</td><td>24,91,200</td></tr><tr><td>179/1B</td><td>0.76.5</td><td>1730000</td><td>13,23,450</td></tr><tr><td>Total</td><td>5.11.5</td><td>-</td><td>93,80,000</td></tr></table>		S.F.Nos.	Area (Ha)	Cost / Ha.	Cost of the area (Rs.)	169/1A	0.40.5	1730000	7,00,650	169/1B	0.35.5	1730000	6,14,150	178/1 (P)	1.06.0	1977000	20,95,620	178/2 (P)	1.09.0	1977000	21,54,930	179/1A	1.44.0	1730000	24,91,200	179/1B	0.76.5	1730000	13,23,450	Total	5.11.5	-	93,80,000
	S.F.Nos.		Area (Ha)	Cost / Ha.	Cost of the area (Rs.)																													
	169/1A		0.40.5	1730000	7,00,650																													
	169/1B		0.35.5	1730000	6,14,150																													
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	179/1A		1.44.0	1730000	24,91,200																													
	179/1B		0.76.5	1730000	13,23,450																													
Total	5.11.5	-	93,80,000																															
Total Land Cost = Rs. 93,80,000/-.																																		
(source: https://tnreginet.gov.in/portal/)																																		
ii) Machinery cost	The machineries are proposed on rental basis to meet out the productions. The rental cost would be around (Including Fuel, oil, grease, spares, etc.,).	2,40,00,000																																
iii) Labourers shed	Labour shed will be constructed as semi-permanent structure. The cost is around	5,00,000																																
iv) Sanitary facility	Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around.	1,50,000																																
v) 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.	5,50,000																																
vi) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around.	3,00,000																																
vii) 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.	1,00,000																																
viii) CCTV arrangements.	Installation of CCTV cameras in the quarry area.	80,000																																
Total Cost		3,50,60,000																																

B. EMP Cost:		Cost (Rs.)
1. Environmental Monitoring Program (Air Quality, Water Quality Sampling, Noise and Ground vibration test) Rs. 50,000/ year.		5,00,000
2. Water will be sprinkled in the haul roads by own water sprinklers for dust suppression (1 No.). The cost would be around.		6,00,000
3. Fencing constructed around the lease area to prevent the inadvertent entry of public and cattle cost would be around (Total Peripheral length 980m x Rs. 300/meter).		2,94,000
4. Construction of Garland drain with check dam to prevent surface run-off rain water entering to the quarry pit, the construction cost is around (Total Peripheral length 930m x Rs. 300/meter).		2,79,000
5. First aid room & accessories		80,000
6. Dust extractor unit for Jackhammer (4 Nos.)		1,00,000
7. Greenbelt development for dust suppression & Noise control measures	Greenbelt development will be carried out along the safety barrier; the cost would be around (1500 saplings x Rs. 200/sapling).	3,00,000
	Greenbelt development will be carried out along the quarried out top benches; the cost would be around (500 saplings x Rs. 200/sapling).	1,00,000
	Greenbelt development will be carried out on haul road; the cost would be around (500 saplings x Rs. 200/sapling).	1,00,000
Total EMP Cost (B)		23,53,000
Description		Cost (Rs.)
A. Project Cost		3,50,60,000
B. EMP Cost		23,53,000
Total Project Cost (A+ B)		3,74,13,000
The total cost would be around three crores seventy four lakhs and thirteen thousand only.		

12.0 PROGRESSIVE QUARRY CLOSURE PLAN**12.1 Introduction:**

As per guidelines for preparation of mining plan prescribed under Minor Mineral Conservation and Development Rules, 2010 also the entire area is proposed for a short period of Ten years only hence, the progressive quarry closure plan may not be applicable to this quarry. Anyhow, during temporary discontinuance of quarry the following measures will be taken.

- Barbed wire fencing will be constructed around the quarry.
- Benches will be smoothening.
- Quarry will be closed & sentries will be posted round the clock.
- Green belt development will be maintained.
- Machineries will be removed from pit and engaged in another site.

12.2 Present and Post Land use pattern:

TABLE – 18

Description	Present area (Ha)	Area required during first five years (Ha)	Area at the end of the lease period (Ha)
Area Under Quarrying	0.21.25 ✓	2.61.32 ✓	4.28.66 ✓
Infrastructure	Nil ✓	0.02.00 ✓	0.02.00 ✓
Roads	0.01.00 ✓	0.02.00 ✓	0.02.00 ✓
Green Belt	Nil ✓	0.35.84 ✓	0.75.08 ✓
Unutilized Area	4.89.25 ✓	2.10.34 ✓	0.03.76 ✓
Grand Total	5.11.5 ✓	5.11.50 ✓	5.11.50 ✓

12.3 Statutory obligations:

The applicant ensures to comply all the conditions stipulated in the precise area communication letter before grant of quarry lease and during the course of quarry operations as per the DGMS, Department of Geology and Mines, Labour Enforcement officer, controller of Explosives etc., circulars, Norms, Rules, Regulations and Act.

12.4 Progressive quarry closure plan preparation:

Name and address of the Qualified Person who prepared the progressive closure plan and executing agency who is involved in the Preparation of progressive quarry closure plan.

Name : **B. Vengadagiri, M.Sc.,**
 Qualified Person (Under Rule 15(I)(a) and (I)(b) of MCR, 2016)

Address : No.105, 5th Cross, Alagapuram,
 Salem District,

State with PIN Code : Tamil Nadu – 636 010.

Mobile : +91 86953 32233

Email : vengatb6@gmail.com

The applicant will himself implement the closure plan; no outside agency will be involved.

(i) Safety & Security:

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

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of machineries and vehicles.
- Personnel Protective equipment like dust masks, ear-plugs/ muffs and other equipment shall be provided for use by the working personnel.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be given to the public before blasting to prevent accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.
- Installation of CCTV cameras in the quarry and entrance of the quarry.
- Monitoring of Quarrying operation by external agency as directed by authorities.

(ii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.

- Competent persons will be provided FIRST AID kits which they will always carry.
- The Greenbelt Development will be formed in around the quarried out top benches and panchayat road of the lease applied area.

Environmental Monitoring Cell:

A dedicated team nominated by the mine manager or Agent will monitor and maintain the environmental compliances of the quarry as per the approved Environmental Management Plan and report the Compliance to the to the competent authority from time to time.

Disaster Management Cell:

The Competent Qualified Statutory managers appointed by the applicant as per the Director of Mines Safety will be responsible for Disaster Management. It care any eventualities his mobile number will be displayed and he will take all the precautions and safety measures as per Mines and Minerals (Development and Regulations) Act, 1957.

(iii) Disposal of mining machinery

All the Machineries will be purchased fresh, the same has been maintained in good condition during entire life of quarry, if required the machineries will be replaced or repaired. After completion of quarry operation all machineries will be engaged at another quarry area/ sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

(iv) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:
 - Quarry roads and approach roads,
 - Fencing on approach roads,
 - Checking and maintenance of machines and equipment,
 - Drinking water arrangements,
 - Quarry office, first aid stations etc.
- Competent persons shall inspect the area regularly.



- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(v) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The quarry lease is granted for a period of Ten years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

(vi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed. However, based on the progressive quarry closure activities during the plan period, cost is assessed as given below at present scenario:

TABLE – 19

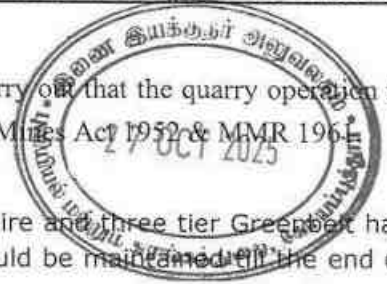
ACTIVITY		YEARS										RATE	COST (Rs.)	
		I	II	III	IV	V	VI	VII	VIII	IX	X			
Plantation under safety zone	Nos	140	140	140	140	140	160	160	160	160	160	Rs.200 Per sapling	3,00,000	
	Cost	28000	28000	28000	28000	28000	32000	32000	32000	32000	32000			
Plantation in quarried out top bench	Nos	-	-	-	-	-	-	-	100	200	200			1,00,000
	Cost	-	-	-	-	-	-	-	20000	40000	40000			
Plantation in quarried out Haul road	Nos	250	250	-	-	-	-	-	-	-	-			1,00,000
	Cost	50000	50000	-	-	-	-	-	-	-	-			
Barbed Wire Fencing (980 Mtrs)		294000										Rs300 Per Meter	2,94,000	
Garland Drain (930 Mtrs)		279000										Rs300 Per Meter	2,79,000	
Total													10,73,000	

13.0 STATUTORY COMPLIANCE TO BE FOLLOWED DURING THE COURSE & CLOSURE OF QUARRY LEASE:

The Applicant after execution of lease deed shall ensure to carry out that the quarry operation in accordance to the Approved Mining plan and as per TNMMCR, 1959, Mines Act 1952 & MMR 1961.

The conditions in the nutshell as follows:

1. The quarry operation should be fenced with the barbed wire and three tier Green belt has to be carried out all along the boundary barriers and should be maintained till the end of the life of the mine.
2. The quarry operation should be carried out as per the regulation 3,4,5 of MMR 1961 as prescribed in the form I, II, III, IVA, IVB, IVC, V, VI.
3. Statutory competent qualified person as per regulation 39, 40, 41, 42, 43, 44, 47, 48 of MMR 1961 should be appointed to carryout day today quarrying operation in scientific & systematic manner.
4. Blasting has to be carried out during the designated timing as per the approved mining plan with sufficient warning all around the mines by only the Qualified blaster as indicated in the regulations 153, 154, 156, 160, 166, 167, 169 of MMR 1961.
5. During the Quarrying operations the benches has to be maintained and haul roads should be maintained as per the regulations 60, 61, 62, 65, 66, 95, 96, 105, 106, 110, 115, 118 of MMR 1961. When the quarry attains 30mts depth from the general ground profile a slope stability study should be carried out with competent authorized agencies only.
6. All PPE should be provided to the employees and initial Medical Examination has to be carried out as per the regulation 124, 127, 177, 178, 181, 183, 185, 188, 190, 191A of MMR 1961.
7. The Applicant should submit the quarterly, half yearly & Annual returns to the concerned Authorities as per regulation 3, 4, 5, 9 & 10 MMR 1961 on time and HYCR self-compliance reports should be submitted to the State Pollution Control Board.
8. Periodical Hydrology & Hydrogeological Studies has to be carried out during the course of quarrying operation. if any significant seepages is inferred, the applicant should carry out a comprehensive Hydrogeological studies to ensure the impact of agricultural activities in and around the mine (Open well & Tube well). If the impact is noticed considerably the quarry had to be continued only after obtaining permission clearances and approval from the competent regulatory authorities.
9. The lessee should utilize green energy / Solar energy as far as possible for operation of machineries, equipment and illumination in the mine's office, quarry boundaries and avenue roads.
10. The lessee should ensure all the skilled and semi-skilled workers should be provided trainings in nearby Vocational Training centre as per the MVTR 1966 and should be registered in Shram Suvidha portal as directed by the Ministry of labour.
11. The lessee should carry out the quarrying operation keeping the view of mineral conservation, development and sustainable mining.
12. If the lessee intends to deviate from the approved mining plan, a modified mining plan has to be prepared submitted and approved from the concerned authority before making any significant changes in the mining operations.
13. The lessee should carry out the mining operation in Eco friendly environment with good hygienic conditions to the employees deployed and maintain good harmony with local communities in the impact zone.
14. The conditions stipulated in the lease deed and Environmental clearance especially the mitigation measures as proposed in EMP to the SEIAA has to be followed during the course of quarrying operation and also to as per the rules of TNMCR 1959, Mine act 1952, MMR 1961, Mine Rule 1955, Environment Protection Act 1986 and Indian Explosive act 1884 and Indian Explosive Rules 2008 and all the amendments issued by the concern State and Central Government authorities from time to time.

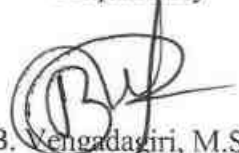


This Mining plan for Rough stone (Charnockite) and Gravel is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified and modified after scrutiny comments as per the guidelines of the Concerned Department and Authorities.

This Mining Plan and mine design is prepared based on the requirement and full consent by the applicant to me. If there is any change in the production schedule, change of technology, change in product mix during the course of operations, the applicant is advice to prepare a modified mining plan and get approval by the concerned authority for subsequent clearance and approval. The same will be monitored by the inspecting authority of Department of Geology and mining and other Concerned Departments under Rule 25 and sub rule (5)(d) in Rule 36 of Tamil Nadu Minor Mineral Concession Rules, 1959.

I hereby ensure that the information provided is correct to best of my knowledge and experience, some of the information contained in this report has been provided by external sources and by the applicant and is presented as the form as submitted by the applicant. The information is not intended to serve as legal advice related to the individual situation. I do not owe and specifically disclaim any liability resulting from the use during the course of quarrying operations after the grant of lease. The document may be scrutinized by the competent authority before approval.

Prepared by


B. Vengadagiri, M.Sc.,
Qualified Person

Place: Salem

Date: 06.10.2025

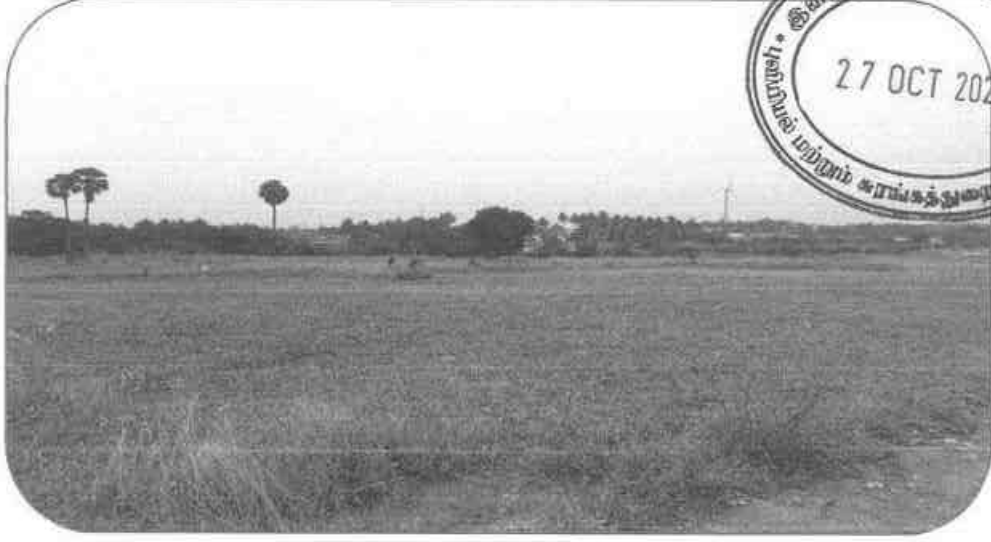
This Mining Plan is Approved
subject to the conditions / stipulation
& indicated in the Mining Plan Approval
Letter No: RE-No. 338/minv/2025 dt. 27/10/25
office of the A.D, Geology & Mining Coimbatore

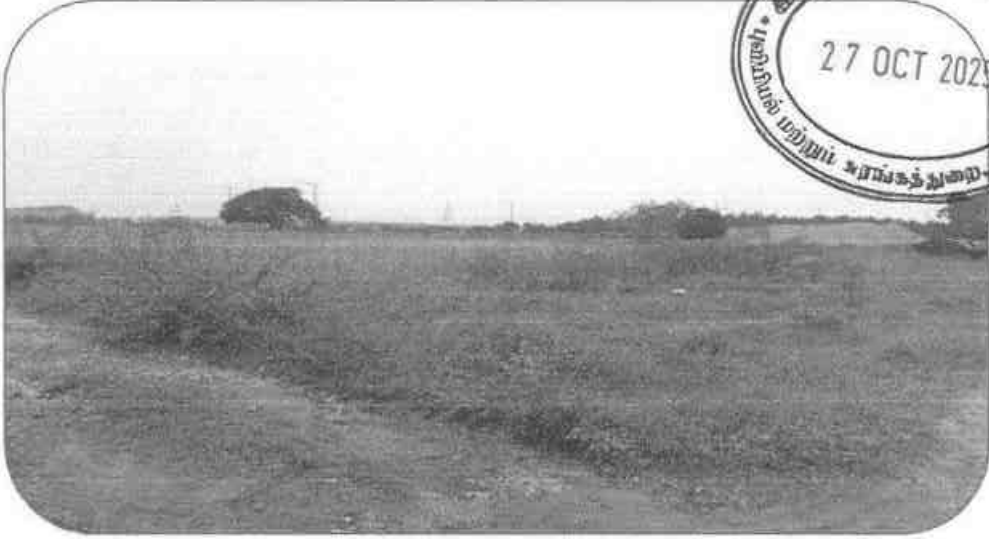
This Mining Plan is Approved based on the
incorporation of the particulars specified
in the letter of the commissioner of Geology
and Mining, Chennai ref No: 3863/LC/2012
Dated 19.11.2012 and subjected to further
fulfillment of the condition laid down under
Tamilnadu Minor Mineral Concession Rules 19⁵


THE JOINT DIRECTOR
(ADDL CHARGE)
DEPARTMENT OF GEOLOGY & MINING
COLLECTORATE
COIMBATORE-641 012

1500
27/10/25
Jey
28/10/25

**PHOTOGRAPHS OF THE IDAYARPALAYAM
ROUGH STONE AND GRAVEL QUARRY LEASE APPLIED AREA**







இணை இயக்குநர் அலுவலகம்,
புலியேந்தி மற்றும் சுரங்கத்துறை,
மாவட்ட அலுவலகம், அலுவலக வளாகம்,
கோயம்புத்தூர் - 18.

ந.க.எண்.339/கனிமம்/2025

நாள்: 30.09.2025

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - இடையர்பாளையம் கிராமம் - புல எண்கள்.169/1A-ல் 0.40.5 ஹெக்டேர், 169/1B-ல் 0.35.5 ஹெக்டேர், 178/1(பகுதி)-ல் 1.06.0 ஹெக்டேர், 178/2(பகுதி)-ல் 1.09.0 ஹெக்டேர், 179/1A-ல் 1.44.0 ஹெக்டேர் மற்றும் 179/1B-ல் 0.76.5 ஹெக்டேர் ஆக மொத்தம் 5.11.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க அனுமதி கோரியது - திரு.S.சண்முகம், த/பெ. சுப்பிரமணி என்பவருக்கு குவாரி குத்தகை அனுமதி வழங்குவது - தொடர்பாக.

- பார்வை: 1. திரு.S.சண்முகம், த/பெ. சுப்பிரமணி, 3/521, காரணம்பேட்டை, கோடங்கிபாளையம், திருப்பூர் மாவட்டம் என்பவரது விண்ணப்பம் நாள்: 19.02.2025 மற்றும் நாள்: 27.09.2025
2. இவ்வலுவலக கடிதம் இதே எண். நாள்: 26.03.2025.
3. சூலூர் வட்டாட்சியர் அவர்களின் கடிதம் ந.க.எண். 1326/2025/அ7 நாள்: 15.04.2025 மற்றும் ந.க.எண். 1383/2025/அ7 நாள்: 15.04.2025
4. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு அவர்களின் கடிதம் ந.க.எண். 2465/2025/அ2 நாள்: 29.05.2025 மற்றும் ந.க.எண். 2466/2025/அ2 நாள்: 29.05.2025.
5. உதவி புலியேந்தி, புலியேந்தி மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் தணிக்கை அறிக்கை நாள்: 29.09.2025.
6. அரசாணை எண். 169, தொழில் (எம்எம்சி.1) துறை, நாள்: 04.08.2020.

பார்வை 1-ல் திருப்பூர் மாவட்டம், கோடங்கிபாளையம், 3/521, காரணம்பேட்டை என்ற முகவரியில் வசிக்கும் திரு.சுப்பிரமணி என்பவரின் மகன் திரு.S.சண்முகம் என்பவர் கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள்.169/1A-ல் 0.40.5 ஹெக்டேர், 169/1B-ல் 0.35.5 ஹெக்டேர், 178/1(பகுதி)-ல் 1.06.0 ஹெக்டேர், 178/2(பகுதி)-ல் 1.09.0 ஹெக்டேர், 179/1A-ல் 1.44.0 ஹெக்டேர் மற்றும் 179/1B-ல் 0.76.5 ஹெக்டேர் ஆக மொத்தம் 5.11.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரி உரிய ஆவணங்களுடன் விண்ணப்பித்துள்ளனர்.

மேற்படி மனு தொடர்பாக, வட்டாட்சியர், தூலூர், வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு மற்றும் கோயம்புத்தூர் புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு திருப்பூர் மாவட்டம், கோடங்கிபாளையம், 3/521, காரணம்பேட்டை என்ற முகவரியில் வசிக்கும் திரு.சுப்பிரமணி என்பவரின் மகன் திரு.ச.சண்முகம் என்பவருக்கு கோயம்புத்தூர் மாவட்டம், தூலூர் வட்டம், இடையாபாளையம் கிராமம், புல எண்கள்.169/1A-ல் 0.40.5 ஹெக்டேர், 169/1B-ல் 0.35.5 ஹெக்டேர், 178/1(பகுதி)-ல் 1.06.0 ஹெக்டேர், 178/2(பகுதி)-ல் 1.09.0 ஹெக்டேர், 179/1A-ல் 1.44.0 ஹெக்டேர் மற்றும் 179/1B-ல் 0.76.5 ஹெக்டேர் ஆக மொத்தம் 5.11.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க சில நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளார்கள்.

அனுமதி கோரும் புல எண்கள். 169/1A, 169/1B, 178/1(பகுதி), 178/2(பகுதி), 179/1A மற்றும் 179/1B ஆகியவை பட்டா எண்கள் 805 மற்றும் 803-ன் படி திரு.சுப்பிரமணியன் மகன் திரு.ராஜேந்திரன் என்பவர் பெயரில் தனிப்பட்டவாக கிராம கணக்கில் தாக்கலாகியுள்ளது எனவும், மேற்படி பூமியில் திரு.ச.சண்முகம் என்பவர் புவியியல் மற்றும் சுரங்கத்துறையால் அனுமதி அளிக்கப்படும் நாளிலிருந்து பத்து ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க தனக்கு எவ்வித ஆட்சேபணையும் இல்லை என பட்டாதாரர் திரு.ராஜேந்திரன் என்பவர் சம்மத கடிதம் அளித்துள்ளார் எனவும், எனவே மேற்படி பூமியில் மனுதாரர் குவாரி குத்தகை உரிமம் பெற தகுதியுடையவர் ஆவார்.

எனவே, வட்டாட்சியர், தூலூர், வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு மற்றும் உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் ஆகியோரின் பரிந்துரைகளின் அடிப்படையில் திருப்பூர் மாவட்டம், கோடங்கிபாளையம், 3/521, காரணம்பேட்டை என்ற முகவரியில் வசிக்கும் திரு.சுப்பிரமணி என்பவரின் மகன் திரு.ச.சண்முகம் என்பவருக்கு கோயம்புத்தூர் மாவட்டம், தூலூர் வட்டம், இடையாபாளையம் கிராமம், புல எண்கள்.169/1A-ல் 0.40.5 ஹெக்டேர், 169/1B-ல் 0.35.5 ஹெக்டேர், 178/1(பகுதி)-ல் 1.06.0 ஹெக்டேர், 178/2(பகுதி)-ல் 1.09.0 ஹெக்டேர், 179/1A-ல் 1.44.0 ஹெக்டேர் மற்றும் 179/1B-ல் 0.76.5 ஹெக்டேர் ஆக மொத்தம் 5.11.5 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 1959-ஆம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் விதி 19(1) மற்றும் 22-ன் படி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றும் நாளிலிருந்து 10 (பத்து) ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு குவாரி குத்தகை வழங்குவதற்குரிய நிலப்பரப்பாக (Precise Area Communication) கருதப்படுகிறது.

நிபந்தனைகள்



1. அருகிலுள்ள பட்டா நிலங்களுக்கும் மற்றும் பொது நிலங்களுக்கும் எவ்வித இடையூறும் இன்றி சாதாரண கல் மற்றும் கரிதரவு குவாரி பணி மேற்கொள்ள வேண்டும்.
2. அருகில் உள்ள பட்டா நிலத்திற்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
3. அனுமதி கோரும் புல எண். 178/1-ன் மேற்கு பகுதியில் புல எண். 186/1-ல் அமைந்துள்ள ஓடை புறம்போக்குக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
4. அனுமதி கோரும் புலங்களில் மேற்கிலிருந்து கிழக்கு நோக்கி தாழ் மின்னழுத்த கம்பி 178/1-ல் இருந்து 178/2-க்கு 120 மீட்டர் தொலைவில் செல்கிறது. மேலும், 178/2-ல் இருந்து 178/1-ல் உள்ள கோழிப்பண்ணைக்கு தாழ்வழுத்த மின்கம்பி செல்கிறது. மேற்கண்ட மின்கம்பிகளுக்கு 50 மீட்டர் உரிய பாதுகாப்பு இடைவெளி விடப்பட வேண்டும் (அல்லது) குவாரி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றுவதற்கு முன்பாக மின்னழுத்த கம்பிகளை 50 மீட்டருக்கு அப்பால் மாற்றி அமைத்துக்கொள்ள வேண்டும்.
5. அனுமதி கோரும் புல 178/1-ல் உள்ள கோழிப்பண்ணையை குவாரி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றுவதற்கு முன்பாக அகற்றப்பட வேண்டும்.
6. அனுமதி கோரும் புலத்தினை அரசு அங்கீகாரம் பெற்ற நிறுவனத்தினரால் DGPS (Differential Global Positioning System)-ன் படி ஆய்வு செய்யப்பட்டு ஒவ்வொரு எல்லைத் தூண்களும் நடப்படவேண்டும்.
7. குழந்தை தொழிலாளர்களை வேலைக்கு அமர்த்தல் கூடாது.

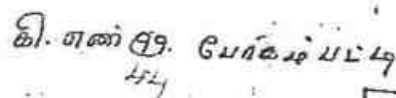
மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள்-1959 விதி எண். 41 மற்றும் 42-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு அதிகார அமைப்பின் அனுமதியினை பெற்று சமர்ப்பிக்கவும் மனுதாரரை கேட்டுக் கொள்ளப்படுகிறது.

இணை இயக்குநர்,
புவியியல் மற்றும் தூண்கீட்டுறை
கோயம்புத்தூர்.

15/10/2025

பெறுநர்:
திரு. S. சண்முகம்,
த/பெ. கப்பிரமணி,
3/521, காரணம்பேட்டை,
கோடங்கிபாளையம்,
திருப்பூர் மாவட்டம்.

பரப்பு: ஒதுக்கீட்டி



forw:ing
forw:ing
20/5/94 forw

அளவு: 1/2000
 இரண்டு நிர்வாக அலுவலர்
 1. திட்டயற்பாளையும் இரண்டு
 உதவி உட்கார்

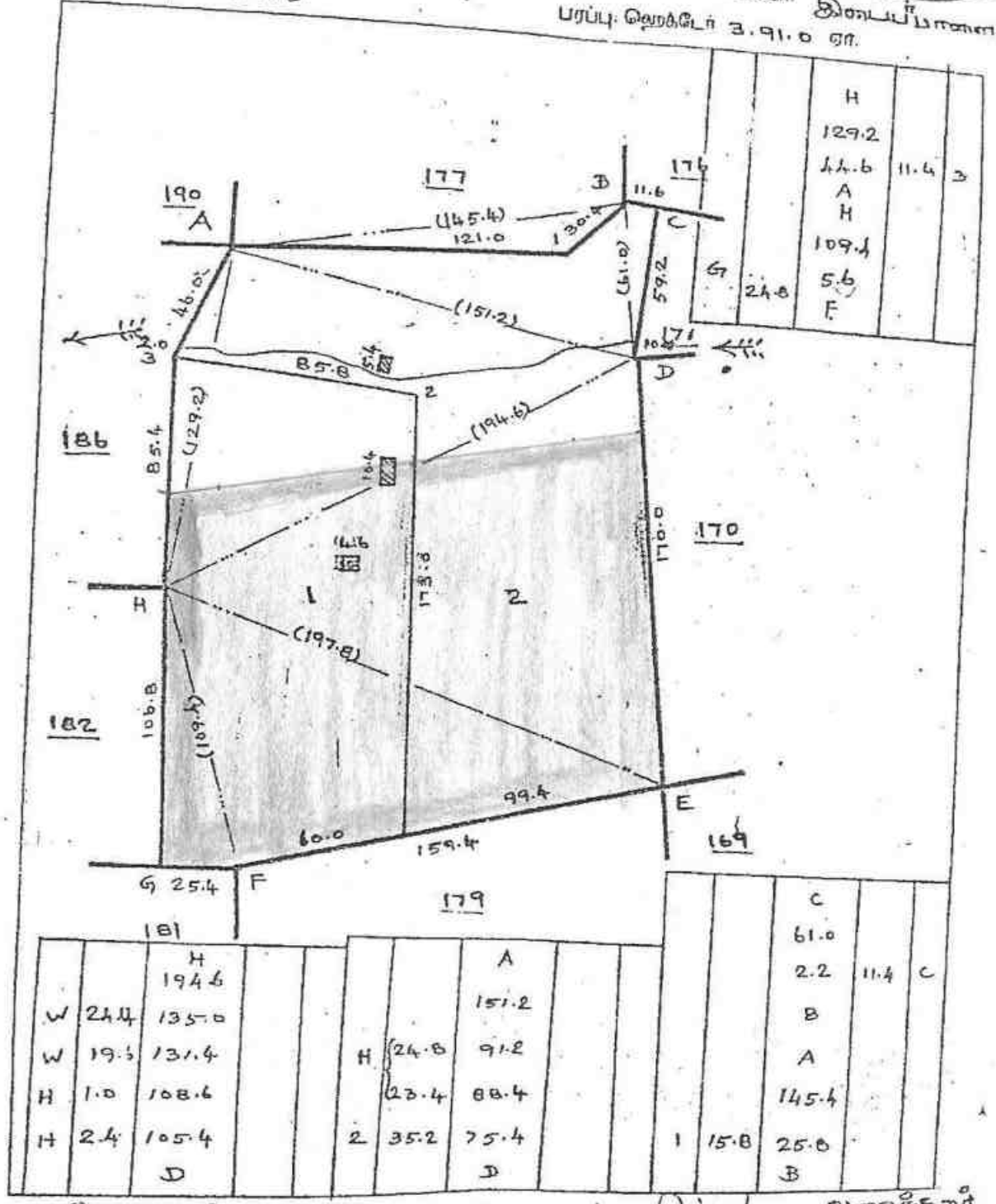
வாரத்தின்
10. இம்மணி
23.5.84

85 A



பெயர். கருணாநிதி
வட்டம். பட்டினம்
புல எண். 178

பரப்பு. சென்டீமீட்டர் 3,91.0 ஏ.அ.
பெயர். கருணாநிதி
வட்டம். பட்டினம்
புல எண். 178



சரிபார்க்கப்பட்டது
31.5.84

அளவு 1:2000

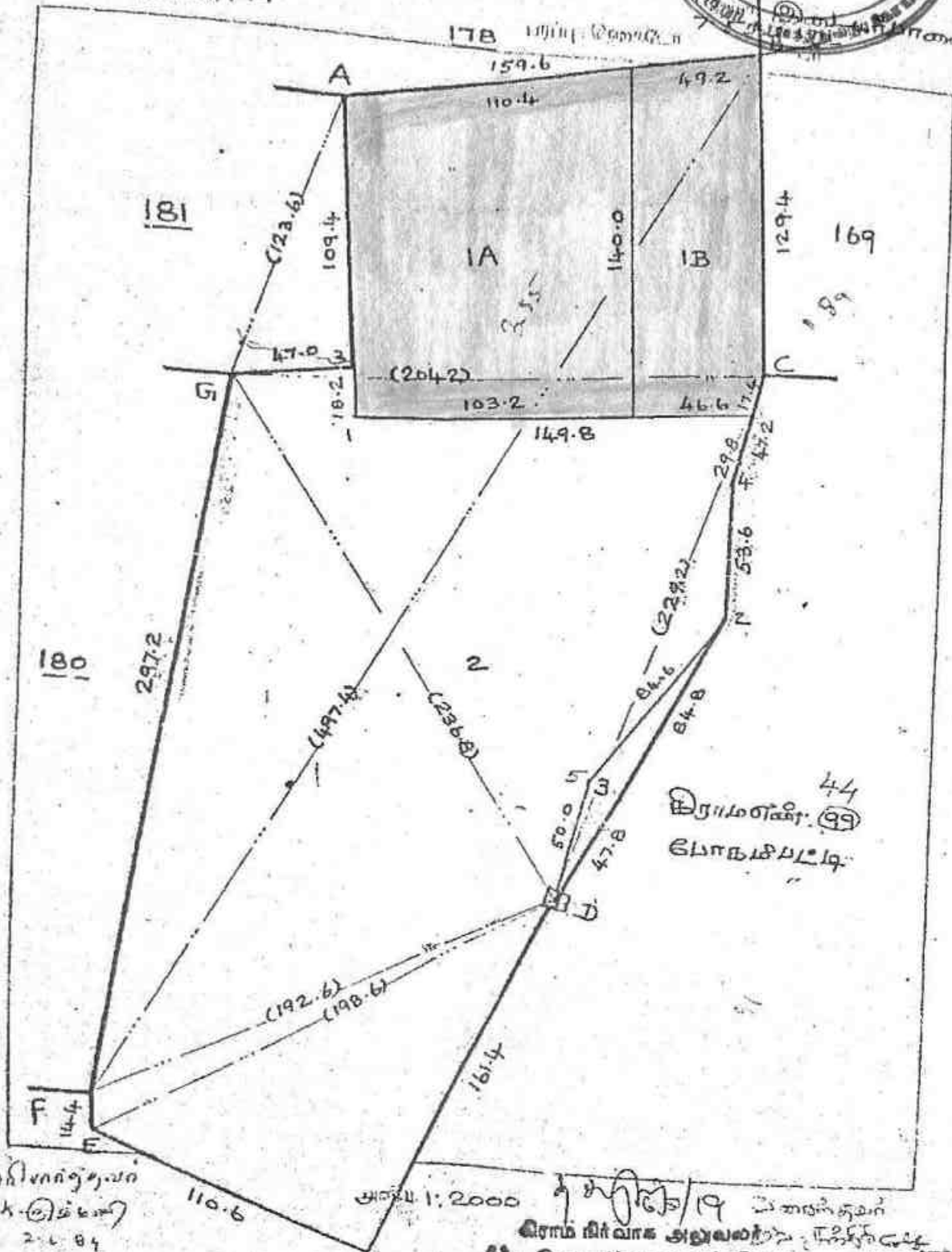
27/10/19
கருணாநிதி அரசு
பட்டினம் வட்டம்
புல எண். 178

Lease Applied Area-

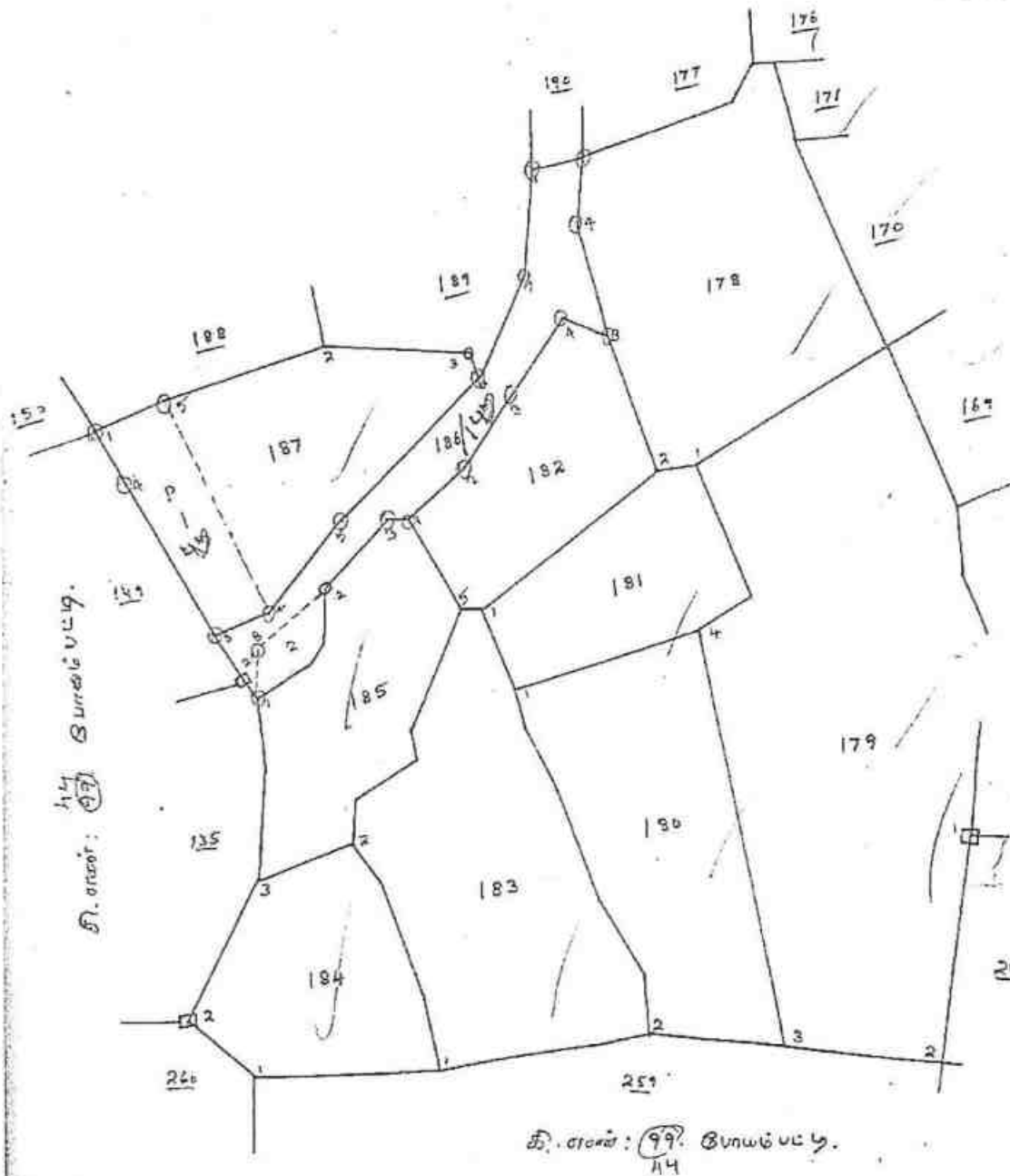
மாஸ்டம். கோயத்தூர்

வட்டம். பகீரடம்

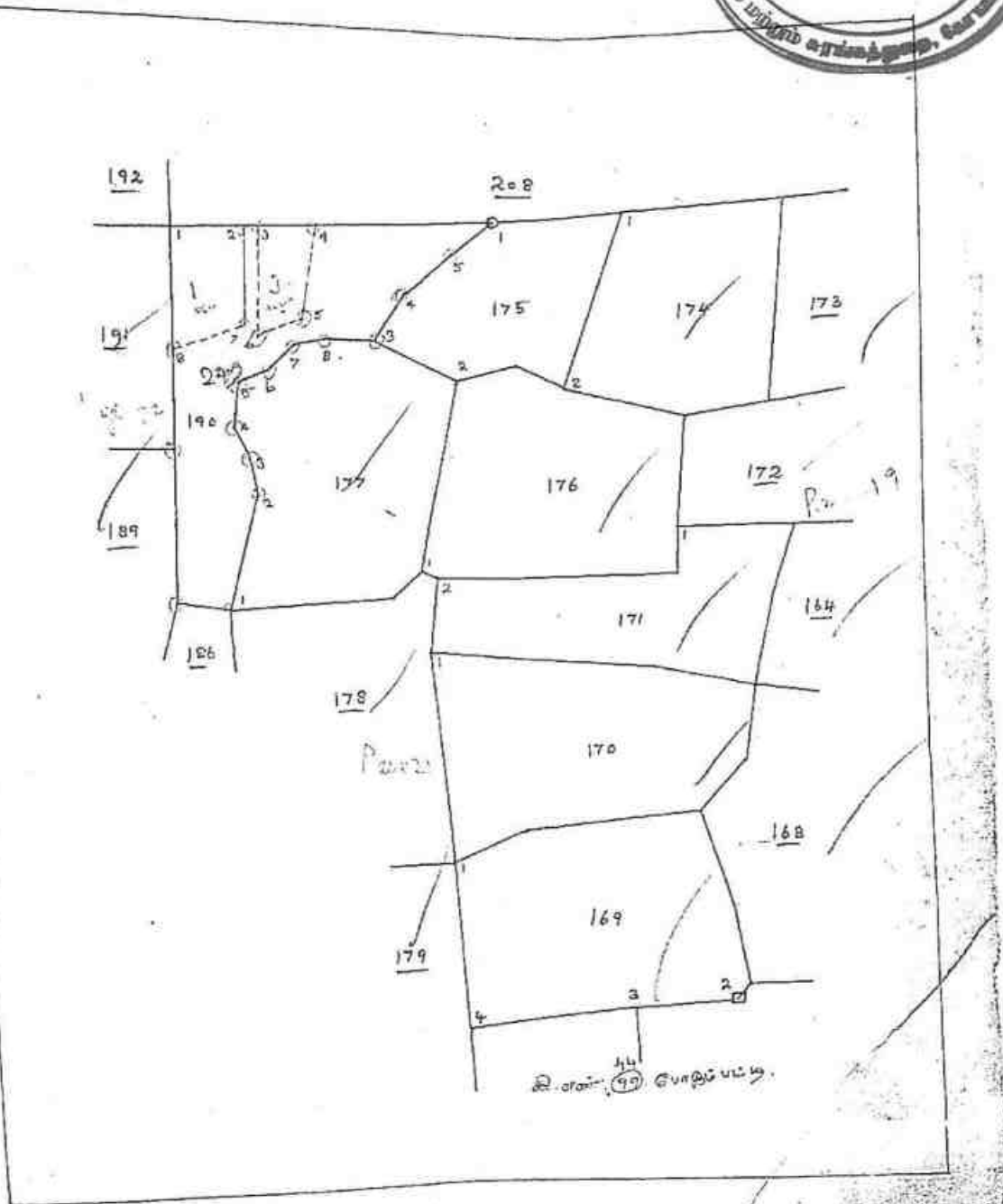
புல எண். 179



Lease Applied Area-



88 A



திரு. சி. சி. சி.
 கிராம நிர்வாக அலுவலர்
 61. இடையாப்பாளையம் கிராமம்
 குறார் வட்டம்

N
1:20,000



Survey Boundary
village

EDAYARPALAYAM VILLAGE



Lease Applied Area-



ANNEXURE IV

தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத்துறை
நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : குலூர்

வருவாய் கிராமம் : இடையபாளையம்

பட்டா எண் : 803

உரிமையாளர்கள் பெயர்

1. சுப்பிரமணியன்

மகன்

ராஜேந்திரன்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	
169	1A	0 - 40.50	0.82	--	--	--	--	2018/0103/12/117697- ----- Digitally signed:Muthukumar R Zonal Deputy Tahsildar 28/07/2018 07:32:35:PM
		0 - 40.50	0.82					

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் S/12/10/027/00803/100731 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 04-10-2025 அன்று 04:28:18 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழ்நாடு அரசு

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



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : குலூர்

வருவாய் கிராமம் : இடையபாளையம்

பட்டா எண் : 805

உரிமையாளர்கள் பெயர்

1. சுப்பிரமணியன்

மகன்

ராஜேந்திரன்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	
169	1B	0 - 35.50	0.72	--	--	--	--	2018/0103/12/121358- ----- Digitally signed:Muthukumar R Zonal Deputy Tahsildar 29/07/2018 10:09:19:AM
		0 - 35.50	0.72					

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் S/12/10/027/00805/100753 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 04-10-2025 அன்று 04:30:21 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

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



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : குலார்

வருவாய் கிராமம் : இடையபாளையம்

பட்டா எண் : 805

உரிமையாளர்கள் பெயர்

1. சுப்பிரமணியன்

மகன்

ராஜேந்திரன்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
178	1	1 - 56.50	3.15	--	--	--	--	2018/0103/12/121358- -- --கிணறு-1, வீடு-1-- -- Digitally signed:Muthukumar R Zonal Deputy Tahsildar 29/07/2018 10:09:19:AM
		1 - 56.50	3.15					

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/027/00805/100753 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 31-01-2025 அன்று 05:23:48 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

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

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : குலார்

வருவாய் கிராமம் : இடையபாளையம்

பட்டா எண் : 803

உரிமையாளர்கள் பெயர்

1. சுப்பிரமணியன்

மகன்

ராஜேந்திரன்



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	
178	2	2 - 34.50	4.72	--	--	--	--	2018/0103/12/117697- ---லீடு-1--- Digitally signed: Muthukumar R Zonal Deputy Tahsildar 28/07/2018 07:32:35:PM
		2 - 34.50	4.72					

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/027/00803/100731 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 31-01-2025 அன்று 05:25:53 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழ்நாடு அரசு

வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

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



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

வருவாய் கிராமம் : இடையபாளையம்

பட்டா எண் : 805

உரிமையாளர்கள் பெயர்

1. சுப்பிரமணியன்

மகன்

ராஜேந்திரன்



புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
179	1A	1 - 44.00	2.90	--	--	--	--	2018/0103/12/121358- ----- Digitally signed:Muthukumar R Zona Deputy Tahsildar 29/07/2018 10:09:19:AM
		1 - 44.00	2.90					

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/027/00805/100753 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 31-01-2025 அன்று 05:27:46 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழ்நாடு அரசு



வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை

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

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

வருவாய் கிராமம் : இடையபாளையம்

பட்டா எண் : 803

உரிமையாளர்கள் பெயர்

1. சுப்பிரமணியன்

மகன்

ராஜேந்திரன்

புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
179	1B	0 - 76.50	1.54	--	--	--	--	2018/0103/12/117697- ----- Digitally signed:Muthukumar R Zonal Deputy Tahsildar 28/07/2018 07:32:35:PM
		0 - 76.50	1.54					

குறிப்பு :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/027/00803/100731 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 31-01-2025 அன்று 05:31:22 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

செய்தவர்களைப் பற்றித் தகவல் கொடுக்கப்படுகிறது.

நித்யா
மேய் இராசா
Alayam, Mysore

8570015

14.33

[illegible][illegible]

Signature of the Applicant

180

விரும்ப நிவாக அலுவலர்

நீ. இடையாபாளையம் விராமம்

குலார் வட்டம்

* விவரப்பட்டியலைப் பார்க்கவும்.

Signature of Applicant

அ-பதிவேடு விவரங்கள் - ஊரகம்

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

கிராமம் : இடையபாளையம்



1. புல எண்	169	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	1A	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	169-1A	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 40.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.82
6. நிலத்தின் வகை புஞ்சை		14. பட்டா எண்	803
7. பாசன ஆதாரம் -		15. குறிப்பு	-
8. இரு போகமா	0	16. பெயர்	1.ராஜேந்திரன்

குறிப்பு:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/027/169/1A/30731 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

கிராமம் : இடையபாளையம்

1. புல எண்	169	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	1B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-1P	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 35.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.72
6. நிலத்தின் வகை புஞ்சை		14. பட்டா எண்	805
7. பாசன ஆதாரம் -		15. குறிப்பு	-
8. இரு போகமா -		16. பெயர்	1.ராஜேந்திரன்

குறிப்பு:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/027/169/1B/30753 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



ANNEXURE

VII



ரூ. 100

INDIA NO. JUDICIAL

தமிழ்நாடு தமிழ்நாடு TAMILNADU

10 MAR 2025

EW 835554

பி. எ. துரைசாமி
முதலமைச்சர் அலுவலகம்
உரிமை எண் 32/2000
மேலவையூர், மாவட்டம்

S. ஜனகிகம்
கோவைப் பேரவை

சம்மதக் கடிதம்

திருப்பூர் மாவட்டம், பல்லடம் வட்டம், கோடங்கிபாளையம் கிராமம், காரணம்பேட்டை, 1/403, சோமனூர் ரோடு என்ற முகவரியில் வசிக்கும் திரு. சுப்பிரமணியம் மகன் கே.எஸ். ராஜேந்திரன் (1), ஆகிய நான் திருப்பூர் மாவட்டம், பல்லடம் வட்டம், கோடங்கிபாளையம் கிராமம், 3/521, காரணம்பேட்டை என்ற முகவரியில் வசிக்கும் திரு. சுப்பிரமணி என்பவர் மகன் எஸ். சண்முகம் (2) ஆகிய உங்களுக்கு எழுதிக் கொடுக்கும் சம்மதக் கடிதம் என்னவென்றால்,

கோயமுத்தூர் மாவட்டம், குலூர் வட்டம், இடையபாளையம் கிராமம், பட்டா புல எண். 178/1-ல் 1.56.50 ஹெக்டர் பரப்பு பட்டா எண். 805-ன்படியும், புல எண். 178/2-ல் 2.34.5 ஹெக்டர் பரப்பு பட்டா எண். 803-ன்படியும் நம்மில் (1) இலக்கமிட்ட திரு. ராஜேந்திரன் என்பவர் பெயரில் தனிப்பட்டவாக தாக்கலாகியுள்ளது.

சுப்பிரமணியம்

சண்முகம்



இந்திய அரசாங்கம்
Government of India

இனை ஆய்வுகோர் அலுவலகம்
27 OCT 2025
மதுரை மன்றம் அரசாங்கம்



சண்முகம்
Shanmugam
பிறந்த நாள்/ DOB: 17/05/1971
ஆண் / MALE



6192 0754 2911

எனது ஆதார், எனது அடையாளம்



இனம் அடையாளம் ஆய்வு அமைப்பு
Unique Identification Authority of India

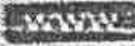
முகவரி:
S/O: சுப்பிரமணி, 3/521,
காரணம்பேட்டை,
கோடங்கிபாளையம்,
திருப்பூர்,
தமிழ் நாடு - 641662

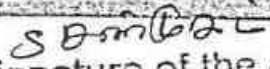
Address:
S/O: Subiramani, 3/521,
KARANAMPETTAI,
Kodangipalayam, Tiruppur,
Tamil Nadu - 641662

6192 0754 2911

 1947

 help@uidai.gov.in

 www.uidai.gov.in


Signature of the Applicant

आयकर विभाग
INCOME TAX DEPARTMENT

SHANMUGAM S

SUBRAMANIAM

17/05/1971

Permanent Account Number

FJKPS4424J

Signature



भारत सरकार
GOVT. OF INDIA



S. Shanmugam

Signature of the Applicant

அண்ணாமலைப்

ANNAMALAI



UNIVERSITY

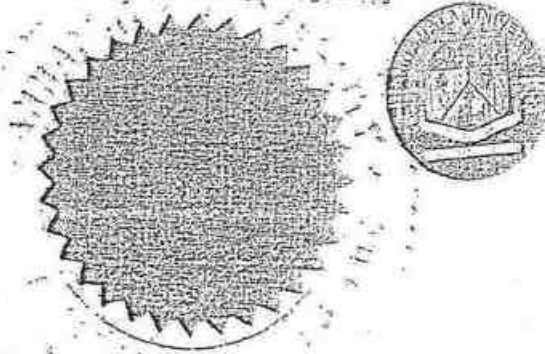
அறிவியற்புலம்
FACULTY OF SCIENCE

Reg. No. : 090895

மே, 2011 இல் நடத்திய தேர்வுகளில் பயன்பாட்டு நிலத்தியல் பிரிவில் வெங்கடகிரி பா. கூடுதல் மதிப்புப்புள்ளிகள் 10.00 க்கு, சராசரியாக 6.03 பெற்று இரண்டாம் வகுப்பில் தேர்ச்சியடைந்து முறையாக அமைக்கப்பெற்ற தேர்வுக்குழுவினர் சான்றளித்தபடி, அறிவியல் நிறைஞர் பட்டம் பெறுவதற்கு உரியவர் ஆகின்றார் என அண்ணாமலைப் பல்கலைக்கழக ஆளவை இதன்வழி அறிவிக்கின்றது.

The Senate of the ANNAMALAI UNIVERSITY hereby makes known that VENGATAGIRI B. has been admitted to the Degree of MASTER OF SCIENCE in APPLIED GEOLOGY, he/she having secured OGPA of 6.03 out of 10.00 been certified by duly appointed Examiners at the Examination held in MAY, 2011 to be qualified to receive the same, and that he/she was placed in SECOND CLASS.

பல்கலைக்கழக முத்திரை பெறுகின்றது
Given under the seal of the University



அண்ணாமலைநகர்
Annamalainagar

நாள்:

Dated: 09/11/2011

துணை தேர்வாளையர் (கல்விசார்ந்த)
Dr. Controller of Examinations (Academic)

Dr. M. Ramesh Babu

பதிவாளர்
Dr. M. Ramesh Babu

104 A
Dr. M. Ramesh Babu

துணை வேந்தர்
Dr. M. Ramesh Babu



GOVERNMENT OF INDIA
MINISTRY OF LABOUR AND EMPLOYMENT
DIRECTORATE GENERAL OF MINES SAFETY

Certificate of Practical Experience granted by the Manager to a Candidate for a Manager's/ Surveyor's/ Mining foreman/ Mining Mate/ Blasters certificate of competency examination under Metalliferous Mines Regulation, 1961.

I, M.S.Pavel being the Manager of K.Pitchampatti Multicolour Granite Mine belong to M/s. Anupkumar Lohia do hereby certify that Thiru. B.Vengadagiri son of Thiru. Balasubramanian (whose signature is appended) worked in the above mine from 10.07.2012 to 15.08.2018 and is still working. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for certificate of competency.

M.S. Pavel
(Signature with date and official seal)

(Mines Manager's class)
MANAGER (MINES) class
MULTICOLOUR GRANITE MINE
K. PITCHAMPATTI,
KARUR - TALUK & DIST.

(Signature)
(Signature of Candidate)

State the name of the mineral works: Multi Colour Granite



S. No.	Particulars of Practical experience (a)	Place of Experience (b) Opencast	Period of Practical experience (c)		Total Experience (e)		
			From	To	Yrs.	Months	Days
1.	As a trainee in drilling operation	Open cast	10.07.2012	24.10.2013	01	03	16
2.	As a trainee in deep hole blasting operation	Open cast	25.10.2013	31.12.2014	01	02	07
3.	Production incharge quality control and Supervisor of Earth moving Mining Machinery	Open cast	01.01.2015	15.06.2018	3	7	14
GRAND TOTAL					06	1	5
In words: Six years one month ten days					Six	One	five

In below ground working	In open cast working	In all
Nil	Average monthly output 250m ³	250m ³
Nil	Average daily employment 25Nos	25Nos

Note: The average employment is less because this is mechanized mines having deep hole drilling, blasting and Heavy Earth Moving Machinery operation.


(Signature of Candidate)


(Signature with date and official seal)

(Mines Manager 1st class)
MANAGER (MINES)
MULTICOLOUR GRANITE MINE
K. PITCHAMPATTI,
KARUR - TALUK & DIST.

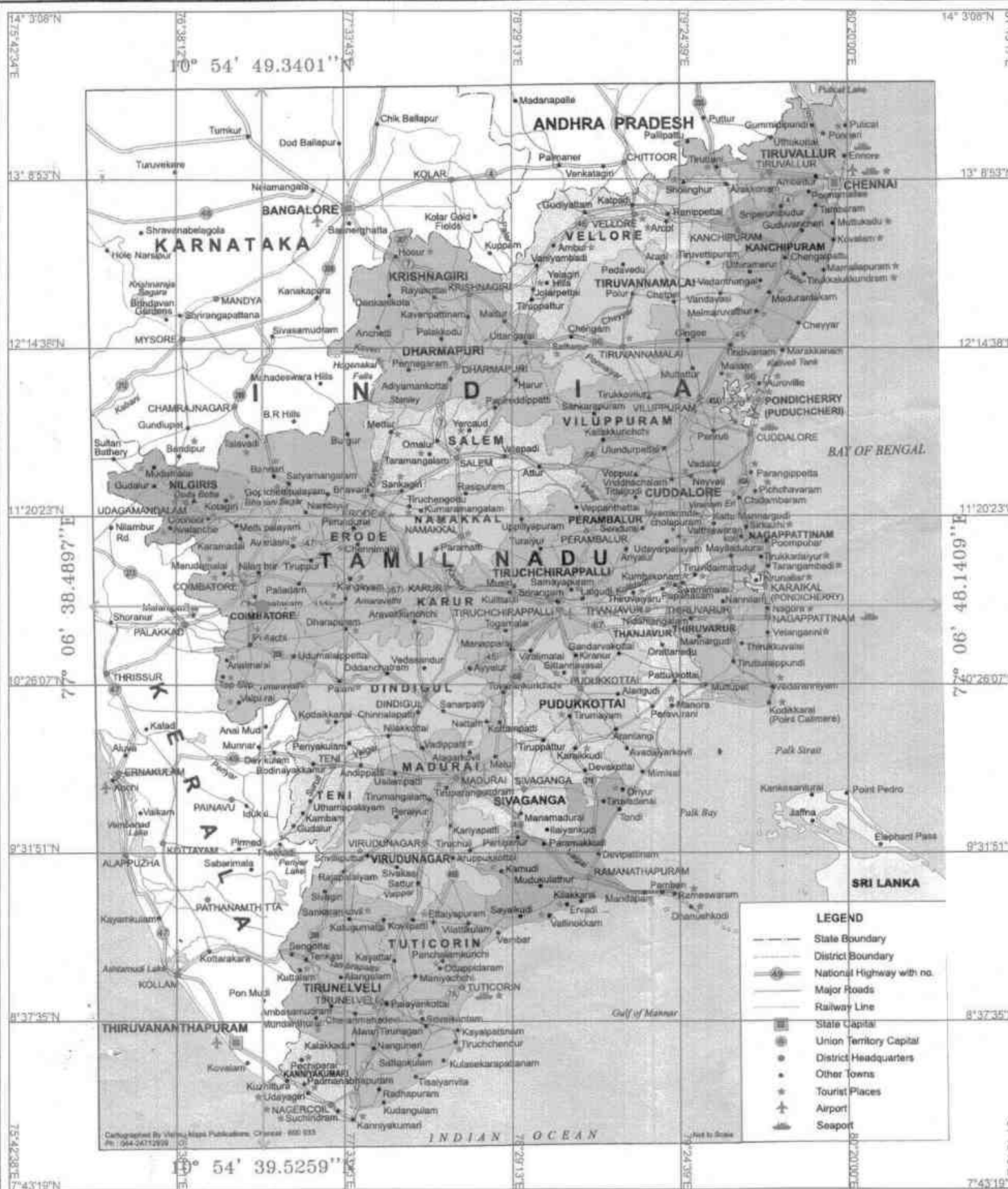


PLATE NO:1

DATE OF SURVEY : 04.10.2025

APPLICANT :

Thiru. S.SHANMUGHAM,
S/O.SUBRAMANI,
3/521,KARANAMPETTAI,
KODANGIPALAYAM,
TIRUPPUR DISTRICT.

LOCATION OF THE AREA:

S.F.NO's : 179/1A, 179/1B, 169/1A &
169/1B, 178/2(P), 178/1(P).
EXTENT : 5.11.50 HA.
VILLAGE : IDAYARPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMILNADU.

INDEX

Q. L.A. AREA :

TOPO SHEET NO. : 58 F/01

LATITUDE : 10° 54' 39.5259"N to 10° 54' 49.3401"N

LONGITUDE : 77° 06' 38.4897"E to 77° 06' 48.1409"E

LOCATION PLAN

SCALE 1:24,00,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT.

(Signature)
B. VENKATARAMAN, M.Sc.,
QUAD 107 A
Under Rule 15(i)(a) and (b) of MCR, 2016.

DATE OF SURVEY : 04.10.2025

Thiru. S.SHANMUGHAM
S/O.SUBRAMANI,
3/521,KARANAMPETTA
KODANGIPALAYAM,
TIRUPPUR DISTRICT.

S.F.NO's : 179/1A, 179/1B, 169/1A &
169/1B, 178/2(P), 178/1(P).

EXTENT : 5.11.50 HA.
VILLAGE : IDAYARPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE,
STATE : TAMILNADU.

CONVENTIONAL SYMBOLS

Express highway; with toll; with bridge; with skidless stone		750	
Roads, retailed; according to importance			
Roads, double carriageway; according to importance			
Unretailed road; Cut-back; Patch-back with peat; Foot-path			
Ditches with back in front; water-filled; Canal			
Ditch; masonry or rock-lined; waterless; Brook			
Flow; dry with water channel; with stand & rocks; flood trap			
Salmonpug rods; about Swamp Roads			
Tide; low; high; Tidal weir; Spring; Tidal; periodic; dry			
Embankments; road or rail; bare; broken ground			
Railways; broad gauge; double; single with siding; under cover			
Railways; other gauge; double; single with sidings; open; dry			
Mineral line or railway; R.R. Cutting with tunnel			
Contours with red-inked lines; Rocky slopes; Cuts			
Sand; tundra; (Color) (Ground) (Hydrography) (Hydrogeology)			
Town or Village; elevated; elevated; Port			
River; permanent; temporary; Taper; Anomalous			
Temple; Church; Church; Mosque; Japh; Tomb; Graves			
Lighthouse; Lightship; Buoy; Light; unlighted; Anchorage			
Mine; Wind or hole; Great; Small			
Water; railway; other; Plant; Carrier; Bamboo; Other trees			
Area; cultivated; wooded; Sunlight; etc.			
Boundary; international			
State; demarcated; un-demarcated			
State; un-demarcated; land or lake; forest			
Boundary; river; surveyed; undetected			
Height; simplified; station; point; approximate		A 200	200
Bench-mark; geodetic; tertiary; usual		BM 63-3	BM 63-3
Post office; Telegram office; Overseas tele.			
Rail house or inspection building; Church house; Police station			
Camping ground; Park; reserved; protected			
Special name; administrative; locality or title			
Hospital; Dispensary; Veterinary hospital; Dispensary			
Aerodrome; Helipad; Tourist site			
Power line; with poles; suspended; with poles; cross-armed			

SCALE- 1:100000

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

108 A

Under Rule 15(l)(a) and (b) of MCR, 2016



11° 00' 14.70''N

10° 49' 14.16''N

TOPO SHEET NO. : 58 F/01

LATITUDE : 10° 54' 39.5259"N to 10° 54' 49.3401"N

LONGITUDE : 77° 06' 38.4897"E to 77° 06' 48.1409"E

10KM RADIUS :

Q.L.APPLIED AREA :



LANDUSE PATTERN	
DESCRIPTION	PERCENTAGE
ROADS\ODAI	(10%)
HABITATION	(05%)
TREES\WIND MILL	(20%)
AGRICULTURAL LAND	(55%)
PIT\SCHOOL\DUMP	(10%)

OCTOBER TO DECEMBER



PLATE NO:I-B

DATE OF SURVEY : 04.10.2025

1Km Radius

500m Radius

Q.L.Applied Area

TOPO SHEET NO. : 58 F/01

27 OCT 2025

LATITUDE : 10° 54' 39.829"N to 10° 54' 49.340"N

LONGITUDE : 77° 06' 38.489"E to 77° 06' 48.149"E

APPLICANT :

Thiru. S.SHANMUGHAM,
S/O.SUBRAMANI,
3/521,KARANAMPETAU,
KODANGIPALAYAM,
TIRUPPUR DISTRICT.

LOCATION OF THE AREA:

S.F.NO's : 179/1A, 179/1B, 169/1A &
169/1B, 178/2(P), 178/1(P).

EXTENT : 5.11.50 HA.

VILLAGE : IDAYARPALAYAM,

TALUK : SULUR,

DISTRICT : COIMBATORE,

STATE : TAMILNADU.

INDEX

APPROACH ROAD

VILLAGE ROAD

MAJOR ROAD

HABITATION

TREES

AGRICULTURAL LAND

PIT

WIND DIRECTION

SCHOOL

DUMP

ODAI

WIND MILL

TOPO SKETCH OF QUARRY LEASE

APPLIED AREA FOR 1Km RADIUS

SCALE- 1:10,000

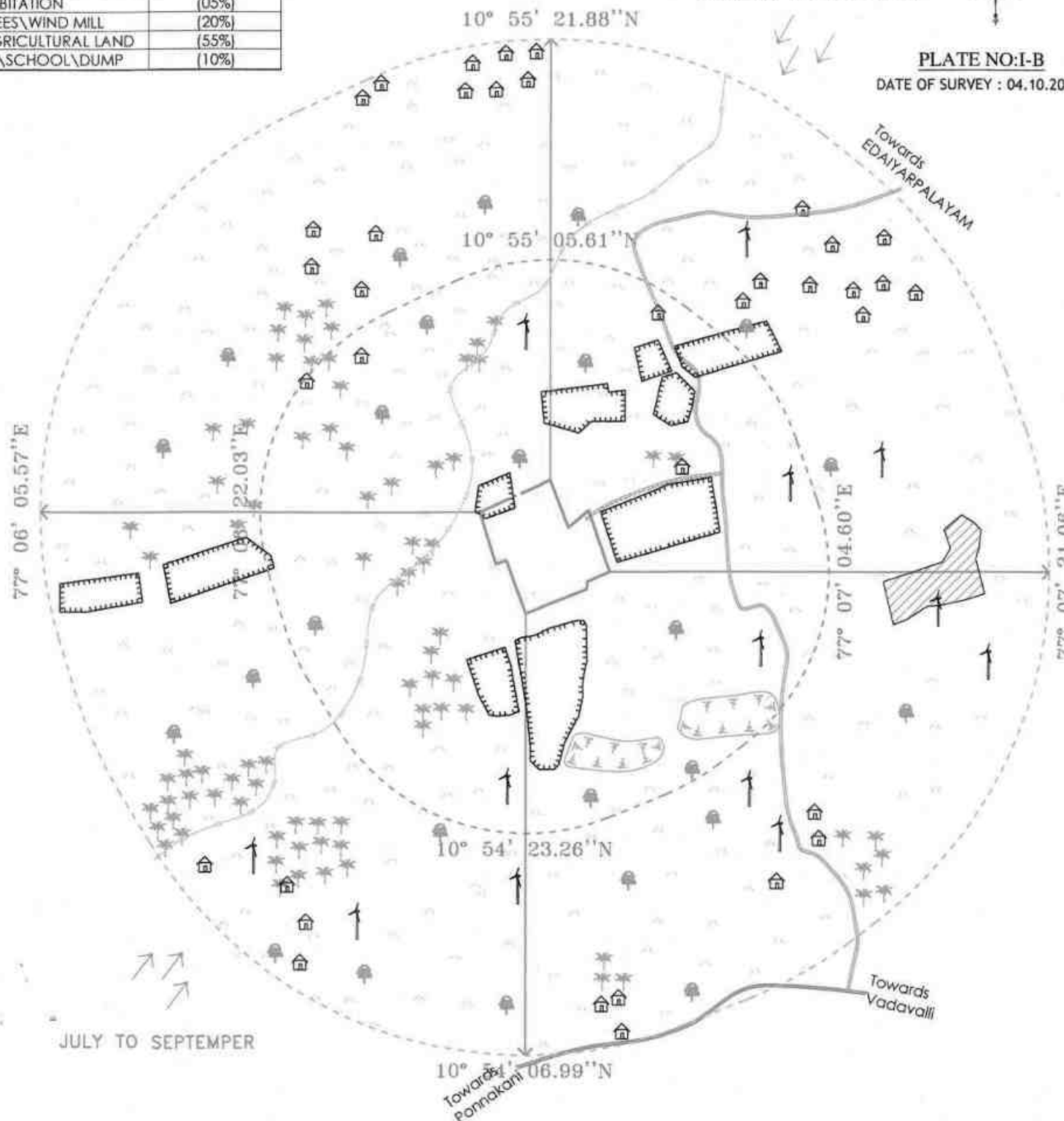
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

109A

B.VENKATAGIRI,M.Sc.,
QUALIFIED PERSON

Under Rule 15(i)(a)and(b)of MCR,2016



JULY TO SEPTEMBER



EDAIYARPALAYAM

2.0Km

300m

1.2Km

Bogampatti

1.3Km

2.9Km

Ponnakkani

PLATE NO:I-C

DATE OF SURVEY : 04.10.2025

APPLICANT :

Thiru. S.SHANMUGHAM,
S/O.SUBRAMANI,
3/521,KARANAMPETTAI,
KODANGIPALAYAM,
TIRUPPUR DISTRICT.

LOCATION OF THE AREA:

S.F.NO's : 179/1A, 179/1B, 169/1A &
169/1B, 178/2(P), 178/1(P).

EXTENT : 5.11.50 HA.

VILLAGE: IDAYARPALAYAM,

TALUK : SULUR,

DISTRICT : COIMBATORE,

STATE : TAMILNADU.

INDEX

Q.L.APPLIED AREA

MAJOR ROAD

VILLAGE ROAD

APPROACH ROAD

ROUTE PLAN

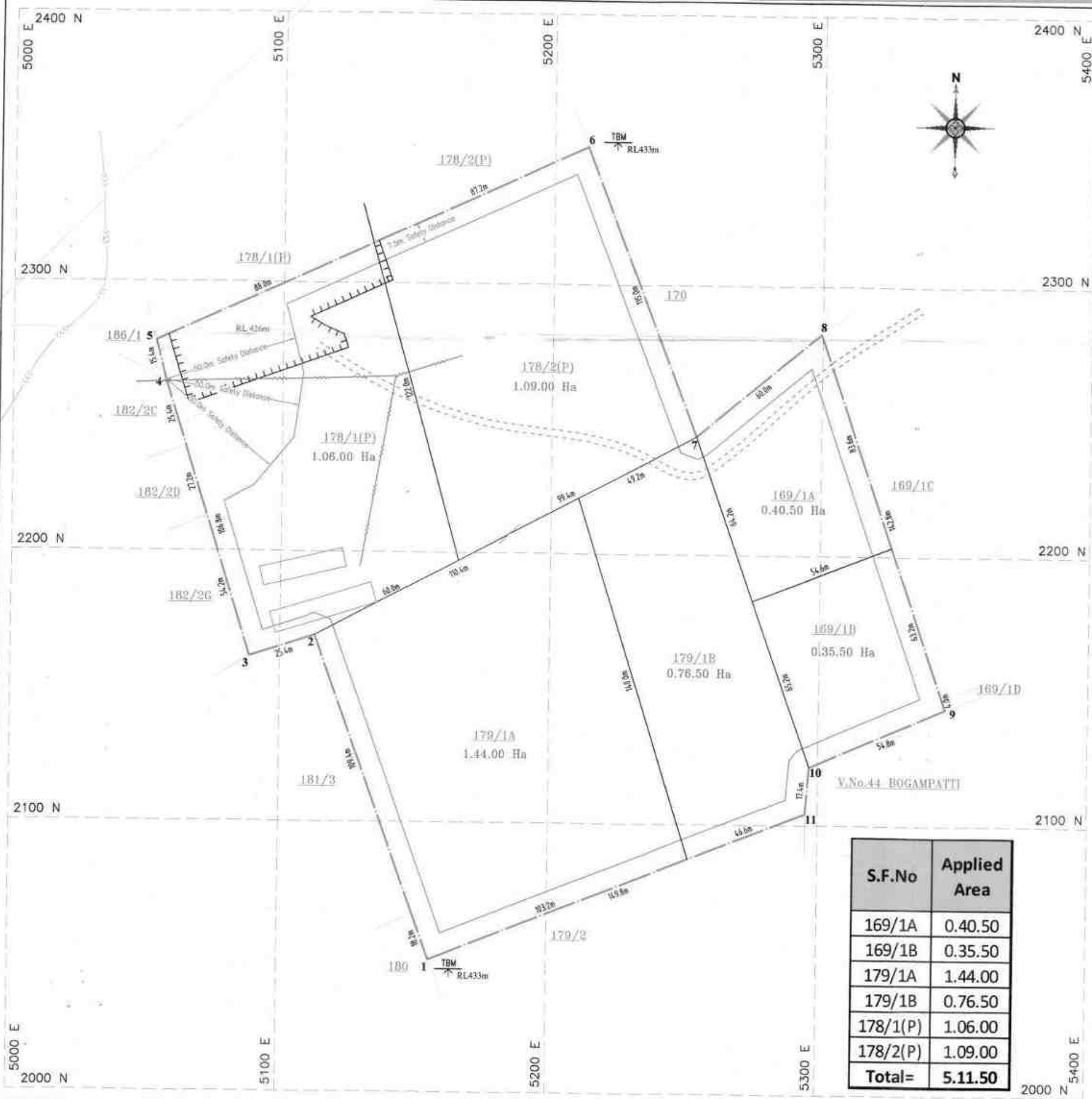
Not To Scale

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

VENGADACHARI A.,
QUALIFIED PERSON

Under Rule 15(l)(a) and (b) of MCR, 2016



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 54' 40.8258"N	77° 06' 41.8341"E
2	10° 54' 43.4406"N	77° 06' 40.4352"E
3	10° 54' 40.8760"N	77° 06' 39.6393"E
4	10° 54' 46.5103"N	77° 06' 38.6118"E
5	10° 54' 46.0900"N	77° 06' 38.4897"E
6	10° 54' 49.3401"N	77° 06' 43.7530"E
7	10° 54' 45.8387"N	77° 06' 45.0883"E
8	10° 54' 47.0873"N	77° 06' 46.8097"E
9	10° 54' 42.5566"N	77° 06' 48.1409"E
10	10° 54' 41.8596"N	77° 06' 46.4804"E
11	10° 54' 41.2957"N	77° 06' 46.4292"E

DATUM : UTM - WGS84, ZONE 43N

Existing Pit Dimension (max)
= 2125 Sq.mX7m(d)

INDEX

- Q.L.APPLIED AREA BOUNDARY
- 7.5m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- ROUGHSTONE
- EB LINE (TO BE SHIFTED)
- ODAI
- APPROACH ROAD
- QUARRY ROAD
- QUARRY PIT
- POULTRY FARM (TO BE REMOVED)

APPLICANT:

Thiru. S.SHANMUGHAM,
S/O.SUBRAMANI,
3/521,KARANAMPETTAI,
KODANGIPALAYAM,
TIRUPPUR DISTRICT.

LOCATION OF THE AREA:

S.F.NO's : 179/1A, 179/1B, 169/1A &
169/1B, 178/2(P), 178/1(P).
EXTENT : 5.11.50 HA.
VILLAGE : IDAYARPALAYAM,
TALUK : SULUR,
DISTRICT : COIMBATORE.
STATE : TAMILNADU.

PLATE NO - II

DATE OF SURVEY : 04.10.2025

QUARRY LEASE PLAN & SURFACE PLAN

SCALE: 1:1000

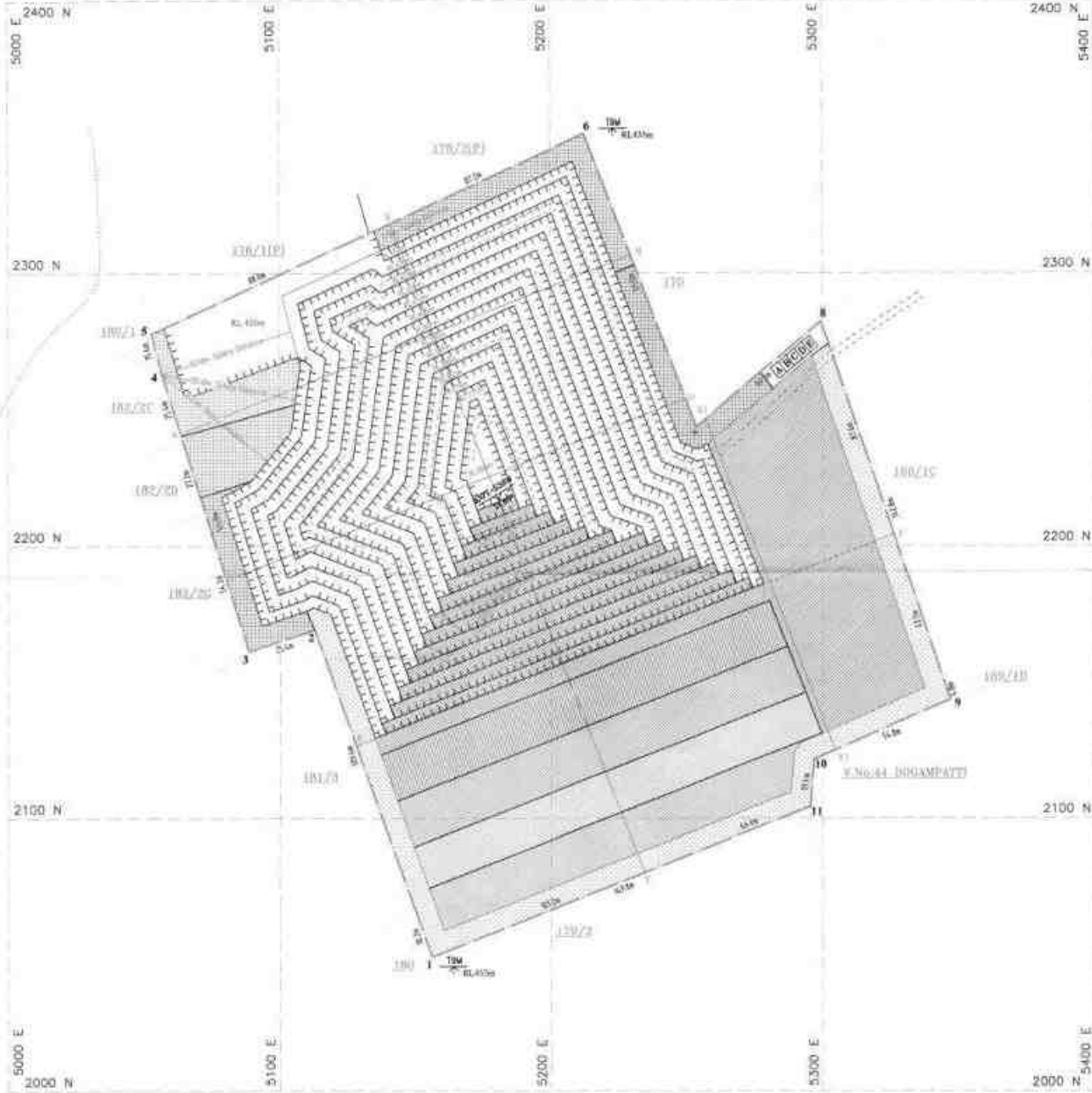
PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
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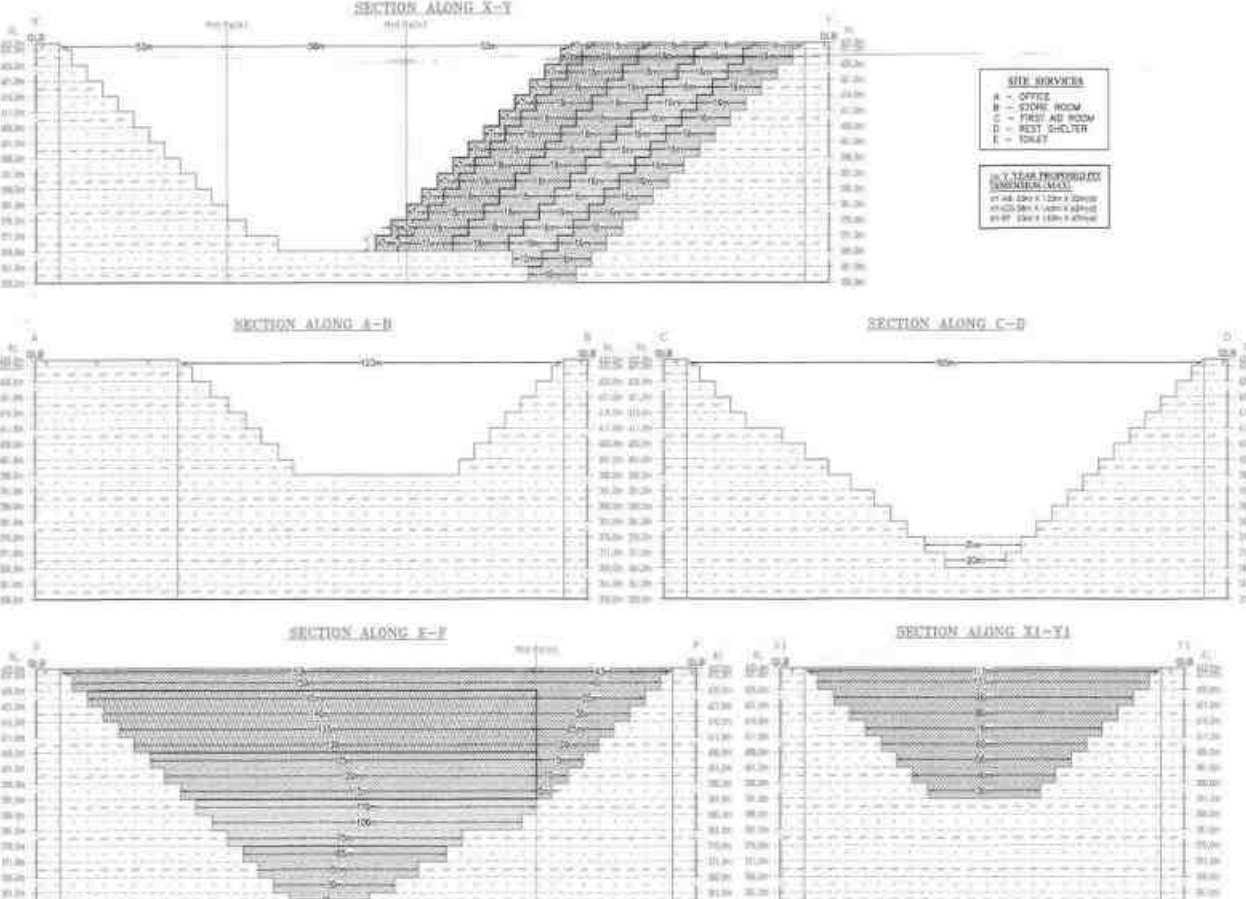
111 A

Under Rule 15(1)(a) and (b) of MCR, 2018

S.F.No	Applied Area
169/1A	0.40.50
169/1B	0.35.50
179/1A	1.44.00
179/1B	0.76.50
178/1(P)	1.06.00
178/2(P)	1.09.00
Total=	5.11.50



- LEGEND**
- VII - Proposed area to be Quarantined
 - VIII - Proposed area to be Quarantined
 - IX - Proposed area to be Quarantined
 - X - Proposed area to be Quarantined
 - VI - Proposed area to be Quarantined
 - VII - Proposed area to be Quarantined
 - VIII - Proposed area to be Quarantined
 - IX - Proposed area to be Quarantined
 - X - Proposed area to be Quarantined



- INDEX**
- GLAPPLIED AREA BOUNDARY
 - 7.5m & 30m SAFETY DISTANCE
 - TEMPORARY BENCH MARK
 - GRAVEL
 - ROUGHSTONE
 - ODAI
 - APPROACH ROAD
 - QUARRY ROAD
 - QUARRY PIT
 - SPRINKLE AND DIP

APPLICANT:
 THRU: S. SHANMUGHAM,
 S/O. SUBRAMANIAM,
 3/321, KARANAMPETAL,
 KODANGAL TALUK,
 TRIPPLUR DISTRICT.

LOCATION OF THE AREA:
 S. SHANMUGHAM, 179/1A, 179/1B, 1A/1A, 1A/1B, 1A/1C, 1A/1D, 1A/1E, 1A/1F, 1A/1G, 1A/1H, 1A/1I, 1A/1J, 1A/1K, 1A/1L, 1A/1M, 1A/1N, 1A/1O, 1A/1P, 1A/1Q, 1A/1R, 1A/1S, 1A/1T, 1A/1U, 1A/1V, 1A/1W, 1A/1X, 1A/1Y, 1A/1Z, 1A/1AA, 1A/1AB, 1A/1AC, 1A/1AD, 1A/1AE, 1A/1AF, 1A/1AG, 1A/1AH, 1A/1AI, 1A/1AJ, 1A/1AK, 1A/1AL, 1A/1AM, 1A/1AN, 1A/1AO, 1A/1AP, 1A/1AQ, 1A/1AR, 1A/1AS, 1A/1AT, 1A/1AU, 1A/1AV, 1A/1AW, 1A/1AX, 1A/1AY, 1A/1AZ, 1A/1BA, 1A/1BB, 1A/1BC, 1A/1BD, 1A/1BE, 1A/1BF, 1A/1BG, 1A/1BH, 1A/1BI, 1A/1BJ, 1A/1BK, 1A/1BL, 1A/1BM, 1A/1BN, 1A/1BO, 1A/1BP, 1A/1BQ, 1A/1BR, 1A/1BS, 1A/1BT, 1A/1BU, 1A/1BV, 1A/1BW, 1A/1BX, 1A/1BY, 1A/1BZ, 1A/1CA, 1A/1CB, 1A/1CC, 1A/1CD, 1A/1CE, 1A/1CF, 1A/1CG, 1A/1CH, 1A/1CI, 1A/1CJ, 1A/1CK, 1A/1CL, 1A/1CM, 1A/1CN, 1A/1CO, 1A/1CP, 1A/1CQ, 1A/1CR, 1A/1CS, 1A/1CT, 1A/1CU, 1A/1CV, 1A/1CW, 1A/1CX, 1A/1CY, 1A/1CZ, 1A/1DA, 1A/1DB, 1A/1DC, 1A/1DD, 1A/1DE, 1A/1DF, 1A/1DG, 1A/1DH, 1A/1DI, 1A/1DJ, 1A/1DK, 1A/1DL, 1A/1DM, 1A/1DN, 1A/1DO, 1A/1DP, 1A/1DQ, 1A/1DR, 1A/1DS, 1A/1DT, 1A/1DU, 1A/1DV, 1A/1DW, 1A/1DX, 1A/1DY, 1A/1DZ, 1A/1EA, 1A/1EB, 1A/1EC, 1A/1ED, 1A/1EE, 1A/1EF, 1A/1EG, 1A/1EH, 1A/1EI, 1A/1EJ, 1A/1EK, 1A/1EL, 1A/1EM, 1A/1EN, 1A/1EO, 1A/1EP, 1A/1EQ, 1A/1ER, 1A/1ES, 1A/1ET, 1A/1EU, 1A/1EV, 1A/1EW, 1A/1EX, 1A/1EY, 1A/1EZ, 1A/1FA, 1A/1FB, 1A/1FC, 1A/1FD, 1A/1FE, 1A/1FF, 1A/1FG, 1A/1FH, 1A/1FI, 1A/1FJ, 1A/1FK, 1A/1FL, 1A/1FM, 1A/1FN, 1A/1FO, 1A/1FP, 1A/1FQ, 1A/1FR, 1A/1FS, 1A/1FT, 1A/1FU, 1A/1FV, 1A/1FW, 1A/1FX, 1A/1FY, 1A/1FZ, 1A/1GA, 1A/1GB, 1A/1GC, 1A/1GD, 1A/1GE, 1A/1GF, 1A/1GG, 1A/1GH, 1A/1GI, 1A/1GJ, 1A/1GK, 1A/1GL, 1A/1GM, 1A/1GN, 1A/1GO, 1A/1GP, 1A/1GQ, 1A/1GR, 1A/1GS, 1A/1GT, 1A/1GU, 1A/1GV, 1A/1GW, 1A/1GX, 1A/1GY, 1A/1GZ, 1A/1HA, 1A/1HB, 1A/1HC, 1A/1HD, 1A/1HE, 1A/1HF, 1A/1HG, 1A/1HH, 1A/1HI, 1A/1HJ, 1A/1HK, 1A/1HL, 1A/1HM, 1A/1HN, 1A/1HO, 1A/1HP, 1A/1HQ, 1A/1HR, 1A/1HS, 1A/1HT, 1A/1HU, 1A/1HV, 1A/1HW, 1A/1HX, 1A/1HY, 1A/1HZ, 1A/1IA, 1A/1IB, 1A/1IC, 1A/1ID, 1A/1IE, 1A/1IF, 1A/1IG, 1A/1IH, 1A/1II, 1A/1IJ, 1A/1IK, 1A/1IL, 1A/1IM, 1A/1IN, 1A/1IO, 1A/1IP, 1A/1IQ, 1A/1IR, 1A/1IS, 1A/1IT, 1A/1IU, 1A/1IV, 1A/1IW, 1A/1IX, 1A/1IY, 1A/1IZ, 1A/1JA, 1A/1JB, 1A/1JC, 1A/1JD, 1A/1JE, 1A/1JF, 1A/1JG, 1A/1JH, 1A/1JI, 1A/1JJ, 1A/1JK, 1A/1JL, 1A/1JM, 1A/1JN, 1A/1JO, 1A/1JP, 1A/1JQ, 1A/1JR, 1A/1JS, 1A/1JT, 1A/1JU, 1A/1JV, 1A/1JW, 1A/1JX, 1A/1JY, 1A/1JZ, 1A/1KA, 1A/1KB, 1A/1KC, 1A/1KD, 1A/1KE, 1A/1KF, 1A/1KG, 1A/1KH, 1A/1KI, 1A/1KJ, 1A/1KK, 1A/1KL, 1A/1KM, 1A/1KN, 1A/1KO, 1A/1KP, 1A/1KQ, 1A/1KR, 1A/1KS, 1A/1KT, 1A/1KU, 1A/1KV, 1A/1KW, 1A/1KX, 1A/1KY, 1A/1KZ, 1A/1LA, 1A/1LB, 1A/1LC, 1A/1LD, 1A/1LE, 1A/1LF, 1A/1LG, 1A/1LH, 1A/1LI, 1A/1LJ, 1A/1LK, 1A/1LL, 1A/1LM, 1A/1LN, 1A/1LO, 1A/1LP, 1A/1LQ, 1A/1LR, 1A/1LS, 1A/1LT, 1A/1LU, 1A/1LV, 1A/1LW, 1A/1LX, 1A/1LY, 1A/1LZ, 1A/1MA, 1A/1MB, 1A/1MC, 1A/1MD, 1A/1ME, 1A/1MF, 1A/1MG, 1A/1MH, 1A/1MI, 1A/1MJ, 1A/1MK, 1A/1ML, 1A/1MM, 1A/1MN, 1A/1MO, 1A/1MP, 1A/1MQ, 1A/1MR, 1A/1MS, 1A/1MT, 1A/1MU, 1A/1MV, 1A/1MW, 1A/1MX, 1A/1MY, 1A/1MZ, 1A/1NA, 1A/1NB, 1A/1NC, 1A/1ND, 1A/1NE, 1A/1NF, 1A/1NG, 1A/1NH, 1A/1NI, 1A/1NJ, 1A/1NK, 1A/1NL, 1A/1NM, 1A/1NN, 1A/1NO, 1A/1NP, 1A/1NQ, 1A/1NR, 1A/1NS, 1A/1NT, 1A/1NU, 1A/1NV, 1A/1NW, 1A/1NX, 1A/1NY, 1A/1NZ, 1A/1OA, 1A/1OB, 1A/1OC, 1A/1OD, 1A/1OE, 1A/1OF, 1A/1OG, 1A/1OH, 1A/1OI, 1A/1OJ, 1A/1OK, 1A/1OL, 1A/1OM, 1A/1ON, 1A/1OO, 1A/1OP, 1A/1OQ, 1A/1OR, 1A/1OS, 1A/1OT, 1A/1OU, 1A/1OV, 1A/1OW, 1A/1OX, 1A/1OY, 1A/1OZ, 1A/1PA, 1A/1PB, 1A/1PC, 1A/1PD, 1A/1PE, 1A/1PF, 1A/1PG, 1A/1PH, 1A/1PI, 1A/1PJ, 1A/1PK, 1A/1PL, 1A/1PM, 1A/1PN, 1A/1PO, 1A/1PP, 1A/1PQ, 1A/1PR, 1A/1PS, 1A/1PT, 1A/1PU, 1A/1PV, 1A/1PW, 1A/1PX, 1A/1PY, 1A/1PZ, 1A/1QA, 1A/1QB, 1A/1QC, 1A/1QD, 1A/1QE, 1A/1QF, 1A/1QG, 1A/1QH, 1A/1QI, 1A/1QJ, 1A/1QK, 1A/1QL, 1A/1QM, 1A/1QN, 1A/1QO, 1A/1QP, 1A/1QQ, 1A/1QR, 1A/1QS, 1A/1QT, 1A/1QU, 1A/1QV, 1A/1QW, 1A/1QX, 1A/1QY, 1A/1QZ, 1A/1RA, 1A/1RB, 1A/1RC, 1A/1RD, 1A/1RE, 1A/1RF, 1A/1RG, 1A/1RH, 1A/1RI, 1A/1RJ, 1A/1RK, 1A/1RL, 1A/1RM, 1A/1RN, 1A/1RO, 1A/1RP, 1A/1RQ, 1A/1RR, 1A/1RS, 1A/1RT, 1A/1RU, 1A/1RV, 1A/1RW, 1A/1RX, 1A/1RY, 1A/1RZ, 1A/1SA, 1A/1SB, 1A/1SC, 1A/1SD, 1A/1SE, 1A/1SF, 1A/1SG, 1A/1SH, 1A/1SI, 1A/1SJ, 1A/1SK, 1A/1SL, 1A/1SM, 1A/1SN, 1A/1SO, 1A/1SP, 1A/1SQ, 1A/1SR, 1A/1SS, 1A/1ST, 1A/1SU, 1A/1SV, 1A/1SW, 1A/1SX, 1A/1SY, 1A/1SZ, 1A/1TA, 1A/1TB, 1A/1TC, 1A/1TD, 1A/1TE, 1A/1TF, 1A/1TG, 1A/1TH, 1A/1TI, 1A/1TJ, 1A/1TK, 1A/1TL, 1A/1TM, 1A/1TN, 1A/1TO, 1A/1TP, 1A/1TQ, 1A/1TR, 1A/1TS, 1A/1TT, 1A/1TU, 1A/1TV, 1A/1TW, 1A/1TX, 1A/1TY, 1A/1TZ, 1A/1UA, 1A/1UB, 1A/1UC, 1A/1UD, 1A/1UE, 1A/1UF, 1A/1UG, 1A/1UH, 1A/1UI, 1A/1UJ, 1A/1UK, 1A/1UL, 1A/1UM, 1A/1UN, 1A/1UO, 1A/1UP, 1A/1UQ, 1A/1UR, 1A/1US, 1A/1UT, 1A/1UU, 1A/1UV, 1A/1UW, 1A/1UX, 1A/1UY, 1A/1UZ, 1A/1VA, 1A/1VB, 1A/1VC, 1A/1VD, 1A/1VE, 1A/1VF, 1A/1VG, 1A/1VH, 1A/1VI, 1A/1VJ, 1A/1VK, 1A/1VL, 1A/1VM, 1A/1VN, 1A/1VO, 1A/1VP, 1A/1VQ, 1A/1VR, 1A/1VS, 1A/1VT, 1A/1VU, 1A/1VV, 1A/1VW, 1A/1VX, 1A/1VY, 1A/1VZ, 1A/1WA, 1A/1WB, 1A/1WC, 1A/1WD, 1A/1WE, 1A/1WF, 1A/1WG, 1A/1WH, 1A/1WI, 1A/1WJ, 1A/1WK, 1A/1WL, 1A/1WM, 1A/1WN, 1A/1WO, 1A/1WP, 1A/1WQ, 1A/1WR, 1A/1WS, 1A/1WT, 1A/1WU, 1A/1WV, 1A/1WW, 1A/1WX, 1A/1WY, 1A/1WZ, 1A/1XA, 1A/1XB, 1A/1XC, 1A/1XD, 1A/1XE, 1A/1XF, 1A/1XG, 1A/1XH, 1A/1XI, 1A/1XJ, 1A/1XK, 1A/1XL, 1A/1XM, 1A/1XN, 1A/1XO, 1A/1XP, 1A/1XQ, 1A/1XR, 1A/1XS, 1A/1XT, 1A/1XU, 1A/1XV, 1A/1XW, 1A/1XX, 1A/1XY, 1A/1XZ, 1A/1YA, 1A/1YB, 1A/1YC, 1A/1YD, 1A/1YE, 1A/1YF, 1A/1YG, 1A/1YH, 1A/1YI, 1A/1YJ, 1A/1YK, 1A/1YL, 1A/1YM, 1A/1YN, 1A/1YO, 1A/1YP, 1A/1YQ, 1A/1YR, 1A/1YS, 1A/1YT, 1A/1YU, 1A/1YV, 1A/1YW, 1A/1YX, 1A/1YY, 1A/1YZ, 1A/1ZA, 1A/1ZB, 1A/1ZC, 1A/1ZD, 1A/1ZE, 1A/1ZF, 1A/1ZG, 1A/1ZH, 1A/1ZI, 1A/1ZJ, 1A/1ZK, 1A/1ZL, 1A/1ZM, 1A/1ZN, 1A/1ZO, 1A/1ZP, 1A/1ZQ, 1A/1ZR, 1A/1ZS, 1A/1ZT, 1A/1ZU, 1A/1ZV, 1A/1ZW, 1A/1ZX, 1A/1ZY, 1A/1ZZ.

PLATE NO - IV-A
 DATE OF SURVEY : 04.10.2023
YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS
SECOND Vth YEAR
 SCALE: 1:1000

PREPARED BY:
 THIS IS A CERTIFICATE THAT THE INFORMATION IN THIS
 PLAN IS TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE AND BELIEF AND I AM NOT
 RESPONSIBLE FOR ANY OTHER INFORMATION.

5000 E 2400 N

5100 E

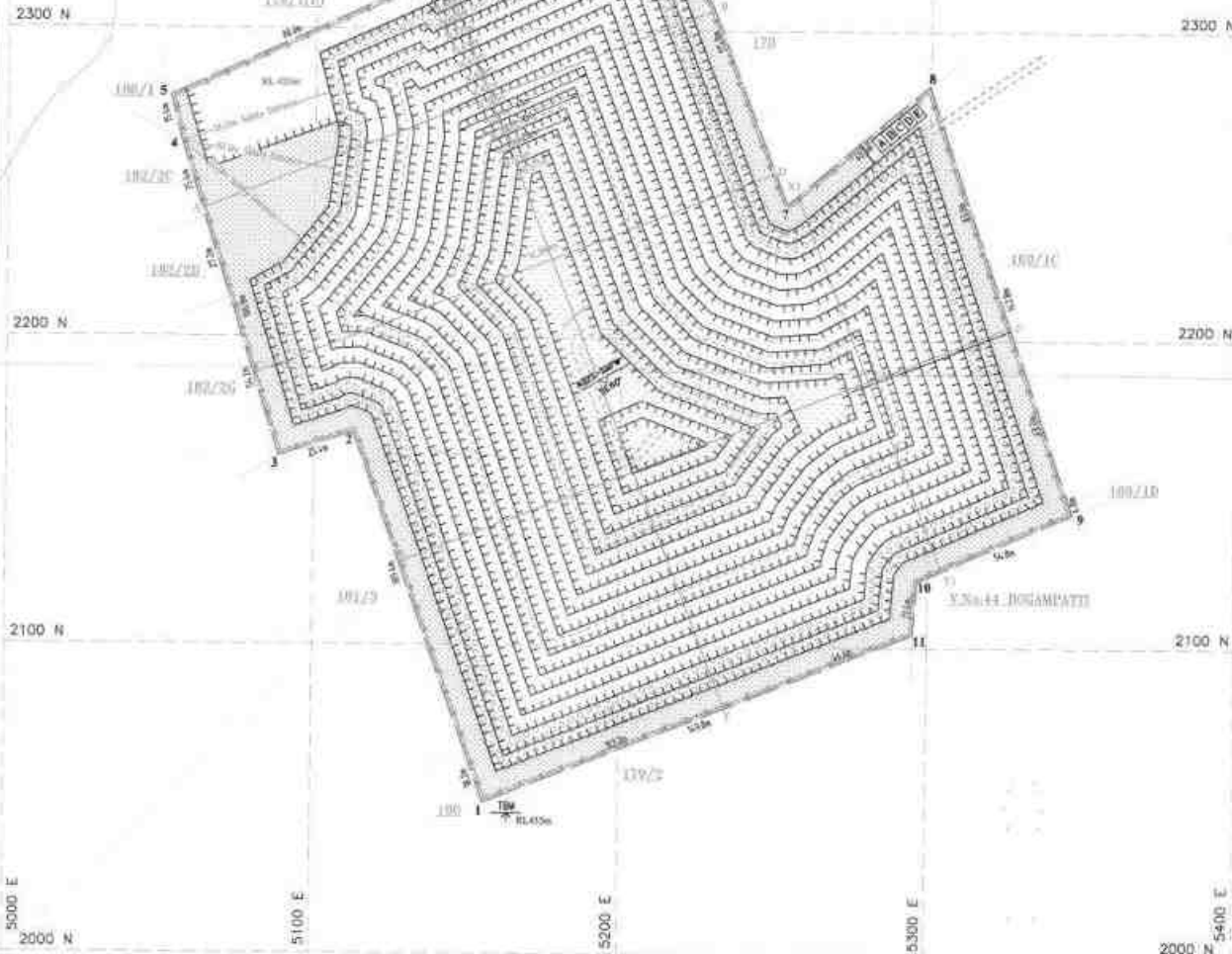
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5300 E

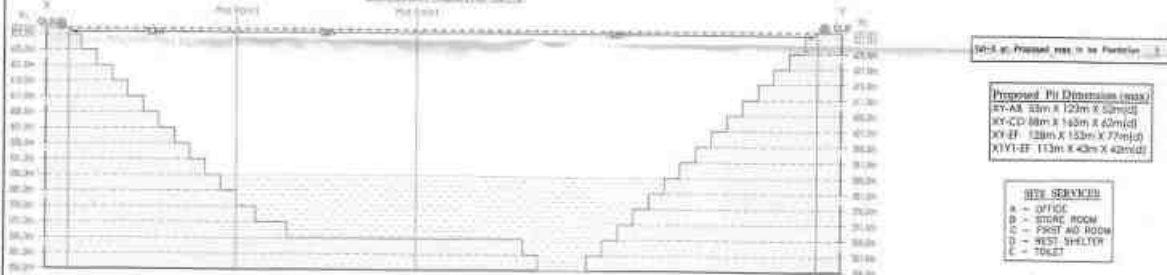
2400 N
5400 E

PRESENT & POST LAND USE PATTERN

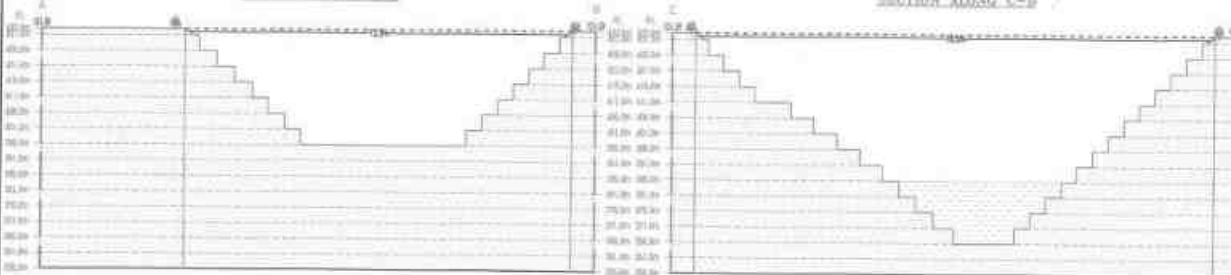
DESCRIPTION	AREA AT THE PRESENT PERIOD (Ha)	AREA AT THE END OF THIS V.Y. PERIOD (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER BARRING	0.21.25	0.41.33	0.38.66
INFRASTRUCTURE	0.01	0.00.00	0.00.00
ROADS	0.01.00	0.00.00	0.00.00
ORECK BELT	0.00	0.00.44	0.75.00
UN-UTILIZED AREA	4.88.23	5.10.54	0.00.70
GRAND TOTAL	5.11.50	5.11.00	5.11.00



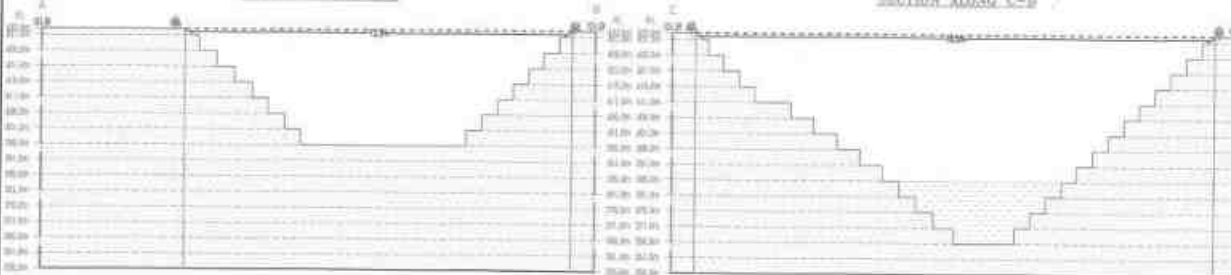
SECTION ALONG X-Y



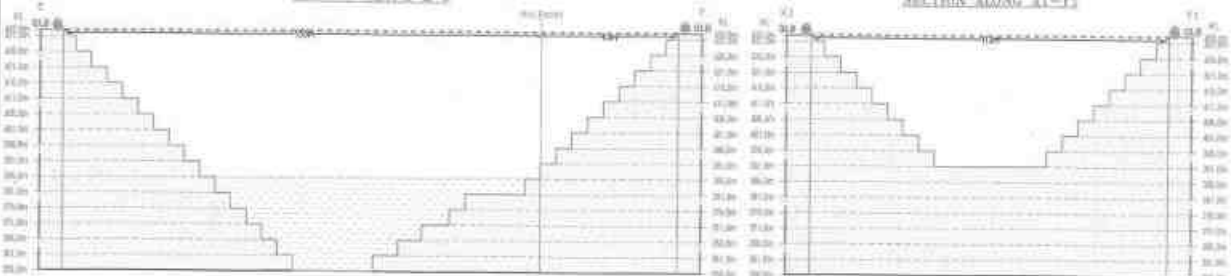
SECTION ALONG A-B



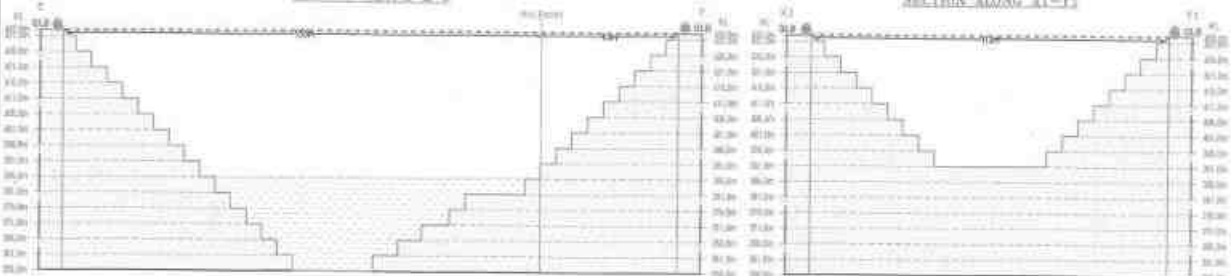
SECTION ALONG C-D



SECTION ALONG H-F



SECTION ALONG XI-YI



INDEX

- Q LAPPED AREA BOUNDARY
- 7.5m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- ODAI
- APPROACH ROAD
- QUARRY ROAD
- QUARRY PIT
- STRKE AND DIP
- TREES
- EXISTING LANDFORM
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- FENCING
- PROPOSED GARDEN DRAIN
- REHABILITATED LANDFORM
- RAIN WATER STORAGE

APPLICANT:

THIRU. S. BHANUAGHAM,
S/O. SUBRAMAN,
3/521 KARAMPATTI,
KODAMPALAYAM,
TIRUPPUR DISTRICT.

LOCATION OF THE AREA:

S.F.NO. 179/1A, 179/1B, 169/1A &
169/1B, 170/1P, 170/1P,
VILLAGE: IDAYAMPALAYAM,
TALUK: SUDUR,
DISTRICT: COMBATORE,
STATE: TAMILNADU

PLATE NO - V

DATE OF SURVEY: 04.10.2025

PROGRESSIVE QUARRY

CLOSURE

PLAN & SECTIONS

SCALE: 1:1000

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLAN, IS TRUE AND CORRECT. IN THE ABSENCE OF
ANY OTHER DATA, THE PLAN IS TO BE
CONSIDERED AS A GUIDE ONLY.

115 A

115 A
115 A
115 A



K.V. GIRIDHAR, I.F.S
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU

3rd Floor, Panagal Maaligai,
No.1 Jeenis Road, Saidapet,
Chennai-15.

Phone No.044-24359973

Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.7480/1(n)/EC.No:4414/2020 dated: 29.10.2020

To

Tmt.N.Chithradevi
W/o.S.Nandhagopal
No.3/349, GVP Nagar
Perur Chettipalayam (via)
Coimbatore District - 641010

Sir/Madam,

Sub: SEIAA-TN – Proposed Rough stone & Gravel quarry lease over an extent of 3.64.5Ha in S.F.Nos. 179/2(P) of Edayarpalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu – Tmt.N.Chithradevi – issue of Environmental Clearance – Reg.

- Ref:**
1. Online proposal No.SIA/TN/MIN/49671/2019, Dated: 10.01.2020
 2. Your Application for Environmental Clearance dated: 02.03.2020.
 3. Minutes of the 157th SEAC Meeting held on 20.06.2020.
 4. Proponent reply dated: 09.09.2020.
 5. Minutes of the 177th SEAC meeting held on 26.09.2020.
 6. Minutes of the 406th SEIAA meeting held on 21.10.2020 & 22.10.2020.

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.




MEMBER SECRETARY
SEIAA-TN

117 A

1	Name of Project Proponent and address	Tmt.N.Chithradevi W/o.S.Nandhagopal No.3/349, GVP Nagar Perur Chettipalayam (via) Coimbatore District - 641010
2	Location of the Proposed Activity	
	Survey Number	179/2(P)
	Latitude and Longitude	10°54'33.16"N to 10°54'41.78"N 77°06'40.42"E to 77°06'47.14"E
	Village	Edayarpalayam
	Taluk	Sulur
	District	Coimbatore
3	Proposed Activity	
	i. Minor mineral	Rough stone & Gravel quarry
	ii. Mining Lease Area	3.64.5 ha
	iii. Approved quantity	263226cu.m of Rough stone & 27000cu.m of Gravel
	iv. Depth of Mining	47m (2m Gravel and 45 m of Rough Stone)
	v. Type of mining	Opencast Mechanized Mining
	vi. Category(B1/B2)	B2
	vii. Precise area communication approved by the District Collector with date	Na.Ka.No.614/Kanimam/2018, Dated:30.07.2019
	viii. Mining plan approval by Assistant Director of Geology and Mining, with date	Rc.No.614/Mines/2018, Dated:12.09.2019
	ix. Mining period	5 Years
4	Whether Project area attracts any General conditions specified in the EIA notification,	Not attracted.



[Signature]
MEMBER SECRETARY
SEIAA-TN

	2006 as amended:-	
5	Man Power requirement per day:	31 Employees
6	Utilities	
	i. Source of Water :	Water Vendors & nearby tanks
	ii. Quantity of Water Requirement in KLD:	6.3 KLD
	a. Domestic & Drinking purpose	0.98 KLD
	b. Green Belt & Dust Suppression	5.32 KLD
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial purpose	215076 Litters of HSD
7	Cost	
	i. Project Cost	Rs. 142.60 Lakhs
	ii. EMP Cost	Rs. 3.80 Lakhs
8	<u>Validity:</u> This Environmental Clearance is granted for the production of 263226cu.m of Rough stone & 27000cu.m of Gravel for the period of 5 Years from the date of execution of the mining lease.	

The Proponent has furnished affidavit in One Hundred Rupees stamp paper attested by the Notary stating that

I, Tmt.N.Chithradevi, W/o.S.Nandha Gopal, No.3/349, GVP Nagar, Perur Chettipalayam (via), Coimbatore District, Tamil Nadu State - 641010, India solemnly declare and sincerely affirm that:

I have apply for getting Environment Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of Rough Stone and Gravel quarry over an extent of 3.64.51 hectares in S S.F.No. 179/2(P) in Edayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu,

1. I swear to state and confirm that within 10kms area of the quarry site, I have applied for environmental clearance; none of the following is situated.

a. Protected areas notified under the wild life (Protection) Act, 1972.




MEMBER SECRETARY
SEIAA-TN

- b. Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974.
 - c. Eco-Sensitive areas as notified.
 - d. Interstate boundaries within 10 kms 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.

CER Activity	Project Cost (Rs. In Lakhs)	CER Cost 2.0% of project cost (Rs. In Lakhs)
1. Developing the Garden maintenance in Edayarpalayam School. 2. If we are instructed by RWD/Competent bodies to desilt the water bodies nearby. We assure to spend out funds of the nearby water bodies.	146.407	2.93
Total Cost Allocation	146.407	2.93

3. The total area of following quarries located within 500m radius from the periphery of my quarry site details as shown below.

Present proposed Quarry

Sl. No.	Name of the owner	Village & Taluk	S.F.Nos	Extent in Hect.
1	N.Chitradevi	Edayar palayam Village, Sultur Taluk	179/2 (P)	3.64.5

Existing Quarry

Sl. No.	Name of the owner	Village & Taluk	S.F.Nos	Extent in Hect.	Lease Period
1	V.Saravanan	Edayar palayam Village, Sultur Taluk	171/2 & 176/2	1.22.5	15.09.2017 to 14.09.2022

Expired Quarry

Sl. No.	Name of the owner	Village & Taluk	S.F.Nos	Extent in Hect.	Lease Period
1	Thiru. R.P.Samynathan	Edayar palayam Village, Sultur Taluk	168/2, 169/1C & 169/2A	4.10.5	10.07.2012 to 09.07.2016
2	Robo Silica Pvt Ltd	Edayar palayam Village, Sultur Taluk	179/2 (P)	1.60.0	13.04.2010 to 12.04.2015




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SEIAA-TN

Abandoned quarry

Sl. No.	Name of the owner	Village & Taluk	S.F.Nos	Extent in Hect.	Lease Period
1	Thiru. M.Arumugam	Edayar palayam Village, Sular Taluk	172/2	0.49.5	15.08.2008 to 17.05.2013
2	Ponnammal	Edayar palayam Village, Sular Taluk	178/2	2.34.5	-
3	Government Quarry	Edayar palayam Village, Sular Taluk	164/1	3.13.5	-

Future Proposed Quarry

Sl. No.	Name of the owner	Village & Taluk	S.F.Nos	Extent in Hect.
Nil				

4. There will not hindrance or disturbance to the people living no enrooted/nearby my quarry site while transporting the mineral by material and due to quarrying activities.
5. There are no approved habitations within radius of 300 m.
6. I swear that green belt will be carried out during the course of quarrying quarry site.
7. The required insurance will be taken in the name of the labourers working in my quarry site.
8. The existing road from the main road to quarry is in good conditions and the same will be maintained and utilized for Transportation of Rough Stone and Gravel.
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 etc., are located within 500m radius from the 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 Assistant Director, i/c./ Joint Director, Department of Geology & Mining, Coimbatore District in his letter




MEMBER SECRETARY
SEIAA-TN

Rc.No.614/Mines/2019 dated: 24.07.2020 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:

Existing quarries:

Sl. No.	Name of the owner	Village & S.F.Nos	Extent in Hect.	Lease Period	Remarks
1	V.Saravanan	Edayar palayam Village, 171/2 & 176/2	1.22.5	15.09.2017 to 14.09.2022	-

Expired quarries:

Sl. No.	Name of the owner	Village & S.F.Nos	Extent in Hect.	Lease Period	Remarks
Nil					

Abandoned quarries

Sl. No.	Name of the owner	Village & S.F.Nos	Extent in Hect.	Lease Period	Remarks
1	Thiru. M.Arumugam	Edayar palayam Village, 172/2	0.49.5	15.08.2008 to 17.05.2013	Abandoned
2	Ponnammal	Edayar palayam Village, 178/2	2.34.5	22.10.2004 to 21.10.2009	Abandoned
3	Swaminathan	Edayar palayam Village, 164/1	3.13.5	11.10.1991 to 30.06.1994	Abandoned
4	Robo Silica Pvt Ltd	Edayar palayam Village, 179/2(P)	1.60.0	13.04.2010 to 12.04.2015	Abandoned
5	Thiru. R.P.Samynathan	Edayar palayam Village, 168/2, 169/1C, 169/2A	4.10.5	10.07.2012 to 09.07.2016	Abandoned

Proposed Quarries

Sl. No.	Name of the owner	Village & S.F.Nos	Extent in Hect.	Lease Period	Remarks
1	N.Chitradevi	Edayar palayam Village, 179/2 (P)	3.64.5	-	Subject Area



Future Proposed Quarries

Sl. No.	Name of the owner	Village & S.F.Nos	Extent in Hect.	Lease Period	Remarks
Nil					

Appraisal by SEAC:-

The proposal was placed in the 177th SEAC Meeting held on 26.09.2020. Based on the documents furnished by the proponent, the SEAC recommend the proposal for grant of Environmental Clearance to SEIAA subject to the following conditions in addition to normal conditions;

1. Groundwater level and quality should be monitored once in six months in the open wells around the quarry and the record should be maintained and annual report should be submitted to the TNPCB
2. After mining is completed, proper leveling should be done by the Project proponent & Environmental Management Plan furnished by the Proponent should be strictly followed.
3. The project proponent should 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.
4. Proper barrier to reduce noise level, dust pollution and to arrest flying material (debris) should be done by providing green belt and/or metal sheets along the boundary of the quarrying site considering site specific meteorological conditions.
5. The Project proponent shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to the condition which is fit for growth of fodder, flora, fauna etc.
6. The operation of the quarry should not affect the agriculture activities and water bodies near the project site.
7. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
8. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.




MEMBER SECRETARY
SEIAA-TN

9. The project proponent shall develop adequate green belt with native species on the periphery of the mine lease area before commencement of the mining activity, in consultation with DFO of the concern district/agriculture university.
10. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried well before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
11. The recommendation for the issue of environmental clearance is subject to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A. No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No. 981 /2016, M.A.No.982/2016 & M.A.No.384/2017).
12. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance.
13. To ensure safety measures along the boundary of the quarry site, security guards to be posted during the entire period of mining operation.
14. The mine closure plan submitted by the project proponent shall be strictly followed after the lapse of the mine.
15. The amount of Rs. 3Lakhs shall be utilized as CER activities to carry out the development of the drinking Water Facilities and infrastructure facilities for providing smart class Edayarpalayam Village Government School as reported before obtaining the CTO from TNPCB.
16. The project proponent shall strictly follow the conditions stipulated in the precisions area communication issued by District Collector, Coimbatore vide Na.Ka. No. 614/ Kanimam/2018 dated: 30.07.2019.

Discussion by SEIAA and the Remarks:-

The proposal was placed before the SEIAA in its 406th Meeting held on 21.10.2020 & 22.10.2020. After detailed discussion the Authority decided to grant Environmental Clearance subject to the conditions as recommended by the SEAC and subject to General conditions in addition to normal conditions.




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1. All the condition imposed by the Assistant Director of Geology and Mining vide Rc.No.614/Mines/2018 Dated: 12.09.2019 should be strictly followed.
2. The EMP Cost shall be deposited in a nationalized bank by opening separate account and head wise expense statement shall be furnished to TNPCB with a copy to SEIAA annually.
3. 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.
4. A detailed post-COVID health management plan for workers as per ICMR and MHA guidelines or the State Govt. guideline may be followed and report shall be furnished.
5. If there is any change in the production or lease area application for amendment has to be submitted to SEIAA for further approval.

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




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SEIAA-TN

- 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 should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.




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SEIAA-TN

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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SEIAA-TN



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.




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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 Final EIA/EMP report 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).

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.




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SEIAA-TN

2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.




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13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest




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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.

SEIAA


MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Coimbatore District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. El Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.



TEST REPORT

ULR-TC606025000000043F

Report Number : GLCS/TR/08068/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SURFACE WATER	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08068
Location Name	PALLAPALAYAM LAKE	Date of Analysis	24-12-2024
Sampling Hours	15.10	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°59'25.25"N 77° 4'43.75"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	0.031
2	Ammoniacal Nitrogen as NH ₃ -N	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL:1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	0.051
5	Biochemical Oxygen Demand (BOD) at 27°C for 3 Days	IS 3025 (Part 44): 2023	mg/l	9
6	Boron as B	IS 3025 (Part 57): 2021	mg/l	BDL (DL:0.1)
7	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
8	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	60

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Page 1 of 5

Authorised Signatory
L.Sudha Priya
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test reports issued by us can be verified by submitting an E-mail request with report number and report date along with report copy.

TEST REPORT

ULR-TC606025000000043F

Report Number : GLCS/TR/08068/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SURFACE WATER	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08068
Location Name	PALLAPALAYAM LAKE	Date of Analysis	24-12-2024
Sampling Hours	15.10	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°59'25.25"N 77° 4'43.75"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Chemical Oxygen Demand (COD)	IS 3025 (Part 58): 2023	mg/l	30
10	Chloride as Cl ⁻	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	215
11	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
12	Color	IS 3025 (Part 4): 2021	CU	<1
13	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
14	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL (DL:0.02)
15	Dissolved Oxygen (DO)	IS 3025 (Part 38): 1989 (Reaffirmed 2019)	mg/l	6.2
16	Electrical Conductivity	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	µS/cm	1502

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 2 of 5

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L.Sudha Priya
Technical Manager

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BRANCH OFFICES : CHENNAI (Mobile : 7094453636) & COIMBATORE (Mobile : 7094454646)

TEST REPORT

ULR-TC606025000000043F

Report Number : GLCS/TR/08068/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SURFACE WATER	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08068
Location Name	PALLAPALAYAM LAKE	Date of Analysis	24-12-2024
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Location Co-ordinates		10°59'25.25"N 77° 4'43.75"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	Fluoride as F-	GLCS/SOP/W/015; Issue no :02: 2024	mg/l	0.29
18	Free Residual Chlorine as Cl ₂	IS 3025 (Part 26): 2021	mg/l	BDL (DL:1.0)
19	Iron as Fe	IS 3025 (Part 53): 2024	mg/l	0.17
20	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
21	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	56
22	Manganese as Mn	IS 3025 (Part 59): 2023	mg/l	BDL (DL:0.1)
23	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
24	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Page 3 of 5

Authorised Signatory
L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606025000000043F

Report Number : GLCS/TR/08068/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SURFACE WATER	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08068
Location Name	PALLAPALAYAM LAKE	Date of Analysis	24-12-2024
Sampling Hours	15.10	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°59'25.25"N 77° 4'43.75"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Nitrate as NO3	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL:2.0)
26	Odor	IS 3025 (Part 5): 2018	-	Agreeable
27	pH	IS 3025 (Part 11): 2022	-	8.12
28	Phenols	IS 3025 PART 43 SECTION 1: 2022	mg/l	BDL (DL:0.1)
29	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.005)
30	Sulphate as SO4	IS 3025 (Part 24) SECTION 1: 2022	mg/l	82
31	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL (DL:1.0)
32	Total Alkalinity as CaCO3	IS 3025 (Part 23): 2023	mg/l	420

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 4 of 5

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 L.Sudha Priya
 Technical Manager

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Report Number : GLCS/TR/08068/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SURFACE WATER	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08068
Location Name	PALLAPALAYAM LAKE	Date of Analysis	24-12-2024
Sampling Hours	15.10	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°59'25.25"N 77° 4'43.75"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
33	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	975
34	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	380
35	Total Suspended Solids	is 3025 part 17: 2022	mg/l	24
36	Turbidity	IS 3025 (Part 10): 2023	NTU	12
37	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



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L.Sudha Priya
Technical Manager

Page 5 of 5

*****End of Report*****

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TEST REPORT

ULR-TC606024000010051F

Report Number : GLCS/TR/08068/2024-25

Report Date : 28-12-2024

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SURFACE WATER	Sampling Method	GLCS/SOP/M/05
Sampling Description	Liquid	Sample Code	GLCS/08068
Location Name	PALLAPALAYAM LAKE	Date of Analysis	24-12-2024
Sampling Hours	15.10	Date of Completion	26-12-2024
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°59'25.25"N 77° 4'43.75"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Escherichia coli	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	<2
2	Total Coliforms	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	<2

Note : MPN - Most Probable Number



For Global Lab and Consultancy Services LLP



Authorised Signatory

A. Sathishkumar

Technical Manager- Microbiology

Page 1 of 1

*****End of Report*****

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TEST REPORT

ULR-TC606025000000050F

Report Number : GLCS/TR/08069/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 1	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08069
Location Name	EDAIYARPALAYAM	Date of Analysis	24-12-2024
Sampling Hours	14.20	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'32.16"N 77° 6'48.21"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
2	Ammoniacal Nitrogen as NH3-N	IS 3025 PART 34/Sec 1: 2023	mg/l	BDL (DL:1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
5	Boron as B	IS 3025 (Part 57): 2021	mg/l	BDL (DL:0.1)
6	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
7	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	80
8	Chloride as Cl-	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	180

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 1 of 5

Authorised Signatory
 L.Sudha Priya
 Technical Manager

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ULR-TC606025000000050F

Report Number : GLCS/TR/08069/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 1	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08069
Location Name	EDAIYARPALAYAM	Date of Analysis	24-12-2024
Sampling Hours	14.20	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'32.16"N 77° 6'48.21"E	

SI.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
10	Color	IS 3025 (Part 4): 2021	CU	<1
11	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
12	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL (DL:0.02)
13	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	µS/cm	1258
14	Fluoride as F-	GLCS/SOP/W/015; Issue No:02: 2024	mg/l	0.24
15	Free Residual Chlorine as Cl2	IS 3025 (Part 26): 2021	mg/l	BDL (DL:1.0)
16	Iron as Fe	IS 3025 (Part 53): 2024	mg/l	0.4

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Page 2 of 5

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BRANCH OFFICES : CHENNAI (Mobile : 7094453636) & COIMBATORE (Mobile : 7094454646)

TEST REPORT

ULR-TC606025000000050F

Report Number : GLCS/TR/08069/2024-25

Report Date : 04-01-2025

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 1	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08069
Location Name	EDAIYARPALAYAM	Date of Analysis	24-12-2024
Sampling Hours	14.20	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'32.16"N 77° 6'48.21"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
18	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	56
19	Manganese as Mn	IS 3025 (Part 59): 2023	mg/l	BDL (DL:0.1)
20	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
21	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
22	Nitrate as NO3	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL:2.0)
23	Odor	IS 3025 (Part 5): 2018	-	Agreeable
24	pH	IS 3025 (Part 11): 2022	-	7.48

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L.Sudha Priya
Technical Manager

Page 3 of 5

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 1	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08069
Location Name	EDAIYARPALAYAM	Date of Analysis	24-12-2024
Sampling Hours	14.20	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'32.16"N 77° 6'48.21"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Phenols	IS 3025 PART 43 Section 1: 2022	mg/l	BDL (DL:0.1)
26	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.005)
27	Sulphate as SO ₄	IS 3025 (Part 24) Section 1: 2022	mg/l	59
28	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL (DL:1.0)
29	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 2023	mg/l	390
30	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	816
31	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	430
32	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022	mg/l	BDL (DL:2.0)

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For Global Lab and Consultancy Services LLP



Page 4 of 5

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 L.Sudha Priya
 Technical Manager

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 1	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08069
Location Name	EDAIYARPALAYAM	Date of Analysis	24-12-2024
Sampling Hours	14.20	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'32.16"N 77° 6'48.21"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
33	Turbidity	IS 3025 (Part 10): 2023	NTU	<1
34	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



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Technical Manager

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ULR-TC606024000010053F

Report Number : GLCS/TR/08069/2024-25

Report Date : 28-12-2024

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 1	Sampling Method	GLCS/SOP/M/05
Sampling Description	Liquid	Sample Code	GLCS/08069
Location Name	EDAIYARPALAYAM	Date of Analysis	24-12-2024
Sampling Hours	14.20	Date of Completion	26-12-2024
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'32.16"N 77° 6'48.21"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Escherichia coli	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	<2
2	Total Coliforms	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	<2

Note : MPN - Most Probable Number



For Global Lab and Consultancy Services LLP



Authorised Signatory

A. Sathishkumar

Technical Manager- Microbiology

Page 1 of 1

*****End of Report*****

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TEST REPORT

ULR-TC606025000000051F

Report Number : GLCS/TR/08070/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 2	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08070
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	24-12-2024
Sampling Hours	10.00	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'22.78"N 77° 8'58.13"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
2	Ammoniacal Nitrogen as NH3-N	IS 3025 PART 34/Sec 1: 2023	mg/l	BDL (DL:1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
5	Boron as B	IS 3025 (Part 57): 2021	mg/l	BDL (DL:0.1)
6	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
7	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	92
8	Chloride as Cl-	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	205

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 1 of 5

Authorised Signatory
 L.Sudha Priya
 Technical Manager

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TEST REPORT

ULR-TC606025000000051F

Report Number : GLCS/TR/08070/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 2	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08070
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	24-12-2024
Sampling Hours	10.00	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'22.78"N 77° 8'58.13"E	

SI.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
10	Color	IS 3025 (Part 4): 2021	CU	<1
11	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
12	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL (DL:0.02)
13	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	µS/cm	1328
14	Fluoride as F-	GLCS/SOP/W/015; Issue No:02: 2024	mg/l	0.21
15	Free Residual Chlorine as Cl2	IS 3025 (Part 26): 2021	mg/l	BDL (DL:1.0)
16	Iron as Fe	IS 3025 (Part 53): 2024	mg/l	0.26

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 2 of 5

Authorised Signatory
 L.Sudha Priya
 Technical Manager

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BRANCH OFFICES : CHENNAI (Mobile : 7094453636) & COIMBATORE (Mobile : 7094454646)

TEST REPORT

ULR-TC606025000000051F

Report Number : GLCS/TR/08070/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 2	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08070
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	24-12-2024
Sampling Hours	10.00	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'22.78"N 77° 8'58.13"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
18	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	61
19	Manganese as Mn	IS 3025 (Part 59): 2023	mg/l	BDL (DL:0.1)
20	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
21	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
22	Nitrate as NO3	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL:2.0)
23	Odor	IS 3025 (Part 5): 2018	-	Agreeable
24	pH	IS 3025 (Part 11): 2022	-	7.32

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 2	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08070
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	24-12-2024
Sampling Hours	10.00	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'22.78"N 77° 8'58.13"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Phenols	IS 3025 PART 43 Section 1: 2022	mg/l	BDL (DL:0.1)
26	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.005)
27	Sulphate as SO ₄	IS 3025 (Part 24) Section 1: 2022	mg/l	59
28	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL (DL:1.0)
29	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 2023	mg/l	440
30	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	860
31	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	480
32	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022	mg/l	BDL (DL:2.0)

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For Global Lab and Consultancy Services LLP



Page 4 of 5

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Technical Manager

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BRANCH OFFICES : CHENNAI (Mobile : 7094453636) & COIMBATORE (Mobile : 7094454646)

TEST REPORT

ULR-TC606025000000051F

Report Number : GLCS/TR/08070/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 2	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08070
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	24-12-2024
Sampling Hours	10.00	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'22.78"N 77° 8'58.13"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
33	Turbidity	IS 3025 (Part 10): 2023	NTU	<1
34	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 5 of 5

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L.Sudha Priya
Technical Manager

*****End of Report*****

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TEST REPORT

ULR-TC606024000010052F

Report Number : GLCS/TR/08070/2024-25

Report Date : 28-12-2024

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 2	Sampling Method	GLCS/SOP/M/05
Sampling Description	Liquid	Sample Code	GLCS/08070
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	24-12-2024
Sampling Hours	10.00	Date of Completion	26-12-2024
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'22.78"N 77° 8'58.13"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Escherichia coli	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	<2
2	Total Coliforms	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	<2

Note : MPN - Most Probable Number



For Global Lab and Consultancy Services LLP



Authorised Signatory

A. Sathishkumar

Technical Manager- Microbiology

Page 1 of 1

*****End of Report*****

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TEST REPORT

ULR-TC606025000000052F

Report Number : GLCS/TR/08071/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 3	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08071
Location Name	CHINNAKUYILI	Date of Analysis	24-12-2024
Sampling Hours	10.40	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'30.38"N 77° 5'4.07"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
2	Ammoniacal Nitrogen as NH ₃ -N	IS 3025 PART 34/Sec 1: 2023	mg/l	BDL (DL:1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	0.026
5	Boron as B	IS 3025 (Part 57): 2021	mg/l	BDL (DL:0.1)
6	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
7	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	88
8	Chloride as Cl-	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	225

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 1 of 5

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L.Sudha Priya
Technical Manager

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 3	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08071
Location Name	CHINNAKUYILI	Date of Analysis	24-12-2024
Sampling Hours	10.40	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'30.38"N 77° 5'4.07"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
10	Color	IS 3025 (Part 4): 2021	CU	<1
11	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
12	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL (DL:0.02)
13	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	µS/cm	1330
14	Fluoride as F-	GLCS/SOP/W/015; Issue No:02: 2024	mg/l	0.16
15	Free Residual Chlorine as Cl2	IS 3025 (Part 26): 2021	mg/l	BDL (DL:1.0)
16	Iron as Fe	IS 3025 (Part 53): 2024	mg/l	0.30

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Page 2 of 5

For Global Lab and Consultancy Services LLP



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Report Date : 04-01-2025

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 3	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08071
Location Name	CHINNAKUYILI	Date of Analysis	24-12-2024
Sampling Hours	10.40	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'30.38"N 77° 5'4.07"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
18	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	58
19	Manganese as Mn	IS 3025 (Part 59): 2023	mg/l	BDL (DL:0.1)
20	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
21	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
22	Nitrate as NO3	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL:2.0)
23	Odor	IS 3025 (Part 5): 2018	-	Agreeable
24	pH	IS 3025 (Part 11): 2022	-	7.58

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Technical Manager

TEST REPORT

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 3	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08071
Location Name	CHINNAKUYILI	Date of Analysis	24-12-2024
Sampling Hours	10.40	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'30.38"N 77° 5'4.07"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Phenols	IS 3025 PART 43 Section 1: 2022	mg/l	BDL (DL:0.1)
26	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.005)
27	Sulphate as SO ₄	IS 3025 (Part 24) Section 1: 2022	mg/l	42
28	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL (DL:1.0)
29	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 2023	mg/l	410
30	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	864
31	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	460
32	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022	mg/l	BDL (DL:2.0)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 4 of 5

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Report Number : GLCS/TR/08071/2024-25

Report Date : 04-01-2025

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 3	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08071
Location Name	CHINNAKUYILI	Date of Analysis	24-12-2024
Sampling Hours	10.40	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'30.38"N 77° 5'4.07"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
33	Turbidity	IS 3025 (Part 10): 2023	NTU	<1
34	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

Page 5 of 5

Authorised Signatory
L.Sudha Priya
Technical Manager

*****End of Report*****

Note:The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test reports issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT

ULR-TC606024000010054F

Report Number : GLCS/TR/08071/2024-25

Report Date : 28-12-2024

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	WELL WATER - 3	Sampling Method	GLCS/SOP/M/05
Sampling Description	Liquid	Sample Code	GLCS/08071
Location Name	CHINNAKUYILI	Date of Analysis	24-12-2024
Sampling Hours	10.40	Date of Completion	26-12-2024
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'30.38"N 77° 5'4.07"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Escherichia coli	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	<2
2	Total Coliforms	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	<2

Note : MPN - Most Probable Number



For Global Lab and Consultancy Services LLP



Authorised Signatory

A. Sathishkumar

Technical Manager- Microbiology

Page 1 of 1

*****End of Report*****

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TEST REPORT

ULR-TC606025000000053F

Report Number : GLCS/TR/08072/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	BOREWELL WATER	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08072
Location Name	CORE ZONE	Date of Analysis	24-12-2024
Sampling Hours	8.00	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'50.77"N 77° 6'54.48"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
2	Ammoniacal Nitrogen as NH3-N	IS 3025 PART 34/Sec 1: 2023	mg/l	BDL (DL:1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	0.022
5	Boron as B	IS 3025 (Part 57): 2021	mg/l	BDL (DL:0.1)
6	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
7	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	112
8	Chloride as Cl-	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	270

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 1 of 5

Authorised Signatory
 L.Sudha Priya
 Technical Manager

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Report Number : GLCS/TR/08072/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	BOREWELL WATER	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08072
Location Name	CORE ZONE	Date of Analysis	24-12-2024
Sampling Hours	8.00	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'50.77"N 77° 6'54.48"E	

SI.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
10	Color	IS 3025 (Part 4): 2021	CU	<1
11	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
12	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL (DL:0.02)
13	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	µS/cm	1578
14	Fluoride as F-	GLCS/SOP/W/015; Issue No:02: 2024	mg/l	0.32
15	Free Residual Chlorine as Cl2	IS 3025 (Part 26): 2021	mg/l	BDL (DL:1.0)
16	Iron as Fe	IS 3025 (Part 53): 2024	mg/l	BDL (DL:0.1)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 2 of 5

Authorised Signatory
 L.Sudha Priya
 Technical Manager

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Report Number : GLCS/TR/08072/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	BOREWELL WATER	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08072
Location Name	CORE ZONE	Date of Analysis	24-12-2024
Sampling Hours	8.00	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'50.77"N 77° 6'54.48"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
18	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	61
19	Manganese as Mn	IS 3025 (Part 59): 2023	mg/l	BDL (DL:0.1)
20	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
21	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
22	Nitrate as NO3	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL:2.0)
23	Odor	IS 3025 (Part 5): 2018	-	Agreeable
24	pH	IS 3025 (Part 11): 2022	-	7.16

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 3 of 5

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Report Date : 04-01-2025

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	BOREWELL WATER	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08072
Location Name	CORE ZONE	Date of Analysis	24-12-2024
Sampling Hours	8.00	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'50.77"N 77° 6'54.48"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Phenols	IS 3025 PART 43 Section 1: 2022	mg/l	BDL (DL:0.1)
26	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.005)
27	Sulphate as SO ₄	IS 3025 (Part 24) Section 1: 2022	mg/l	96
28	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL (DL:1.0)
29	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 2023	mg/l	480
30	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	1026
31	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	530
32	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022	mg/l	BDL (DL:2.0)

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Page 4 of 5

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L.Sudha Priya
Technical Manager

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	BOREWELL WATER	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08072
Location Name	CORE ZONE	Date of Analysis	24-12-2024
Sampling Hours	8.00	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'50.77"N 77° 6'54.48"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
33	Turbidity	IS 3025 (Part 10): 2023	NTU	<1
34	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

Page 5 of 5

Authorised Signatory
L.Sudha Priya
Technical Manager

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TEST REPORT

ULR-TC606024000010055F

Report Number : GLCS/TR/08072/2024-25

Report Date : 28-12-2024

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	BOREWELL WATER	Sampling Method	GLCS/SOP/M/05
Sampling Description	Liquid	Sample Code	GLCS/08072
Location Name	CORE ZONE	Date of Analysis	24-12-2024
Sampling Hours	8.00	Date of Completion	27-12-2024
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'50.77"N 77° 6'54.48"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Escherichia coli	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent
2	Total Coliforms	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Present



For Global Lab and Consultancy Services LLP

Authorised Signatory

A. Sathishkumar

Technical Manager- Microbiology

Page 1 of 1

*****End of Report*****

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TEST REPORT

ULR-TC606025000000054F

Report Number : GLCS/TR/08073/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	BOREWELL WATER- 02	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08073
Location Name	PANAPATTI	Date of Analysis	24-12-2024
Sampling Hours	10.25	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'42.12"N 77° 5'56.69"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Aluminium	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
2	Ammoniacal Nitrogen as NH3-N	IS 3025 PART 34/Sec 1: 2023	mg/l	BDL (DL:1.0)
3	Arsenic as As	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
4	Barium as Ba	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	0.025
5	Boron as B	IS 3025 (Part 57): 2021	mg/l	BDL (DL:0.1)
6	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
7	Calcium as Ca	IS 3025 (Part 40): 1991 (Reaffirmed 2019)	mg/l	100
8	Chloride as Cl-	IS 3025 (Part 32): 1988 (Reaffirmed 2019)	mg/l	215

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 1 of 5

Authorised Signatory
 L.Sudha Priya
 Technical Manager

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Report Number : GLCS/TR/08073/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	BOREWELL WATER- 02	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08073
Location Name	PANAPATTI	Date of Analysis	24-12-2024
Sampling Hours	10.25	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'42.12"N 77° 5'56.69"E	

SI.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Chromium as Cr	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
10	Color	IS 3025 (Part 4): 2021	CU	<1
11	Copper as Cu	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
12	Cyanide as CN	IS 3025 part 27/Sec 1: 2021	mg/l	BDL (DL:0.02)
13	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013 (Reaffirmed 2019)	µS/cm	1410
14	Fluoride as F-	GLCS/SOP/W/015; Issue No:02: 2024	mg/l	0.34
15	Free Residual Chlorine as Cl2	IS 3025 (Part 26): 2021	mg/l	BDL (DL:1.0)
16	Iron as Fe	IS 3025 (Part 53): 2024	mg/l	BDL (DL:0.1)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory

L.Sudha Priya
Technical Manager

Page 2 of 5

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BRANCH OFFICES : CHENNAI (Mobile : 7094453636) & COIMBATORE (Mobile : 7094454646)

TEST REPORT

ULR-TC606025000000054F

Report Number : GLCS/TR/08073/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	BOREWELL WATER- 02	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08073
Location Name	PANAPATTI	Date of Analysis	24-12-2024
Sampling Hours	10.25	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'42.12"N 77° 5'56.69"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	Lead as Pb	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
18	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	58
19	Manganese as Mn	IS 3025 (Part 59): 2023	mg/l	BDL (DL:0.1)
20	Mercury as Hg	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.002)
21	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)
22	Nitrate as NO3	IS 3025 (Part 34)/Sec 1: 2023	mg/l	BDL (DL:2.0)
23	Odor	IS 3025 (Part 5): 2018	-	Agreeable
24	pH	IS 3025 (Part 11): 2022	-	7.27

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Authorised Signatory

L.Sudha Priya
Technical Manager

Page 3 of 5

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BRANCH OFFICES : CHENNAI (Mobile : 7094453636) & COIMBATORE (Mobile : 7094454646)

TEST REPORT

ULR-TC606025000000054F

Report Number : GLCS/TR/08073/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	BOREWELL WATER- 02	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08073
Location Name	PANAPATTI	Date of Analysis	24-12-2024
Sampling Hours	10.25	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'42.12"N 77° 5'56.69"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Phenols	IS 3025 PART 43 Section 1: 2022	mg/l	BDL (DL:0.1)
26	Selenium as Se	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.005)
27	Sulphate as SO ₄	IS 3025 (Part 24) Section 1: 2022	mg/l	84
28	Sulphide as S (Iodometric Method)	GLCS/SOP/W/066: 2023	mg/l	BDL (DL:1.0)
29	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 2023	mg/l	460
30	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	916
31	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009 (Reaffirmed 2019)	mg/l	490
32	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022	mg/l	BDL (DL:2.0)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 4 of 5

Authorised Signatory
 L.Sudha Priya
 Technical Manager

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ULR-TC606025000000054F

Report Number : GLCS/TR/08073/2024-25

Report Date : 04-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	BOREWELL WATER- 02	Sampling Method	GLCS/SOP/W/028
Sampling Description	Liquid	Sample Code	GLCS/08073
Location Name	PANAPATTI	Date of Analysis	24-12-2024
Sampling Hours	10.25	Date of Completion	02-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'42.12"N 77° 5'56.69"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
33	Turbidity	IS 3025 (Part 10): 2023	NTU	<1
34	Zinc as Zn	GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022	mg/l	BDL (DL:0.01)

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

Page 5 of 5

Authorised Signatory
L.Sudha Priya
Technical Manager

*****End of Report*****

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TEST REPORT

ULR-TC606024000010056F

Report Number : GLCS/TR/08073/2024-25

Report Date : 28-12-2024

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	BOREWELL WATER- 02	Sampling Method	GLCS/SOP/M/005
Sampling Description	Liquid	Sample Code	GLCS/08073
Location Name	PANAPATTI	Date of Analysis	24-12-2024
Sampling Hours	10.25	Date of Completion	27-12-2024
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'42.12"N 77° 5'56.69"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Escherichia coli	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent
2	Total Coliforms	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Present



For Global Lab and Consultancy Services LLP



Authorised Signatory

A. Sathishkumar

Technical Manager- Microbiology

Page 1 of 1

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TEST REPORT

ULR-TC606025000000082F

Report Number : GLCS/TR/08062/2024-25

Report Date : 06-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Receipt Condition	Good
TRF No.	TRF/2725	Sample Quantity	2.0 kg
Sample Name	SOIL - 1	Sampled By	Laboratory
Sample Description	Powder	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS/08062	Sample Receipt Date	24-12-2024
Location Name	CORE ZONE	Date of Analysis	24-12-2024
Sampling Date	16-12-2024	Date of Completion	04-01-2025

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	401.41
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	4.9
3	Boron	USEPA-6010D:2014	mg/kg	BDL (DL:0.5)
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.12
5	Cadmium	USEPA-6010 D-2014	mg/kg	9.7
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	32.77
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	2.8
8	Chromium	USEPA-6010D-2014	mg/kg	9.5

Note : BDL - Below Detection Limit, DL - Detection Limit,



Page 1 of 4

For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

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Attention	Thiru.V.Saravanan	Sample Receipt Condition	Good
TRF No.	TRF/2725	Sample Quantity	2.0 kg
Sample Name	SOIL - 1	Sampled By	Laboratory
Sample Description	Powder	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS/08062	Sample Receipt Date	24-12-2024
Location Name	CORE ZONE	Date of Analysis	24-12-2024
Sampling Date	16-12-2024	Date of Completion	04-01-2025

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Copper	USEPA-6010D :2014	mg/kg	6.7
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	2.4
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	0.8
12	Iron	USEPA-6010 D-2014	mg/kg	21.7
13	Lead	USEPA-6010D-2014	mg/kg	3.2
14	Manganese	USEPA-6010 D-2014	mg/kg	13.5
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.72
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	1.24

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Page 2 of 4

For Global Lab and Consultancy Services LLP



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BRANCH OFFICES : CHENNAI (Mobile : 7094453636) & COIMBATORE (Mobile : 7094454646)

TEST REPORT

ULR-TC606025000000082F

Report Number : GLCS/TR/08062/2024-25

Report Date : 06-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Receipt Condition	Good
TRF No.	TRF/2725	Sample Quantity	2.0 kg
Sample Name	SOIL - 1	Sampled By	Laboratory
Sample Description	Powder	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS/08062	Sample Receipt Date	24-12-2024
Location Name	CORE ZONE	Date of Analysis	24-12-2024
Sampling Date	16-12-2024	Date of Completion	04-01-2025

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	7.92
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	0.78
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	μS/cm	468
20	Sulphate (as SO ₄)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	4.8
21	Texture : Clay	GLCS/SOP/S/015 ;Issue no:02: 2024	%	15.0
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	32.6
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	52.4
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	62

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Page 3 of 4

For Global Lab and Consultancy Services LLP



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Technical Manager

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Attention	Thiru.V.Saravanan	Sample Receipt Condition	Good
TRF No.	TRF/2725	Sample Quantity	2.0 kg
Sample Name	SOIL - 1	Sampled By	Laboratory
Sample Description	Powder	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS/08062	Sample Receipt Date	24-12-2024
Location Name	CORE ZONE	Date of Analysis	24-12-2024
Sampling Date	16-12-2024	Date of Completion	04-01-2025

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Zinc	USEPA-6010D-2014	mg/kg	13.5

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

Page 4 of 4

*****End of Report*****

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TEST REPORT

ULR-TC606025000000083F

Report Number : GLCS/TR/08063/2024-25

Report Date : 06-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 2	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08063
Location Name	BOGAMPATTI	Date of Analysis	24-12-2024
Sampling Hours	09.20	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'17.35"N 77° 7'26.31"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	326
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	11.6
3	Boron	USEPA-6010D:2014	mg/kg	BDL (DL:0.5)
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.1
5	Cadmium	USEPA-6010 D-2014	mg/kg	12.7
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	36.6
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	2.7
8	Chromium	USEPA-6010D-2014	mg/kg	17.7

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For Global Lab and Consultancy Services LLP



Page 1 of 4

Authorised Signatory
 L.Sudha Priya
 Technical Manager

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BRANCH OFFICES : CHENNAI (Mobile : 7094453636) & COIMBATORE (Mobile : 7094454646)

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 2	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08063
Location Name	BOGAMPATTI	Date of Analysis	24-12-2024
Sampling Hours	09.20	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'17.35"N 77° 7'26.31"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Copper	USEPA-6010D :2014	mg/kg	7.2
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	2.9
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	1.3
12	Iron	USEPA-6010 D-2014	mg/kg	52.0
13	Lead	USEPA-6010D-2014	mg/kg	2.5
14	Manganese	USEPA-6010 D-2014	mg/kg	16.4
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.8
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	1.38

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L.Sudha Priya
Technical Manager

Page 2 of 4

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 2	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08063
Location Name	BOGAMPATTI	Date of Analysis	24-12-2024
Sampling Hours	09.20	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'17.35"N 77° 7'26.31"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	8.14
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	1.23
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	µS/cm	424
20	Sulphate (as SO4)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	5.8
21	Texture : Clay	GLCS/SOP/S/015 ;Issue no:02: 2024	%	25.75
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	34.25
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	40.0
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	56

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For Global Lab and Consultancy Services LLP



Page 3 of 4

Authorised Signatory
L.Sudha Priya
Technical Manager

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 2	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08063
Location Name	BOGAMPATTI	Date of Analysis	24-12-2024
Sampling Hours	09.20	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'17.35"N 77° 7'26.31"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Zinc	USEPA-6010D-2014	mg/kg	16.9

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 4 of 4

Authorised Signatory
L.Sudha Priya
Technical Manager

*****End of Report*****

Note:The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test reports issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT

ULR-TC606025000000084F

Report Number : GLCS/TR/08064/2024-25

Report Date : 06-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 3	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08064
Location Name	SN PALAYAM	Date of Analysis	24-12-2024
Sampling Hours	08.50	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°56'22.11"N 77° 8'22.92"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	238
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	8.4
3	Boron	USEPA-6010D:2014	mg/kg	BDL (DL:0.5)
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.16
5	Cadmium	USEPA-6010 D-2014	mg/kg	6.0
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	34.4
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	5.4
8	Chromium	USEPA-6010D-2014	mg/kg	16.5

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For Global Lab and Consultancy Services LLP



Page 1 of 4

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 Technical Manager

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Report Date : 06-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 3	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08064
Location Name	SN PALAYAM	Date of Analysis	24-12-2024
Sampling Hours	08.50	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°56'22.11"N 77° 8'22.92"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Copper	USEPA-6010D :2014	mg/kg	5.0
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	3.1
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	1.6
12	Iron	USEPA-6010 D-2014	mg/kg	28.0
13	Lead	USEPA-6010D-2014	mg/kg	0.75
14	Manganese	USEPA-6010 D-2014	mg/kg	13.0
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.41
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	0.71

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Page 2 of 4

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BRANCH OFFICES : CHENNAI (Mobile : 7094453636) & COIMBATORE (Mobile : 7094454646)

TEST REPORT

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Report Number : GLCS/TR/08064/2024-25

Report Date : 06-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 3	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08064
Location Name	SN PALAYAM	Date of Analysis	24-12-2024
Sampling Hours	08.50	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°56'22.11"N 77° 8'22.92"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	8.06
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	1.73
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	µS/cm	398
20	Sulphate (as SO4)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	4.7
21	Texture : Clay	GLCS/SOP/S/015 ;Issue no:02: 2024	%	22.0
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	40.0
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	38.0
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	68

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For Global Lab and Consultancy Services LLP



Page 3 of 4

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 3	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08064
Location Name	SN PALAYAM	Date of Analysis	24-12-2024
Sampling Hours	08.50	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°56'22.11"N 77° 8'22.92"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Zinc	USEPA-6010D-2014	mg/kg	14.8

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 4 of 4

Authorised Signatory
L.Sudha Priya
Technical Manager

*******End of Report*******

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ULR-TC606025000000085F

Report Number : GLCS/TR/08065/2024-25

Report Date : 06-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Receipt Condition	Good
TRF No.	TRF/2725	Sample Quantity	2.0 kg
Sample Name	SOIL - 4	Sampled By	Laboratory
Sample Description	Powder	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS/08065	Sample Receipt Date	24-12-2024
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	24-12-2024
Sampling Date	16-12-2024	Date of Completion	04-01-2025

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	288.5
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	5.9
3	Boron	USEPA-6010D:2014	mg/kg	BDL (DL:0.5)
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.18
5	Cadmium	USEPA-6010 D-2014	mg/kg	4.7
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	37
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	3.7
8	Chromium	USEPA-6010D-2014	mg/kg	22.3

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 1 of 4

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Report Date : 06-01-2025

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Attention	Thiru.V.Saravanan	Sample Receipt Condition	Good
TRF No.	TRF/2725	Sample Quantity	2.0 kg
Sample Name	SOIL - 4	Sampled By	Laboratory
Sample Description	Powder	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS/08065	Sample Receipt Date	24-12-2024
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	24-12-2024
Sampling Date	16-12-2024	Date of Completion	04-01-2025

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Copper	USEPA-6010D :2014	mg/kg	2.5
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	2.8
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	0.9
12	Iron	USEPA-6010 D-2014	mg/kg	36.5
13	Lead	USEPA-6010D-2014	mg/kg	5.9
14	Manganese	USEPA-6010 D-2014	mg/kg	18.9
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.57
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	0.98

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For Global Lab and Consultancy Services LLP



Page 2 of 4

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BRANCH OFFICES : CHENNAI (Mobile : 7094453636) & COIMBATORE (Mobile : 7094454646)

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Report Number : GLCS/TR/08065/2024-25

Report Date : 06-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Receipt Condition	Good
TRF No.	TRF/2725	Sample Quantity	2.0 kg
Sample Name	SOIL - 4	Sampled By	Laboratory
Sample Description	Powder	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS/08065	Sample Receipt Date	24-12-2024
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	24-12-2024
Sampling Date	16-12-2024	Date of Completion	04-01-2025

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	7.63
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	1.38
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	μS/cm	412
20	Sulphate (as SO ₄)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	4.5
21	Texture : Clay	GLCS/SOP/S/015 ;Issue no:02: 2024	%	27.0
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	36.62
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	36.38
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	52

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For Global Lab and Consultancy Services LLP



Page 3 of 4

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Attention	Thiru.V.Saravanan	Sample Receipt Condition	Good
TRF No.	TRF/2725	Sample Quantity	2.0 kg
Sample Name	SOIL - 4	Sampled By	Laboratory
Sample Description	Powder	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS/08065	Sample Receipt Date	24-12-2024
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	24-12-2024
Sampling Date	16-12-2024	Date of Completion	04-01-2025

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Zinc	USEPA-6010D-2014	mg/kg	16.4

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

Authorised Signatory
L.Sudha Priya
Technical Manager

Page 4 of 4

*****End of Report*****

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 5	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08066
Location Name	PANAPATTI	Date of Analysis	24-12-2024
Sampling Hours	10.20	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'43.98"N 77° 6'2.22"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	313.6
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	5.8
3	Boron	USEPA-6010D:2014	mg/kg	BDL (DL:0.5)
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.15
5	Cadmium	USEPA-6010 D-2014	mg/kg	7.7
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	27.0
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	3.6
8	Chromium	USEPA-6010D-2014	mg/kg	28.4

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 5	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08066
Location Name	PANAPATTI	Date of Analysis	24-12-2024
Sampling Hours	10.20	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'43.98"N 77° 6'2.22"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Copper	USEPA-6010D :2014	mg/kg	8.2
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	3.4
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	0.5
12	Iron	USEPA-6010 D-2014	mg/kg	19.9
13	Lead	USEPA-6010D-2014	mg/kg	5.2
14	Manganese	USEPA-6010 D-2014	mg/kg	13.9
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.34
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	0.59

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Page 2 of 4

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 L.Sudha Priya
 Technical Manager

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TEST REPORT

ULR-TC606025000000086F

Report Number : GLCS/TR/08066/2024-25

Report Date : 06-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 5	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08066
Location Name	PANAPATTI	Date of Analysis	24-12-2024
Sampling Hours	10.20	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'43.98"N 77° 6'2.22"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	7.84
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	0.78
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	µS/cm	468
20	Sulphate (as SO4)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	6.7
21	Texture : Clay	GLCS/SOP/S/015 ;Issue no:02: 2024	%	24.25
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	36.0
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	39.75
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	60.0

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 3 of 4

Authorised Signatory
 L.Sudha Priya
 Technical Manager

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 5	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08066
Location Name	PANAPATTI	Date of Analysis	24-12-2024
Sampling Hours	10.20	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'43.98"N 77° 6'2.22"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Zinc	USEPA-6010D-2014	mg/kg	12.2

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 4 of 4

Authorised Signatory
L.Sudha Priya
Technical Manager

*****End of Report*****

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TEST REPORT

ULR-TC606025000000088F

Report Number : GLCS/TR/08067/2024-25

Report Date : 06-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk COIMBATORE	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 6	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08067
Location Name	CHINNAKUYILI	Date of Analysis	24-12-2024
Sampling Hours	10.45	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'35.80"N 77° 5'14.84"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Available Nitrogen as N	GLCS/SOP/S/029 ; Issue no:02: 2024	kg/ha	213
2	Available Phosphorous(as P)	GLCS/SOP/S/005 ; Issue no:02: 2024	mg/kg	9.2
3	Boron	USEPA-6010D:2014	mg/kg	11.2
4	Bulk Density	GLCS/SOP/S/017; Issue no:02: 2024	g/cc	1.16
5	Cadmium	USEPA-6010 D-2014	mg/kg	1.9
6	Cation Exchange Capacity	GLCS/SOP/S/024; Issue no:02: 2024	meq/100g	23.6
7	Chlorides (as Cl-) in saturation extract	GLCS/SOP/S/004; Issue no:02: 2024	meq/l	5.2
8	Chromium	USEPA-6010D-2014	mg/kg	26.7

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 1 of 4

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 6	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08067
Location Name	CHINNAKUYILI	Date of Analysis	24-12-2024
Sampling Hours	10.45	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'35.80"N 77° 5'14.84"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
9	Copper	USEPA-6010D :2014	mg/kg	15.2
10	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020; Issue no:02: 2024	meq/100g	3.7
11	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021; Issue no:02: 2024	meq/100g	1.0
12	Iron	USEPA-6010 D-2014	mg/kg	44
13	Lead	USEPA-6010D-2014	mg/kg	4.8
14	Manganese	USEPA-6010 D-2014	mg/kg	10.2
15	Organic Carbon	GLCS/SOP/S/003; Issue no: 02: 2024	%	0.68
16	Organic Matter	GLCS/SOP/S/003; Issue no:02: 2024	%	1.17

Note : BDL - Below Detection Limit, DL - Detection Limit,



Page 2 of 4

For Global Lab and Consultancy Services LLP



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Report Date : 06-01-2025

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 6	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08067
Location Name	CHINNAKUYILI	Date of Analysis	24-12-2024
Sampling Hours	10.45	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'35.80"N 77° 5'14.84"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
17	pH Value	IS 2720 (Part 26): 1987(Reaffirmed 2021)	-	8.26
18	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006; Issue no:02 : 2024	mg/100g	1.22
19	Specific Electrical Conductivity	IS 14767: 2000(Reaffirmed 2021)	µS/cm	536
20	Sulphate (as SO4)	GLCS/SOP/S/009; Issue no:02: 2024	mg/100g	6.8
21	Texture : Clay	GLCS/SOP/S/015 ;Issue no:02: 2024	%	23.95
22	Texture : Sand	GLCS/SOP/S/015; Issue no:02: 2024	%	35.0
23	Texture : Silt	GLCS/SOP/S/015 ; Issue no:02: 2024	%	41.05
24	Water Holding Capacity	GLCS/SOP/S/016; Issue no:02: 2024	%	52

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For Global Lab and Consultancy Services LLP



Page 3 of 4

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2725	Sampled by	Laboratory
Sample Name	SOIL - 6	Sampling Method	GLCS/SOP/S/014
Sampling Description	Powder	Sample Code	GLCS/08067
Location Name	CHINNAKUYILI	Date of Analysis	24-12-2024
Sampling Hours	10.45	Date of Completion	04-01-2025
Sampling Date	16-12-2024	Avg Temperature	- °C
Sampling Receipt Date	24-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'35.80"N 77° 5'14.84"E	

Sl.No	TEST PARAMETER	TEST METHOD	UNITS	RESULT
25	Zinc	USEPA-6010D-2014	mg/kg	10.9

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For Global Lab and Consultancy Services LLP



Page 4 of 4

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TEST REPORT

ULR-TC606025000000480F

Report Number : GLCS/TR/08104/2024-25

Report Date : 17-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore-		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE-	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 1	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08104
Location Name	CORE ZONE	Date of Analysis	30-12-2024
Sampling Hours	7.45 - 7.45	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'55.64"N 77° 6'43.26"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	08.45	32.9	40.1	37.85
2	09.45	34.2	41.9	39.57
3	10.45	36.3	42.5	40.42
4	11.45	34.1	43.6	41.05
5	12.45	34.7	46.5	43.77
6	13.45	34.9	45.8	43.13
7	14.45	34.2	43.3	40.79
8	15.45	34.1	44.7	40.05

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



Page 1 of 3

Authorised Signatory
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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 1	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08104
Location Name	CORE ZONE	Date of Analysis	30-12-2024
Sampling Hours	7.45 - 7.45	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'55.64"N 77° 6'43.26"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	16.45	35.5	45.3	38.79
10	17.45	36.3	42.1	40.10
11	18.45	32.2	41.3	38.79
12	19.45	32.7	37.5	35.73
13	20.45	30.5	36.1	34.15
14	21.45	32.5	37.2	35.46
15	22.45	31.7	36.8	34.96
16	23.45	32.3	36.1	34.60

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BRANCH OFFICES : CHENNAI (Mobile : 7094453636) & COIMBATORE (Mobile : 7094454646)

TEST REPORT

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Report Date : 17-01-2025

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 1	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08104
Location Name	CORE ZONE	Date of Analysis	30-12-2024
Sampling Hours	7.45 - 7.45	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'55.64"N 77° 6'43.26"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	00.45	31.6	35.6	34.05
18	01.45	31.1	35.7	35.33
19	02.45	32.3	37.1	35.33
20	03.45	33.8	36.9	35.62
21	04.45	31.2	35.2	33.65
22	05.45	32.8	36.6	35.10
23	06.45	35.6	37.5	36.65
24	07.45	33.1	39.8	37.63
Day Mean dB(A)				39.4
Night Mean dB(A)				34.7
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial Area)				Day Time : 75 dB (A)
				Night Time : 70 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



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Technical Manager

Page 3 of 3

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TEST REPORT

ULR-TC606025000000481F

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Report Date : 17-01-2025

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 2	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08105
Location Name	CORE ZONE	Date of Analysis	30-12-2024
Sampling Hours	08.10 - 08.10	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'46.62"N 77° 6'47.59"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	09.10	36.1	45.9	43.32
2	10.10	34.5	38.5	36.95
3	11.10	39.4	49.9	47.26
4	12.10	40.2	52.6	49.83
5	13.10	41.9	55.1	52.29
6	14.10	39.8	55.2	52.31
7	15.10	41.8	53.9	51.15
8	16.10	40.5	51.4	48.73

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Report Number : GLCS/TR/08105/2024-25

Report Date : 17-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore-		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE-	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 2	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08105
Location Name	CORE ZONE	Date of Analysis	30-12-2024
Sampling Hours	08.10 - 08.10	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'46.62"N 77° 6'47.59"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	17.10	38.9	50.6	47.87
10	18.10	34.1	36.5	35.46
11	19.10	33.6	35.5	34.65
12	20.10	32.9	36.1	34.79
13	21.10	33.7	37.4	35.93
14	22.10	32.1	36.9	35.13
15	23.10	31.6	35.5	33.97
16	00.10	32.2	36.3	37.72

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



Page 2 of 3

Authorised Signatory
L.Sudha Priya
 Technical Manager

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TEST REPORT

ULR-TC606025000000481F

Report Number : GLCS/TR/08105/2024-25

Report Date : 17-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore-		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE-	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 2	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08105
Location Name	CORE ZONE	Date of Analysis	30-12-2024
Sampling Hours	08.10 - 08.10	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'46.62"N 77° 6'47.59"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	01.10	33.9	37.1	35.79
18	02.10	32.8	39.5	37.33
19	03.10	33.5	40.2	39.03
20	04.10	34.2	42.2	39.83
21	05.10	32.9	44.3	41.59
22	06.10	39.1	45.1	43.06
23	07.10	37.5	49.2	46.47
24	08.10	38.5	47.1	44.65
Day Mean dB(A)				44.0
Night Mean dB(A)				36.9
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial Area)				Day Time : 75 dB (A)
				Night Time : 70 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

Page 3 of 3

*****End of Report*****

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TEST REPORT

ULR-TC606025000000482F

Report Number : GLCS/TR/08106/2024-25

Report Date : 17-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore-		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE-	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 3	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08106
Location Name	SN PALAYAM	Date of Analysis	30-12-2024
Sampling Hours	08.40 - 08.40	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°56'23.14"N 77° 8'22.82"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	09.40	36.6	42.5	40.48
2	10.40	37.2	51.7	48.84
3	11.40	38.5	52.3	49.47
4	12.40	39.6	53.9	51.05
5	13.40	40.1	54.2	51.36
6	14.40	42.8	51.8	49.30
7	15.40	41.7	53.2	50.49
8	16.40	38.6	52.7	49.86

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



Page 1 of 3

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 3	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08106
Location Name	SN PALAYAM	Date of Analysis	30-12-2024
Sampling Hours	08.40 - 08.40	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°56'23.14"N 77° 8'22.82"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	17.40	39.1	51.5	48.73
10	18.40	40.2	50.3	47.69
11	19.40	40.4	51.7	49.00
12	20.40	38.6	55.3	52.38
13	21.40	37.1	48.1	45.42
14	22.40	34.2	47.6	44.78
15	23.40	32.5	40.2	37.87
16	00.40	32.3	38.5	36.42

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Page 2 of 3

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 3	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08106
Location Name	SN PALAYAM	Date of Analysis	30-12-2024
Sampling Hours	08.40 - 08.40	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°56'23.14"N 77° 8'22.82"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	01.40	33.6	39.1	37.17
18	02.40	32.7	37.1	35.43
19	03.40	33.9	39.6	37.62
20	04.40	33.1	39.3	37.22
21	05.40	32.7	37.1	35.43
22	06.40	32.4	38.2	37.20
23	07.40	32.6	40.3	37.97
24	08.40	34.5	41.9	39.62
Day Mean dB(A)				45.7
Night Mean dB(A)				35.0
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Residential Area)				Day Time : 55 dB (A)
				Night Time : 45 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



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Technical Manager

Page 3 of 3

*****End of Report*****

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TEST REPORT

ULR-TC606025000000483F

Report Number : GLCS/TR/08107/2024-25

Report Date : 17-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore-		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE-	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 4	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08107
Location Name	BOGAMPATTI	Date of Analysis	30-12-2024
Sampling Hours	09.15 - 09.15	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'17.66"N 77° 7'27.41"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	10.15	35.3	59.1	56.11
2	11.15	32.6	53.5	50.52
3	12.15	34.9	53.6	50.65
4	13.15	38.5	56.3	53.36
5	14.15	40.1	54.4	51.55
6	15.15	42.7	54.6	51.86
7	16.15	40.2	55.7	52.81
8	17.15	39.8	53.6	50.77

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



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Page 1 of 3

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 4	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08107
Location Name	BOGAMPATTI	Date of Analysis	30-12-2024
Sampling Hours	09.15 - 09.15	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'17.66"N 77° 7'27.41"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	18.15	38.3	52.1	49.27
10	19.15	37.4	56.3	53.35
11	20.15	35.6	50.5	47.63
12	21.15	32.3	49.2	46.28
13	22.15	32.2	46.5	43.65
14	23.15	32.7	43.5	40.84
15	00.15	32.3	40.1	37.76
16	01.15	33.3	38.5	36.64

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Page 2 of 3

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 4	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08107
Location Name	BOGAMPATTI	Date of Analysis	30-12-2024
Sampling Hours	09.15 - 09.15	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°54'17.66"N 77° 7'27.41"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	02.15	32.9	30.5	31.86
18	03.15	34.1	39.7	37.75
19	04.15	33.8	38.5	36.76
20	05.15	34.2	40.5	38.40
21	06.15	33.4	40.5	42.75
22	07.15	33.2	46.1	43.31
23	08.15	35.6	49.5	46.66
24	09.15	36.7	53.6	50.68
Day Mean dB(A)				49.5
Night Mean dB(A)				38.0
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial Area)				Day Time : 75 dB (A)
				Night Time : 70 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



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L.Sudha Priya
Technical Manager

Page 3 of 3

*****End of Report*****

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TEST REPORT

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Report Date : 17-01-2025

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 5	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08108
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	30-12-2024
Sampling Hours	09.45 - 09.45	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'15.52"N 77° 9'15.45"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	10.45	40.5	49.2	46.74
2	11.45	41.5	52.1	49.45
3	12.45	42.5	55.4	52.61
4	13.45	40.8	56.3	53.41
5	14.45	41.7	50.8	48.29
6	15.45	42.3	53.6	50.90
7	16.45	39.6	55.1	52.21
8	17.45	37.1	54.8	51.86

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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 5	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08108
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	30-12-2024
Sampling Hours	09.45 - 09.45	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'15.52"N 77° 9'15.45"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	18.45	36.3	57.1	54.13
10	19.45	34.7	55.6	52.62
11	20.45	35.3	51.1	48.20
12	21.45	33.6	50.2	47.28
13	22.45	35.1	41.7	39.55
14	23.45	35.8	39.8	38.03
15	00.45	33.3	37.8	36.11
16	01.45	34.8	39.1	37.46

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Report Number : GLCS/TR/08108/2024-25

Report Date : 17-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore-		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE-	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 5	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08108
Location Name	LAKSHMINAICKENPALAYAM	Date of Analysis	30-12-2024
Sampling Hours	09.45 - 09.45	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'15.52"N 77° 9'15.45"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	02.45	34.1	40.2	38.14
18	03.45	33.6	36.9	35.56
19	04.45	34.7	39.1	37.43
20	05.45	33.2	39.1	37.08
21	06.45	34.7	38.5	37.00
22	07.45	35.6	45.6	43.00
23	08.45	37.1	47.1	44.50
24	09.45	38.5	50.1	47.38
Day Mean dB(A)				48.9
Night Mean dB(A)				37.1
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Residential Area)				Day Time : 55 dB (A)
				Night Time : 45 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

Page 3 of 3

*****End of Report*****

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TEST REPORT

ULR-TC606025000000485F

Report Number : GLCS/TR/08109/2024-25

Report Date : 17-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore-		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE-	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 6	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08109
Location Name	PANAPATTI	Date of Analysis	30-12-2024
Sampling Hours	10.45 - 10.45	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'43.62"N 77° 6'1.10"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	11.45	42.9	54.8	52.06
2	12.45	45.6	55.4	52.82
3	13.45	42.7	56.3	53.48
4	14.45	44.3	57.2	54.41
5	15.45	42.9	54.2	51.50
6	16.45	41.5	53.3	50.57
7	17.45	39.1	51.2	48.45
8	18.45	38.7	47.5	45.03

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



Page 1 of 3

Authorised Signatory
L.Sudha Priya
 Technical Manager

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BRANCH OFFICES : CHENNAI (Mobile : 7094453636) & COIMBATORE (Mobile : 7094454646)

TEST REPORT

ULR-TC606025000000485F

Report Number : GLCS/TR/08109/2024-25

Report Date : 17-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore-		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE-	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 6	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08109
Location Name	PANAPATTI	Date of Analysis	30-12-2024
Sampling Hours	10.45 - 10.45	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'43.62"N 77° 6'1.10"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	19.45	36.8	45.9	43.39
10	20.45	35.2	43.4	41.00
11	21.45	34.9	41.5	39.35
12	22.45	34.7	40.8	38.74
13	23.45	32.6	38.1	36.17
14	00.45	33.9	37.6	36.13
15	01.45	34.1	38.4	36.76
16	02.45	32.8	37.2	35.53

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



Page 2 of 3

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L.Sudha Priya
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TEST REPORT

ULR-TC606025000000485F

Report Number : GLCS/TR/08109/2024-25

Report Date : 17-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore-		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE-	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 6	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08109
Location Name	PANAPATTI	Date of Analysis	30-12-2024
Sampling Hours	10.45 - 10.45	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°52'43.62"N 77° 6'1.10"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	03.45	30.2	35.1	33.31
18	04.45	33.8	36.9	35.62
19	05.45	32.7	35.4	34.26
20	06.45	33.1	38.1	36.28
21	07.45	34.6	45.2	42.55
22	08.45	37.8	46.9	44.39
23	09.45	36.3	48.1	45.37
24	10.45	40.1	52.3	49.54
Day Mean dB(A)				47.0
Night Mean dB(A)				35.9
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial Area)				Day Time : 75 dB (A)
				Night Time : 70 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



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Page 3 of 3

*****End of Report*****

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TEST REPORT

ULR-TC606025000000486F

Report Number : GLCS/TR/08110/2024-25

Report Date : 17-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore-		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE-	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 7	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08110
Location Name	CHINNAKUYILI	Date of Analysis	30-12-2024
Sampling Hours	11.45 - 11.45	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'39.20"N 77° 5'13.11"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
1	12.45	41.2	53.5	50.74
2	13.45	40.5	51.7	49.01
3	14.45	42.9	53.3	50.67
4	15.45	40.8	51.1	48.48
5	16.45	40.1	54.4	51.55
6	17.45	41.4	52.9	50.19
7	18.45	38.9	50.7	47.97
8	19.45	39.8	47.9	45.52

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



Page 1 of 3

Authorised Signatory
L.Sudha Priya
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Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 7	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08110
Location Name	CHINNAKUYILI	Date of Analysis	30-12-2024
Sampling Hours	11.45 - 11.45	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'39.20"N 77° 5'13.11"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
9	20.45	30.9	39.5	36.26
10	21.45	31.4	38.5	36.26
11	22.45	30.5	39.1	36.65
12	23.45	31.4	36.6	34.74
13	00.45	30.9	37.4	35.27
14	01.45	32.4	38.5	36.44
15	02.45	30.9	39.1	36.70
16	03.45	31.1	38.5	36.22

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Page 2 of 3

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TEST REPORT

ULR-TC606025000000486F

Report Number : GLCS/TR/08110/2024-25

Report Date : 17-01-2025

Issued To : Thiru.V.Saravanan S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore-		Site Address: Thiru.V.Saravanan Rough Stone and Gravel Quarry SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk COIMBATORE-	
Attention	Thiru.V.Saravanan	Sample Condition	Good
TRF No.	TRF/2732	Sampled by	Laboratory
Sample Name	AMBIENT NOISE MONITORING - 7	Sampling Method	GLCS/SOP/N/014
Sampling Description	-	Sample Code	GLCS/08110
Location Name	CHINNAKUYILI	Date of Analysis	30-12-2024
Sampling Hours	11.45 - 11.45	Date of Completion	30-12-2024
Sampling Date	17-12-2024 - 18-12-2024	Avg Temperature	- °C
Sampling Receipt Date	26-12-2024	Avg Humidity	- %
Location Co-ordinates		10°55'39.20"N 77° 5'13.11"E	

Sl.No.	Time(Hrs)	Min dB (A) Day	Max dB (A) Day	Leq dB (A) Day
17	04.45	31.5	37.1	35.38
18	05.45	32.5	38.6	36.67
19	06.45	33.1	38.6	36.67
20	07.45	35.6	44.5	42.02
21	08.45	34.9	43.9	41.40
22	09.45	37.4	41.9	40.21
23	10.45	38.1	48.5	45.87
24	11.45	40.9	51.1	48.49
Day Mean dB(A)				44.5
Night Mean dB(A)				36.1
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Residential Area)				Day Time : 55 dB (A)
				Night Time : 45 dB (A)

Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,



For Global Lab and Consultancy Services LLP



Authorised Signatory
L.Sudha Priya
Technical Manager

Page 3 of 3

*****End of Report*****

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SUMMARY REPORT

Issued To	Thiru.V,Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ1 – Core Zone
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5390,5419,5647,5668,5841,5906,6042, 6042,6094,6337,6360,6678,6738,7081,7140, 7432,7510,8055,8097,8302,8332,8620,8648,9075,9089,9318,9349		
Location Coordinates	10°54'52.83"N 77° 6'43.96"E		
Report Date	07.02.2025		

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)
21/10/2024	7.15-7.15	48.4	22.9	4.5	19.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22/10/2024	7.20-7.20	42.8	20.0	BDL(DL:4.0)	22.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28/10/2024	7.15-7.15	40.4	19.5	5.0	19.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
29/10/2024	7.30-7.30	42.6	20.4	4.2	22.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04/11/2024	7.15-7.15	40.7	19.1	4.9	21.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
05/11/2024	7.30-7.30	41.6	20.4	4.3	22.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11/11/2024	7.15 - 7.15	40.5	18.7	4.4	20.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
12/11/2024	7.25 - 7.25	41.9	19.5	5.1	22.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18/11/2024	7.15 - 7.15	42.4	21.6	4.6	23.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
19/11/2024	7.30 - 7.30	42.3	22.8	4.2	23.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25/11/2024	7.30 - 7.30	40.3	21.2	4.5	19.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
26/11/2024	7.40 - 7.40	40.2	19.2	BDL(DL:4.0)	18.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02/12/2024	7.30-7.30	40.9	21.6	4.7	17.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03/12/2024	7.40-7.40	42.8	22.5	4.5	18.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09/12/2024	7.30-7.30	43.0	22.0	4.1	19.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10/12/2024	7.40-7.40	42.5	19.5	5.1	17.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16/12/2024	7.00-7.00	40.9	19.5	BDL(DL:4.0)	19.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17/12/2024	7.15-7.15	42.8	19.2	4.3	19.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23/12/2024	7.00-7.00	42.4	22.9	4.5	19.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24/12/2024	7.15-7.15	40.6	19.5	4.7	18.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30/12/2024	7.20-7.20	41.4	20.4	4.3	17.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
31/12/2024	7.30-7.30	40.9	20.0	4.5	16.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06/01/2025	7.20-7.20	41.5	20.4	4.8	18.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07/01/2025	7.30-7.30	40.8	20.8	5.4	17.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13/01/2025	7.10-7.10	40.9	20.0	5.2	21.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14/01/2025	7.20-7.20	42.6	21.6	4.6	19.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Thiru.V,Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ1 – Core Zone
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5390,5419,5647,5668,5841,5906, 6042,6094, 6337,6360, 6678,6738, 7081,7140, 7432,7510, 8055,8097,8302,8332,8620,8648,9075,9089,9318,9349		
Location Coordinates	10°54'52.83"N 77° 6'43.96"E		
Report Date	07.02.2025		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb(µg/m ³)
21/10/2024	7.15-7.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22/10/2024	7.20-7.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28/10/2024	7.15-7.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29/10/2024	7.30-7.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04/11/2024	7.15-7.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05/11/2024	7.30-7.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11/11/2024	7.15 - 7.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12/11/2024	7.25 - 7.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18/11/2024	7.15 - 7.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19/11/2024	7.30 - 7.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25/11/2024	7.30 - 7.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26/11/2024	7.40 - 7.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02/12/2024	7.30-7.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03/12/2024	7.40-7.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09/12/2024	7.30-7.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10/12/2024	7.40-7.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16/12/2024	7.00-7.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17/12/2024	7.15-7.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23/12/2024	7.00-7.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24/12/2024	7.15-7.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30/12/2024	7.20-7.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
31/12/2024	7.30-7.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06/01/2025	7.20-7.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07/01/2025	7.30-7.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13/01/2025	7.10-7.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14/01/2025	7.20-7.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA
Technical Manager

*****End of Report*****

Page 2 of 2

216 A



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

S.F.No.92/3A2, Geetha Nagar,

Alagapuram Pudur,

Salem - 636 016. Tamil Nadu.

Phone: 0427 - 2970989 / +91 70944 52628

E-Mail: lab@glcs.in

Web: www.glcs.in

SUMMARY REPORT

Issued To	Thiru.V,Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 2 – Core Zone-Near Project Area
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5391,5420,5648,5669,5842,5907, 6043,6095, 6338,6361, 6679,6739, 7082,7141, 7433,7511, 8056,8098,8303,8333,8621,8649,9076,9090,9319,9350		
Location Coordinates	10°54'44.79"N 77° 6'52.63"E		
Report Date	07.02.2025		

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)
21/10/2024	7.50-7.50	49.8	22.5	4.9	19.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22/10/2024	7.55-7.55	42.1	19.5	BDL(DL:4.0)	21.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28/10/2024	7.45-7.45	41.0	20.4	BDL(DL:4.0)	19.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
29/10/2024	7.50-7.50	41.6	20.0	4.8	20.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04/11/2024	7.45-7.45	41.6	19.5	BDL(DL:4.0)	21.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
05/11/2024	7.50-7.50	42.5	21.6	4.8	20.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11/11/2024	7.45 - 7.45	41.6	20.8	BDL(DL:4.0)	19.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
12/11/2024	7.50 - 7.50	43.6	22.5	4.5	21.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18/11/2024	7.45 - 7.45	42.0	22.9	BDL(DL:4.0)	22.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
19/11/2024	7.50 - 7.50	41.0	21.2	4.9	20.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25/11/2024	7.50 - 7.50	42.6	23.7	4.1	18.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
26/11/2024	8.00-8.00	42.3	20.8	4.2	19.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02/12/2024	7.50 - 7.50	42.4	24.1	BDL(DL:4.0)	18.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03/12/2024	8.00-8.00	42.3	20.8	4.1	17.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09/12/2024	7.50 - 7.50	42.0	21.2	4.3	19.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10/12/2024	8.00-8.00	42.1	21.2	4.3	19.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16/12/2024	7.35-7.35	42.0	21.2	4.2	19.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17/12/2024	7.45-7.45	43.1	22.5	BDL(DL:4.0)	18.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23/12/2024	7.35-7.35	41.9	20.8	4.2	20.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24/12/2024	7.45-7.45	42.0	20.8	4.3	18.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30/12/2024	7.40-7.40	42.2	21.6	BDL(DL:4.0)	17.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
31/12/2024	7.50-7.50	42.0	20.4	BDL(DL:4.0)	18.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06/01/2025	7.20-7.20	42.3	20.5	4.3	23.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07/01/2025	7.50-7.50	42.0	22.0	BDL(DL:4.0)	18.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13/01/2025	7.20-7.20	47.6	24.1	4.1	20.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14/01/2025	7.30-7.30	42.2	23.3	4.2	18.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Thiru.V,Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 2 – Core Zone-Near Project Area
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5391,5420,5648,5669,5842,5907, 6043,6095, 6338,6361, 6679,6739, 7082,7141, 7433,7511, 8056,8098,8303,8333,8621,8649,9076,9090,9319,9350		
Location Coordinates	10°54'44.79"N 77° 6'52.63"E		
Report Date	07.02.2025		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb(µg/m ³)
21/10/2024	7.50-7.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22/10/2024	7.55-7.55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28/10/2024	7.45-7.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29/10/2024	7.50-7.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04/11/2024	7.45-7.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05/11/2024	7.50-7.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11/11/2024	7.45 - 7.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12/11/2024	7.50 - 7.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18/11/2024	7.45 - 7.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19/11/2024	7.50 - 7.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25/11/2024	7.50 - 7.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26/11/2024	8.00-8.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02/12/2024	7.50 - 7.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03/12/2024	8.00-8.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09/12/2024	7.50 - 7.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10/12/2024	8.00-8.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16/12/2024	7.35-7.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17/12/2024	7.45-7.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23/12/2024	7.35-7.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24/12/2024	7.45-7.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30/12/2024	7.40-7.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
31/12/2024	7.50-7.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06/01/2025	7.20-7.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07/01/2025	7.50-7.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13/01/2025	7.20-7.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14/01/2025	7.30-7.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

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 2 of 2

Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Thiru.V,Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 3 – SN palayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5392,5421,5649,5670,5843,5908, 6044,6096, 6339,6362, 6680,6740, 7083,7142, 7434,7512, 8057,8099,8304,8334,8622,8650,9077,9091,9320,9351		
Location Coordinates	10°56'23.05"N 77° 8'23.14"E		
Report Date	07.02.2025		

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)
21/10/2024	8.20-8.20	47.6	21.6	BDL(DL:4.0)	26.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22/10/2024	8.25-8.25	44.1	21.2	BDL(DL:4.0)	21.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28/10/2024	8.15-8.15	42.8	22.9	5.2	21.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
29/10/2024	8.25-8.25	45.2	23.3	4.4	18.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04/11/2024	8.15-8.15	48.0	25.3	4.94	20.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
05/11/2024	8.25-8.25	44.6	24.1	5.2	19.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11/11/2024	8.05-8.05	42.1	21.6	5.2	19.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
12/11/2024	8.15-8.15	42.7	21.6	4.9	19.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18/11/2024	8.15-8.15	43.7	24.1	4.6	23.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
19/11/2024	8.25-8.25	44.8	24.5	4.1	17.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25/11/2024	8.25-8.25	44.1	25.4	6.0	20.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
26/11/2024	8.30-8.30	44.0	22.4	4.6	20.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02/12/2024	8.25-8.25	44.2	24.5	5.5	20.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03/12/2024	8.30-8.30	45.5	24.9	4.6	19.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09/12/2024	8.25-8.25	45.2	24.5	5.1	20.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10/12/2024	8.30-8.30	45.2	24.1	BDL(DL:4.0)	20.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16/12/2024	8.00-8.00	43.1	23.3	4.8	20.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17/12/2024	8.05-8.05	44.5	23.7	4.5	22.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23/12/2024	8.00-8.00	43.9	23.3	4.5	20.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24/12/2024	8.05-8.05	43.6	21.6	4.1	18.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30/12/2024	8.15-8.15	44.9	22.9	4.8	18.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
31/12/2024	8.25-8.25	44.5	22.0	BDL(DL:4.0)	18.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06/01/2025	8.15-8.15	45.7	24.5	4.6	18.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07/01/2025	8.25-8.25	44.6	23.3	4.1	19.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13/01/2025	7.45-7.45	46.4	25.4	4.5	20.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14/01/2025	7.55-7.55	47.1	27.0	5.8	20.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Thiru.V,Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 3 – SN palayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5392,5421,5649,5670,5843,5908, 6044,6096, 6340,6363, 6680,6740, 7083,7142, 7434,7512, 8057,8099,8304,8334,8622,8650,9077,9091,9320,9351		
Location Coordinates	10°56'23.05"N 77° 8'23.14"E		
Report Date	07.02.2025		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb(µg/m ³)
21/10/2024	8.20-8.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22/10/2024	8.25-8.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28/10/2024	8.15-8.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29/10/2024	8.25-8.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04/11/2024	8.15-8.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05/11/2024	8.25-8.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11/11/2024	8.05-8.05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12/11/2024	8.15-8.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18/11/2024	8.15-8.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19/11/2024	8.25-8.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25/11/2024	8.25-8.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26/11/2024	8.30-8.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02/12/2024	8.25-8.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03/12/2024	8.30-8.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09/12/2024	8.25-8.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10/12/2024	8.30-8.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16/12/2024	8.00-8.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17/12/2024	8.05-8.05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23/12/2024	8.00-8.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24/12/2024	8.05-8.05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30/12/2024	8.15-8.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
31/12/2024	8.25-8.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06/01/2025	8.15-8.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07/01/2025	8.25-8.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13/01/2025	7.45-7.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14/01/2025	7.55-7.55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA
Technical Manager

*****End of Report*****

Page 2 of 2



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

S.F.No.92/3A2, Geetha Nagar,

Alagapuram Pudur,

Salem - 636 016. Tamil Nadu.

Phone: 0427 - 2970989 / +91 70944 52628

E-Mail: lab@glcs.in

Web: www.glcs.in

SUMMARY REPORT

Issued To	Thiru.V,Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 4 – Bagampatti
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5393,5422,5650,5671,5844,5909, 6045,6097, 6341,6364, 6681,6741, 7084,7143, 7435,7513, 8058,8100,8305,8335,8623,8651,9078,9092,9321,9352		
Location Coordinates	10°54'17.60"N 77° 7'27.62"E		
Report Date	07.02.2025		

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)
21/10/2024	8.45-8.45	46.7	21.2	BDL(DL:4.0)	22.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22/10/2024	8.50-8.50	42.6	20.8	BDL(DL:4.0)	20.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28/10/2024	8.45-8.45	43.8	23.3	4.4	21.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
29/10/2024	9.00-9.00	44.0	22.5	5.0	19.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04/11/2024	8.45-8.45	43.4	23.7	5.1	20.64	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
05/11/2024	9.00-9.00	44.4	24.9	5.2	19.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11/11/2024	8.30-8.30	44.9	24.1	5.3	19.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
12/11/2024	8.40-8.40	43.8	24.1	5.4	20.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18/11/2024	8.45-8.45	44.6	25.4	5.0	23.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
19/11/2024	9.00-9.00	46.0	25.8	4.5	19.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25/11/2024	9.00-9.00	45.1	26.2	BDL(DL:4.0)	17.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
26/11/2024	9.10-9.10	45.5	24.1	4.9	21.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02/12/2024	9.00-9.00	45.8	25.8	5.2	19.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03/12/2024	9.10-9.10	44.0	24.1	5.8	19.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09/12/2024	9.00-9.00	46.7	25.4	5.0	20.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10/12/2024	9.10-9.10	47.3	27.8	4.9	20.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16/12/2024	8.20-8.20	46.3	27.4	4.7	20.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17/12/2024	8.30-8.30	47.0	27.0	4.8	22.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23/12/2024	8.25-8.25	45.3	24.5	4.8	21.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24/12/2024	8.30-8.30	45.2	24.1	BDL(DL:4.0)	19.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30/12/2024	8.55-8.55	46.0	24.5	5.0	19.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
31/12/2024	9.00-9.00	46.0	23.7	4.5	19.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06/01/2025	8.55-8.55	46.6	25.8	5.5	20.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07/01/2025	9.00-9.00	47.8	27.0	4.3	19.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13/01/2025	8.10-8.10	47.1	26.6	4.8	20.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14/01/2025	8.20-8.20	44.7	24.1	BDL(DL:4.0)	18.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Thiru.V,Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 4 – Bagampatti
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5393,5422,5650,5671,5844,5909, 6045,6097, 6341,6364, 6681,6741, 7084,7143, 7435,7513, 8058,8100,8305,8335,8623,8651,9078,9092,9321,9352		
Location Coordinates	10°54'17.60"N 77° 7'27.62"E		
Report Date	07.02.2025		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb(µg/m ³)
21/10/2024	8.45-8.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22/10/2024	8.50-8.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28/10/2024	8.45-8.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29/10/2024	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04/11/2024	8.45-8.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05/11/2024	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11/11/2024	8.30-8.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12/11/2024	8.40-8.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18/11/2024	8.45-8.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19/11/2024	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25/11/2024	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26/11/2024	9.10-9.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02/12/2024	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03/12/2024	9.10-9.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09/12/2024	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10/12/2024	9.10-9.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16/12/2024	8.20-8.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17/12/2024	8.30-8.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23/12/2024	8.55-8.55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24/12/2024	8.30-8.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30/12/2024	8.55-8.55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
31/12/2024	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06/01/2025	8.55-8.55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07/01/2025	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13/01/2025	8.10-8.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14/01/2025	8.20-8.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note:BDL: Below Detection Limit; DL: Detection Limit**Remarks:** The values observed for the pollutants given above are within the CPCB standards.

Verified by

L. SUDHAPRIYA
 Technical Manager

 *****End of Report*****
 Page 2 of 2

SUMMARY REPORT

Issued To	Thiru.V.Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 5 – Lakshmi naickenpaayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5394,5423,5651,5672,5845,5910, 6046,6098, 6342,6365, 6682,6742, 7085,7144, 7436,7514, 8059,8101,8306,83368624,8652,9079,9093,9322,9353		
Location Coordinates	10°55'15.25"N 77° 9'15.62"E		
Report Date	07.02.2025		

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)
21/10/2024	9.10-9.10	44.9	20.8	BDL(DL:4.0)	21.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22/10/2024	9.15-9.15	41.3	20.4	5.3	20.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28/10/2024	9.15-9.15	45.0	24.5	4.6	22.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
29/10/2024	9.25-9.25	43.1	22.0	5.2	20.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04/11/2024	9.15-9.15	45.1	24.1	5.3	20.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
05/11/2024	9.25-9.25	45.2	22.5	5.7	19.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11/11/2024	9.00-9.00	42.8	21.2	BDL(DL:4.0)	20.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
12/11/2024	9.10-9.10	45.6	24.9	5.0	19.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18/11/2024	9.15-9.15	45.0	26.6	5.1	20.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
19/11/2024	9.25-9.25	46.1	26.6	4.6	21.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25/11/2024	9.25-9.25	46.1	25.7	4.6	18.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
26/11/2024	9.35-9.35	47.0	26.6	5.1	21.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02/12/2024	9.25-9.25	41.8	22.0	4.5	19.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03/12/2024	9.35-9.35	46.8	27.0	5.4	19.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09/12/2024	9.25-9.25	46.4	27.0	4.9	19.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10/12/2024	9.35-9.35	46.9	26.6	6.2	20.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16/12/2024	8.55-8.55	44.8	24.1	5.0	20.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17/12/2024	9.00-9.00	45.6	26.2	4.7	20.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23/12/2024	8.55-8.55	46.1	25.4	4.8	20.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24/12/2024	9.00-9.00	45.8	25.4	5.2	19.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30/12/2024	9.15-9.15	46.5	25.8	5.1	22.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
31/12/2024	9.25-9.25	46.8	25.4	4.4	21.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06/01/2025	9.15-9.15	48.1	27.9	4.6	18.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07/01/2025	9.25-9.25	46.1	25.4	4.5	23.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13/01/2025	8.30-8.30	47.6	27.9	4.1	21.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14/01/2025	8.40-8.40	46.9	25.8	4.3	18.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note:BDL: Below Detection Limit; DL: Detection Limit**Remarks:** The values observed for the pollutants given above are within the CPCB standards.

Verified by

L. SUDHAPRIYA
 Technical 223 A

SUMMARY REPORT

Issued To	Thiru.V.Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Suler Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 5 – Lakshmi naickenpalayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5394,5423,5651,5672,5845,5910, 6046,6098, 6342,6365, 6682,6742, 7085,7144, 7436,7514, 8059,8101,8306,8336,8624,8652,9079,9093,9322,9353		
Location Coordinates	10°55'15.25"N 77° 9'15.62"E		
Report Date	07.02.2025		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb(µg/m ³)
21/10/2024	9.10-9.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22/10/2024	9.15-9.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28/10/2024	9.15-9.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29/10/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04/11/2024	9.15-9.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05/11/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11/11/2024	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12/11/2024	9.10-9.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18/11/2024	9.15-9.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19/11/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25/11/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26/11/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02/12/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03/12/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09/12/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10/12/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16/12/2024	8.55-8.55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17/12/2024	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23/12/2024	8.55-8.55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24/12/2024	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30/12/2024	9.15-9.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
31/12/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06/01/2025	9.15-9.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07/01/2025	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13/01/2025	8.30-8.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14/01/2025	8.40-8.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note:BDL: Below Detection Limit; DL: Detection Limit**Remarks:** The values observed for the pollutants given above are within the CPCB standards.

Verified by

*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

S.F.No.92/3A2, Geetha Nagar,

Alagapuram Pudur,

Salem - 636 016. Tamil Nadu.

Phone: 0427 - 2970989 / +91 70944 52628

E-Mail: lab@glcs.in

Web: www.glcs.in

SUMMARY REPORT

Issued To	Thiru.V.Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 6 - Panapatti
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5395,5424,5652,5673,5846,5911, 6047,6099, 6343,6366, 6683,6743, 7086,7145, 7437,7515, 8060,8102,8307,8337,8625,8653,9080,9094,9323,9354		
Location Coordinates	10°52'43.85"N 77° 6'1.60"E		
Report Date	07.02.2025		

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)
21/10/2024	9.30-9.30	46.0	21.2	4.3	21.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22/10/2024	9.35-9.35	42.8	21.6	4.1	19.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28/10/2024	9.40-9.40	43.5	24.1	5.1	21.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
29/10/2024	9.50-9.50	42.5	21.2	5.5	20.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04/11/2024	9.40-9.40	44.8	23.3	5.0	19.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
05/11/2024	9.50-9.50	42.8	19.5	5.0	18.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11/11/2024	9.25-9.25	40.8	20.4	4.4	21.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
12/11/2024	9.35-9.35	43.4	23.3	4.5	19.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18/11/2024	9.40-9.40	44.8	25.8	4.8	19.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
19/11/2024	9.50-9.50	43.6	23.7	5.1	22.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25/11/2024	9.50-9.50	47.4	24.5	4.8	20.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
26/11/2024	10.00-10.00	45.9	25.7	4.9	17.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02/12/2024	9.50-9.50	43.8	23.7	4.9	20.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03/12/2024	10.00-10.00	45.0	26.2	4.7	18.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09/12/2024	9.50-9.50	44.6	24.1	5.2	20.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10/12/2024	10.00-10.00	45.0	25.4	6.0	20.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16/12/2024	9.35-9.35	46.1	25.8	5.2	20.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17/12/2024	9.35-9.35	46.3	26.6	5.5	20.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23/12/2024	9.35-9.35	47.1	27.0	4.7	18.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24/12/2024	9.25-9.25	44.9	24.5	5.1	22.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30/12/2024	9.15-9.15	46.5	26.6	6.2	20.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
31/12/2024	9.25-9.25	47.9	25.8	4.7	19.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06/01/2025	9.15-9.15	47.3	26.6	5.1	20.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07/01/2025	9.25-9.25	47.2	24.5	4.8	19.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13/01/2025	9.00-9.00	48.3	26.2	5.8	20.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14/01/2025	9.10-9.10	47.1	26.6	4.9	19.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA
Technical Manager

225 A

SUMMARY REPORT

Issued To	Thiru.V.Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 6 - Panapatti
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5395,5424,5652,5673,5846,5911,6047,6099, 6343,6366, 6683,6743, 7086,7145, 7438,7516, 7437,7515, 8060,8102,8307,8337,8625,8653,9080,9094,9323,9354		
Location Coordinates	10°52'43.85"N 77° 6'1.60"E		
Report Date	07.02.2025		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb(µg/m ³)
21/10/2024	9.30-9.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22/10/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28/10/2024	9.40-9.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29/10/2024	9.50-9.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04/11/2024	9.40-9.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05/11/2024	9.50-9.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11/11/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12/11/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18/11/2024	9.40-9.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19/11/2024	9.50-9.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25/11/2024	9.50-9.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26/11/2024	10.00-10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02/12/2024	9.50-9.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03/12/2024	10.00-10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09/12/2024	9.50-9.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10/12/2024	10.00-10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16/12/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17/12/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23/12/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24/12/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30/12/2024	9.15-9.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
31/12/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06/01/2025	9.15-9.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07/01/2025	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13/01/2025	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14/01/2025	9.10-9.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

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 2 of 2

Verified by
L. SUDHAPRIYA
Technical Manager



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LABORATORY | CONSULTANCY | SUSTAINABILITY

S.F.No.92/3A2, Geetha Nagar,

Alagapuram Pudur,

Salem - 636 016. Tamil Nadu.

Phone: 0427 - 2970989 / +91 70944 52628

E-Mail: lab@glcs.in

Web: www.glcs.in

SUMMARY REPORT

Issued To	Thiru.V.Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 7 – Chinnakuili
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5396,5425,5653,5674,5847,5912, 6048,6100, 6344,6367, 6684,6744, 7087,7146, 7438,7516, 8061,8103,8308,8338,8626,8654,9081,9095,9324,9355		
Location Coordinates	10°55'39.11"N 77° 5'13.51"E		
Report Date	07.02.2025		

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)
21/10/2024	9.55-9.55	46.1	22.0	BDL(DL:4.0)	24.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
22/10/2024	10.00-10.00	44.1	22.5	BDL(DL:4.0)	19.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
28/10/2024	10.15-10.15	43.8	22.5	4.8	20.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
29/10/2024	10.30-10.30	44.4	23.3	5.3	21.2	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
04/11/2024	10.15-10.15	43.0	22.0	4.3	20.1	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
05/11/2024	10.30-10.30	43.6	21.2	4.6	19.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
11/11/2024	10.00-10.00	44.7	22.0	BDL(DL:4.0)	21.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
12/11/2024	10.10-10.10	42.2	22.0	BDL(DL:4.0)	20.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
18/11/2024	10.15-10.15	43.0	24.1	4.5	22.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
19/11/2024	10.30-10.30	42.8	22.5	BDL(DL:4.0)	23.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
25/11/2024	10.30-10.30	45.3	23.3	5.0	18.7	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
26/11/2024	10.00-10.00	44.3	23.7	4.8	18.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
02/12/2024	10.30-10.30	45.5	26.2	5.2	20.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
03/12/2024	10.40-40.40	44.0	24.5	5.2	19.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
09/12/2024	10.30-10.30	43.8	22.5	5.4	21.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
10/12/2024	10.40-40.40	43.9	23.7	BDL(DL:4.0)	19.5	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
16/12/2024	9.50-9.50	44.4	24.5	5.1	19.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
17/12/2024	10.00-10.00	47.2	27.0	5.0	20.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
23/12/2024	9.50-9.50	45.1	24.1	5.0	18.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
24/12/2024	10.00-10.00	46.0	26.2	5.3	21.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
30/12/2024	10.20-10.20	47.6	24.5	4.3	21.3	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
31/12/2024	10.30-10.30	48.2	27.0	5.0	21.8	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
06/01/2025	10.20-10.20	46.6	25.8	4.7	20.4	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
07/01/2025	10.30-10.30	46.7	26.2	5.5	18.6	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
13/01/2025	9.15-9.15	47.1	26.6	5.5	21.0	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
14/01/2025	9.25-9.25	46.0	24.5	5.1	18.9	BDL(DL:5.0)	BDL(DL:20.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note:BDL: Below Detection Limit; DL: Detection Limit**Remarks:** The values observed for the pollutants given above are within the CPCB standards.

Verified by

L. SUDHAPRIYA
Technical Manager

227 A

SUMMARY REPORT

Issued To	Thiru.V.Saravanan, S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam, Coimbatore District.		
Site Location	Rough Stone & Gravel Quarry, Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0), Edayarpalayam Village, Sulur Taluk, Coimbatore District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 7 – Chinnakulli
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5396,5425,5653,5674,5847,5912,6048,6100, 6344,6367, 6684,6744, 7087,7146, 7438,7516, 8061,8103,8308,8338,8626,8654,9081,9095,93249355		
Location Coordinates	10°55'39.11"N 77° 5'13.51"E		
Report Date	07.02.2025		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb(µg/m ³)
21/10/2024	9.30-9.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22/10/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28/10/2024	9.40-9.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29/10/2024	9.50-9.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04/11/2024	9.40-9.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05/11/2024	9.50-9.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11/11/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12/11/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18/11/2024	9.40-9.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19/11/2024	9.50-9.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25/11/2024	9.50-9.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26/11/2024	10.00-10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02/12/2024	9.50-9.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03/12/2024	10.00-10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09/12/2024	9.50-9.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
10/12/2024	10.00-10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16/12/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
17/12/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23/12/2024	9.35-9.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
24/12/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30/12/2024	9.15-9.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
31/12/2024	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06/01/2025	9.15-9.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07/01/2025	9.25-9.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13/01/2025	9.00-9.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14/01/2025	9.10-9.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA

Technical Manager

228 A

*****End of Report*****

Page 2 of 2

National Accreditation Board for Education and Training

Certificate of Accreditation

Geo Exploration and Mining Solutions, Salem

No. 17, Advaita Ashram Road, Fairlands, Salem, Tamil Nadu – 636 004

Geo Exploration and Mining Solutions, Salem is Re-Accredited (RA3) as Category-A organization under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations (Version 3), for the preparation of EIA/EMP reports in the sectors listed below, as per the specified categories

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals including opencast / underground mining	1	1 (a) (i)	A
2.	Mineral beneficiation	7	2 (b)	A
3.	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
4.	Building and construction projects	38	8 (a)	B

Note: Names of approved experts and sectors are mentioned in RAAC minutes dated August 21, 2025, 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/25/3827 dated August 25, 2025. The accreditation needs to be renewed before the expiry date by Geo Exploration and Mining Solutions, Salem following due process of assessment.

Valid up to
August 06, 2028

Issue Date
August 25, 2025



Certificate No.
NABET/EIA/25-28/RA 0424


 Prof (Dr) Varinder S Kanwar
 (CEO – NABET)

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